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HOUSE OF COMMONS
Special Committee on
Defence

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HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 1

TUESDAY, JUNE 18, 1963

THURSDAY, JUNE 27, 1963

WITNESS:

The Honourable Paul Hellyer, Minister of National Defence

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29120-3—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Fairweather,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

M. Slack,
Acting Clerk of the Committee.

ORDERS OF REFERENCE

FRIDAY, June 7, 1963.

Resolved,—That a Special Committee be appointed to consider matters relating to defence and to report from time to time its observations and opinions thereon; that the Committee have power to send for persons, papers and records and to examine witnesses; that it be empowered to adjourn from place to place; that Standing Order No. 67 be suspended in relation to the Committee; and that the Committee consist of 24 members to be designated by the House at a later date.

MONDAY, June 10, 1963.

Ordered,—That the Special Committee on Defence, appointed June 7, 1963, be composed of Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, and Winch.

TUESDAY, June 18, 1963.

Ordered,—That the Special Committee on Defence be empowered to print from day to day such papers and evidence as may be ordered by it, and that Standing Order 66 be suspended in relation thereto.

Attest.

LÉON-J. RAYMOND,
The Clerk of the House.

29120-3—1½

REPORT TO THE HOUSE

TUESDAY, June 18, 1963.

The Special Committee on Defence has the honour to present its

FIRST REPORT

Your Committee recommends that it be empowered to print from day to day such papers and evidence as may be ordered by the Committee, and that Standing Order 66 be suspended in relation thereto.

Respectfully submitted,

MAURICE SAUVÉ,
Chairman.

Note,—This Report was concurred in by the House on the same day.

MINUTES OF PROCEEDINGS

TUESDAY, June 18, 1963.
(1)

The Special Committee on Defence met at 10.00 a.m. this day, for organization purposes.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Temple, Winch (23).

The Clerk attending, and having called for nominations, Mr. Matheson moved, seconded by Mr. Asselin (*Notre-Dame-de-Grâce*), that Mr. Sauvé be elected Chairman of the Committee.

There being no further nominations, Mr. Sauvé was declared duly elected as Chairman.

The Chairman expressed his appreciation for the honour conferred on him.

The Chairman invited nominations for the appointment of a Vice-Chairman.

Mr. Asselin (*Notre-Dame-de-Grâce*) moved, seconded by Mr. Lessard (*Lac-Saint-Jean*), that Mr. Matheson be elected Vice-Chairman.

Mr. Churchill moved, seconded by Mr. Fairweather, that Mr. Lambert be elected Vice-Chairman.

Mr. Matheson requested that his nomination as Vice-Chairman be withdrawn. By leave, Mr. Asselin (*Notre-Dame-de-Grâce*) and Mr. Lessard (*Lac-Saint-Jean*) withdrew their motion.

Mr. Lambert was declared duly elected as Vice-Chairman.

On motion of Mr. Asselin (*Notre-Dame-de-Grâce*), seconded by Mr. Winch,

Resolved,—That a Sub-Committee on Agenda and Procedure comprised of the Chairman, Vice-Chairman and four members, one from each party, be appointed.

On the suggestion of Mr. Brewin, it was agreed that, if necessary, a member of the sub-committee on agenda and procedure could be replaced by a member of his own party who is on the Main Committee.

On motion of Mr. Laniel, seconded by Mr. McMillan,

Resolved,—That the Committee recommend to the House that it be empowered to print such papers and evidence as may be ordered by the Committee, and that Standing Order 66 be suspended in relation thereto.

After discussion, it was agreed not to reduce the Committee's quorum.

The Chairman congratulated Mr. Winch on the occasion of his birthday.

Mr. Winch moved, seconded by Mr. Matheson, that the Minister of National Defence be alerted to make a presentation at the next meeting, and that in addition, the Steering Committee make further recommendations to the Main Committee. Motion was carried *on division.*

At 10.40 a.m., the Committee adjourned to the call of the Chair.

M. Slack,
Acting Clerk of the Committee.

THURSDAY, June 27, 1963.
(2)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacLean, Martineau, Matheson, McMillan, Sauvé, Smith, Temple, Winch—22.

In attendance: Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; and Air Chief Marshal F. R. Miller.

There being a quorum the Chairman opened the meeting with a brief statement. Representatives of the various parties commented thereon.

The Chairman announced that the personnel of the Subcommittee on agenda and procedure is as follows: Messrs. Lambert, Lessard (*Lac-Saint-Jean*), Maclean, Temple, Winch and Sauvé.

The first report of the Subcommittee on Agenda and Procedure was presented as follows:

1. That the committee meet on Tuesday and Thursday mornings at 10:30 a.m.
2. That the committee hold its meetings in Committee rooms located in the West Block.
3. That the Quorum of the Committee be set at 13 members.
4. That pursuant to its Order of Reference of June 18, 1963, the Committee print 1,000 copies in English and 500 copies in French of its Minutes of Proceedings and Evidence.
5. That Interpreters be available at each meeting of the Committee but that, for the present, an interpretation only be made of those proceedings carried on in the French language.
6. That the Minister of National Defence be invited to make a statement to the Committee on Thursday June 27, 1963.
7. That at subsequent meetings the Chairman of the Chiefs of Staff Committee, and representatives of the Navy, Army and Air Force be requested to make statements in order to familiarize Committee members with the work of the various armed services.
8. That a representative of the Defence Research Board be invited to inform the Committee of the work done by that Board.
9. That the Secretary of State for External Affairs be invited to make a presentation to the Committee.

10. That presentations and submissions by witnesses be received without interruption, questioning of the witness being reserved until after he has completed his statement.

Moved by Mr. Smith, seconded by Mr. Lloyd,—

That the first report of the Subcommittee on Agenda and Procedure, presented this day, be now concurred in. *Carried unanimously.*

The Chairman introduced the Honourable Mr. Hellyer, the Honourable Mr. Cardin and Air Chief Marshal Miller to the Committee.

Mr. Hellyer read a prepared statement respecting National Defence. He was questioned thereon.

Agreed.—That the Department of National Defence will attempt to produce, for the information of the Committee, copies of the statement made by Mr. McNamara before the Congressional Subcommittee on Appropriations, to which reference has been made in the Minister's statement.

Members of the Committee were requested that whenever possible, they direct notices of proposed questions to the Minister of National Defence or to the Chairman of the Committee, in advance of the meetings of the Committee, in order that the Department of National Defence may have an opportunity to prepare the necessary information.

At 12:00 noon the Committee adjourned until 10:30 a.m. Tuesday July 2nd, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

THURSDAY, June 27, 1963.

The CHAIRMAN: Gentlemen, we have a quorum and I will call the meeting to order. For the convenience of the witnesses and myself, I believe it would be desirable that we be seated during these meetings.

I would like to start this meeting with an opening statement which is now being distributed to the members of the committee and to the members of the press.

This is the first time since 1867 that the general problem of Canadian defence has been submitted to a committee of the House of Commons charged with the responsibility of reporting to parliament, although there have been many committees on particular aspects of defence.

With the permission of the committee, I would like to make a short statement on what I believe to be the purpose of this defence committee.

The discussions that have already taken place in the house during the 26th parliament show how important is the task of this committee.

You will recall that for many periods in the past defence policies were supported in the House of Commons by all political parties in a non-partisan way. Recently, this agreement has broken down. We will not restore it by continuing arguments about past or present defence policy. We are not interested in attributing blame or diagnosing responsibility. We are interested in the future. We want to find out whether it is possible to develop for the future a defence policy that will serve the interests of the Canadian people and merit the support of the broadest possible range of political opinion.

It is my belief that the Canadian people would wish us to behave, for this purpose, in a non-partisan atmosphere. The debates of the House of Commons have made it clear that there is a sharp division among parties. Our task is not to continue those debates here.

In order to make recommendations, we have to obtain information. We have been asked to study present defence arrangements. I believe that we should try to do this without reviewing the responsibility of previous governments in terms of commitments or defence weapons.

I am pleased to report, as you will see later, that the steering committee in its first meeting appears to be of that opinion. The steering committee hopes that, after gathering all the necessary information, we will be able to discuss defence policies in the best interest of Canada.

There will certainly be need to have explanations of the technical aspects of our defence now and in the past, but I say again that I hope we will not discuss the political decisions of the past. Our purpose is to review what has been and what is, purely in order to report for the House of Commons on the future defence policy of our country. By so doing, I feel sure that we have the opportunity to contribute to a better Canada.

Mr. CHURCHILL: Mr. Chairman, I am sure the committee welcomes your statement, although I think it is a bit unusual. I can only accept it as an expression of your personal opinion. Certainly, we cannot accept it as a statement which binds the committee as a whole. There are a number of sentences here with which I am not in agreement. It is with that reservation that I acknowledge the statement that you have made. If we are going to start off on the right foot, I think it would be much better for the committee to determine what is its purpose than for the chairman to give us a statement of what he

believes is the purpose of the defence committee. We had discussions in the House of Commons in respect of the setting up of this committee, and the field is open for questions relating to problems whether past or present. We hope that the policy for the future may be determined by this committee, but we all are very aware that policy matters have to be determined by the government and then examined by parliament itself.

This committee may—and I underline that word—be able to assist in the formulation of defence policy.

Mr. WINCH: Mr. Chairman, may I just say that, personally, I welcome the fact that the chairman has seen fit to make a statement, and that it is made at the most appropriate time in view of the fact that, according to a recommendation which I hope will be accepted from the steering committee, today we are to do what we in our group consider absolutely important, namely, open our discussions and deliberations with a statement of government policy through the Minister of National Defence.

However, sir, if I may, I have one additional word which I would like to suggest to you. On the fourth line from the bottom of the first page of your statement you say "We are interested in the future". I hope I am right in adding that we are interested in the present and in the future. What I have to say in that regard also is applicable to the third line from the bottom on page 2 where you say "—the future defence policy of our country". I would suggest it should be our present and future defence policy.

With those very few remarks, I welcome your statement and because of your wording I do not believe you will try to restrain this committee in any way in its efforts to obtain information, ask questions and carry on deliberations in respect of the present as well as future defence policy.

Mr. LANIEL: Subject to the amendments made by Mr. Winch, I move that this statement be accepted as read, if it is the wish of the committee.

Mr. BALDWIN: I would take exception to that. I believe we are bound by the resolution. This matter was referred to us by the terms of a resolution passed by the House of Commons; this is our Bible; we must keep within the terms of reference. This is one personal sentiment and, of course, all of us have our own views. However, when it comes to what we do and how we do it, we must go back to the terms of the resolution.

The CHAIRMAN: I do not think there is need for a motion, although I do thank the member for moving it in any event.

I would like to announce the names of the personnel of the subcommittee on agenda as proposed by the four political parties: Messrs. Lessard (*Lac-Saint-Jean*), MacLean, Temple and Winch, and ex officio Mr. Lambert and myself. Also, I would like to present to you the first report of the subcommittee on agenda and procedure. The subcommittee recommends that the committee meet on Tuesday and Thursday mornings at 10.30; that the committee hold its meetings in committee rooms located in the west block; that the quorum of the committee be set at 13 members;—I will come back to this later—that pursuant to its order of reference of June 18, 1963, the committee print 1,000 copies in English and 500 copies in French of its Minutes of Proceedings and Evidence; that interpreters be available at each meeting of the committee but that, for the present, interpretations only be made of those proceedings carried on in the French language; that the Minister of National Defence be invited to make a statement to the committee on Thursday, June 27, 1963; that at subsequent meetings the chairman of the chiefs of staff committee, and representatives of the navy, army and air force be requested to make statements in order to familiarize committee members with the work of the various armed services; that a representative of the defence research board be invited to inform the committee of the work done by that board; that the Secretary of

State for External Affairs be invited to make a presentation to the committee and that presentations and submissions by witnesses be received without interruption, questioning of the witness being reserved until after he has completed his statement.

Now, in respect of item number 3, to the effect that the quorum be set at 13 members, the resolution adopted by the house mentions that standing order number 67 be suspended in relation to the committee. Therefore, at our last meeting we made a mistake when we decided to adopt the formula I had proposed, and the steering committee felt that a recommendation from the steering committee to this committee to set the quorum at 13 members would be in order.

Before we discuss the steering committee's report, I will entertain a motion, and then the discussion will proceed.

Mr. WINCH: I would like to suggest that we take all the recommendations seriatim. If that is agreeable to the members of the committee, I would move that, at least for our first meetings until we see what happens, the quorum be set at 13. I so move.

Mr. MCMILLAN: I second the motion.

The CHAIRMAN: Would you not wish to look at the entire report and then come back, one by one, to the items, if there are any recommendations in respect of the report of the steering committee.

Mr. SMITH: I move that the report of the steering committee be accepted.

Mr. LLOYD: As a new member I am getting advice from senior members, and I would second the motion.

The CHAIRMAN: It is moved by Mr. Smith and seconded by Mr. Lloyd that the report of the steering committee be accepted.

Mr. WINCH: I certainly do not want to start off the proceedings in this committee by taking an exception, but if that motion is accepted, it means you are accepting the recommendations of the committee.

Mr. SMITH: If you want to debate you have to have a motion.

The CHAIRMAN: We need a motion to debate the recommendations. Is there any discussion on the recommendations?

Mr. DEACHMAN: I move we accept the report of the steering committee.

The CHAIRMAN: To be sure that the report is accepted, will those in favour please raise their hands? Now, those opposed? There are 14 for and none against.

I am advised that some members of the committee did not vote. May I say, then, that the report of the steering committee is accepted unanimously?

Agreed.

The next item on the agenda is to be a statement by the Hon. Paul T. Hellyer, Minister of National Defence. He is here today accompanied by the Hon. Lucien Cardin, Associate Minister of National Defence.

I now invite the Minister to come to the head table to sit there with Mr. Cardin at his side, and Mr. Miller at the end of this row.

The HON. PAUL T. HELLYER (*Minister of National Defence*): Mr. Chairman, and gentlemen; copies of my statement are available in both English and French and they are now being distributed. I thought I should point that out at the outset, the fact that they are available in both languages.

Mr. LAMBERT: Mr. Chairman, unless there is to be a need for the translating staff to be here at this morning's session, may we not say all right, that is fine, and if they have other duties they might be excused? I say that

because the statements here are in both English and French. Is there any requirement to have the translating staff remain? I am sure the ladies would appreciate having some leisure.

The CHAIRMAN: I understand your point very well. It depends on how long the statement of the minister will take, and if we have questioning afterwards. It has been agreed by the steering committee that the French speaking members will ask their questions in French, and if so, those questions will be translated into English. But since all the French speaking members are familiar with the English language, there is no need to translate the English into French. That is the report of the steering committee, and I think we should abide by it for the time being at any rate.

Mr. HELLYER: Mr. Chairman, and gentlemen:

First of all, may I say how pleased I am to have this opportunity to open the discussion of defence matters with a general statement. This committee gives honourable members an excellent opportunity to inform themselves on defence matters and to contribute to the determination of a defence policy for the years ahead. On behalf of the associate minister and myself, I would like to assure you of our utmost co-operation during the course of your deliberations.

Canada's defence policy is an extension of its foreign policy. In particular, we have been members of and closely identified with three international organizations which have made demands on our armed forces and made it possible for us to contribute to the maintenance of peace. These organizations are the North Atlantic Treaty Organization, the North American air defence command and the United Nations.

THE NORTH ATLANTIC TREATY ORGANIZATION

Canada was one of the original 12 (now 15) nations signatory to the North Atlantic Treaty in April 1949, and played a leading role in the formation of the Alliance, the members of which are, in the words of the treaty "determined to safeguard the freedom, common heritage and civilization of their peoples . . . (and) are resolved to unite their efforts for collective defence and for the preservation of peace and security." NATO continues to be an essential foundation of Canada's foreign and defence policies.

NATO was the response of the free countries of the west to communist expansion in Europe after the second world war, and to the impasse that arose in the United Nations when, by the use of its veto in the security council, the Soviet Union obstructed western efforts to make that organization an effective instrument for peace. Faced with the threat to their security and to the basis of their civilization, the western powers resolved to group themselves in an alliance that would indicate clearly their determination to resist aggression, from whatever quarter it might come, and to maintain peace.

In the years since its inception, NATO has built up, in Europe, a formidable military force. This force is composed of contributions from member nations. At the outset it was planned that a large army of 90-100 divisions should be built up. For a number of reasons both political and economic this goal has never been achieved and it is unlikely that it will be in the future. To redress the balance of power a family of tactical nuclear weapons have been employed. The existence of these tends to neutralize any advantage a potential enemy might have through greater manpower. The NATO land force in central Europe of approximately 28 divisions has a considerable capacity although there are a number of critical deficiencies from the standpoint of reaching desired goals. This force is backed up by the striking power of the west's strategic forces, mainly the United States Strategic Air Command.

The United States Strategic Air Command is probably the most powerful and best organized military force in the history of the world. Supplemented now by the Polaris missile-firing submarines it has adequate capacity to deliver nuclear weapons to strategic targets. Canada has assisted the operational effectiveness of this command by providing refuelling bases, communications links and overflight privileges. We will continue to provide these facilities to the extent required.

At the same time that the free world has an adequate or better capacity in strategic forces, there remain demonstrable deficiencies in its conventional and tactical capacity in Europe. The doctrine of "measured response" requires a strengthening of conventional capacity in order to reduce the necessity for immediate or early use of nuclear force and to allow the time necessary for political consultation and decision. At the same time, the supreme allied commander Europe has been given responsibility for military targets in his sector. This includes, of course, Soviet missile launchers based against western Europe. To meet this responsibility he has a requirement for additional tactical nuclear capacity.

Force goals for the alliance are set by negotiation and agreement between members of the Alliance. In consultation with the supreme commander, individual countries decide the nature and extent of their contribution. For a small country like Canada there is considerable choice of contribution, but once a contribution has been agreed to we are conscience bound to live up to the bargain during the time period in question. To the extent that nations are responsible in meeting and keeping their agreed commitments, the supreme commander is able to fulfil his responsibility.

Canada has had a good record for fulfilling its defence commitments in NATO. Our contribution to the defensive strength of the alliance includes ships and maritime patrol aircraft earmarked for the supreme allied commander Atlantic, an air division of eight, formerly twelve, squadrons and an army division of which one brigade group is stationed in Europe. These forces do not operate in isolation but as part of larger integrated forces united for a common purpose.

Maritime Forces

From the beginning of NATO, there was an apparent and pressing need for strong naval and maritime forces in the Atlantic. The Atlantic council agreed that a separate command must be formed to preserve the integrity of the Atlantic Ocean and in December 1950, the Council decided to appoint a supreme allied commander Atlantic as soon as circumstances would permit. After much planning, the first international Ocean Command in peacetime was formed in January 1952 with headquarters at Norfolk, Virginia.

To enable the NATO Atlantic commander to carry out his peacetime duties, forces are periodically placed at his disposal for combined training. Unlike the commander of the NATO forces in Europe, SACLANT has no permanently assigned forces; instead, he has to depend on forces earmarked for assignment to his command in an emergency. The reasoning for this arrangement is that the maritime powers of NATO maintain flexible naval forces and maritime air forces to protect their national interests on the high seas in time of peace. Such forces are highly mobile and it was decided, therefore, that the Atlantic maritime powers would maintain their own naval forces and maritime air forces in peacetime and transfer control of an agreed number of units to SACLANT on the declaration of an emergency.

By the end of 1959, Canada was able to provide one carrier and 29 escorts to be readily available to SACLANT for duty in the north Atlantic in the event of an emergency. In addition, 14 escorts stationed on the west coast and 10 minesweepers were provided for the Canada-U.S. region.

In 1959, Canada approved the construction of a further six escort ships—the Mackenzie class—to replace older vessels in commission so that there would be no reduction in the naval commitment.

Technological improvements, aimed at increasing the anti-submarine effectiveness of our forces, have been steadily introduced. The conversion programme now under way for the seven *St. Laurent* class ships includes the fitting of variable depth sonar together with the installation of a platform and operating facilities for an anti-submarine helicopter.

With the development of nuclear submarines, however, the problems of anti-submarine warfare have been greatly increased. As in other areas of advanced military technology, the "offence" is more effective than the "defence" at the present time. Increased importance is being given to research and development in anti-submarine devices. One new contribution to the pool of knowledge on this subject will be the development of a prototype hydrofoil craft which has just been authorized. It is but one of the options being studied with great interest by this department.

In addition to naval forces, Canada agreed that the R.C.A.F. should earmark 40 maritime patrol aircraft to SACLANT. Lancaster aircraft were joined for this assignment by Neptunes in the latter part of the 1950's with the long-range Argus coming into service as a replacement for the former aircraft in 1959.

Army

For some years the Canadian army has maintained a brigade group in Europe. It is part of the northern army group. Canada has also agreed to supply the balance of a division in the event hostilities should occur. The agreed time lapse before the reserve brigade would be available, however, and the unavailability of shipping brings into question the effectiveness of this "reserve" under conditions prevailing in any future war. A review seems warranted to determine whether the commitment should be changed or whether steps should be taken to substantially increase the "reality" of the reserve components in today's circumstances.

Air Force

The Royal Canadian Air Force has maintained in Europe one air division. Until recently it consisted of twelve air defence squadrons at four bases. In 1959 the government of Canada agreed to change the role of the air division from air defence to strike-reconnaissance and obtained the concurrence of the supreme allied commander Europe to a reduction from twelve squadrons to eight. Each base will now accommodate two squadrons instead of three. This change was agreed to by SACEUR because the new aircraft, the CF104, is a very sophisticated aircraft which requires more technical support than the aircraft it replaces, and because of the demanding nature of the strike role. The strike role is one requiring the ability to drop atomic bombs on enemy military targets in the event of hostilities.

The acceptance by the government of Canada of the strike role for the air division committed Canadian forces to the use of atomic devices. This brings up the question of NATO nuclear policy. As far back as December 1955, the NATO ministerial meeting demonstrated the clear intention on the part of all member governments to see the Atlantic forces equipped with the most modern weapons. In 1957, the NATO council stressed the fact that the U.S.S.R. was steadily proceeding with the development of its own nuclear armament. The foreign ministers affirmed the right of the alliance to the possession of modern arms necessary in its defence against aggression.

The heads of government meeting in December of the same year publicly confirmed the NATO decision to establish stocks of nuclear weapons which would be readily available for the defence of the alliance in case of need. Again, in February 1959, NATO authorities affirmed that after the required bilateral agreements had been reached, the United States had delivered nuclear-capable weapons for the nuclear deterrent to NATO forces in Europe and that this transfer was being continued.

The dependence upon nuclear weapons against both strategic and tactical targets has been brought about for two basic reasons:—the marked superiority in Soviet manpower vis-a-vis NATO forces in being, and the knowledge that the Soviets have similar weapons in operation. This dependence, however, has not reduced the requirement to increase the conventional capability of the alliance, but NATO authorities have never called for this requirement to be met at the expense of its nuclear capability. Thus, at the ministerial meeting in December of last year it was agreed "that it was necessary to increase the effectiveness of conventional forces," but it was also agreed "that adequate and balanced forces, both nuclear and conventional, were necessary to provide the alliance with the widest possible range of response to whatever threat may be directed against its security". As members of the committee are aware, at the recent meeting of ministers here in Ottawa it was agreed to establish an interallied nuclear force in NATO which was considered to be a measure leading to an increase in the effectiveness of the nuclear capability at the disposal of the alliance.

In case anyone here might suspect that this policy is not held by the administration in Washington, I should like to refer to recent testimony of the United States secretary of defence, Mr. McNamara, given to a congressional sub-committee on appropriations. Following his remarks with regard to the need to build up the conventional forces, he had this to say: "This does not mean that the NATO forces can or should do without tactical nuclear weapons. On the contrary, we must continue to strengthen and modernize our tactical nuclear capabilities to deal with an attack where the opponent employs such weapons first, or an attack by conventional forces which puts Europe in danger of being overrun. We mean to defend Europe with whatever kind of weapons are needed."

The acceptance by Canada of the strike role for the air division and the acquisition of the Honest John rocket for our brigade group in Europe has committed us to signing a bilateral agreement with the United States of America to permit the immediate availability of nuclear devices. This does not make us a member of the nuclear club. It only fulfills the general undertaking given by us and other member countries at the heads of government meeting in December 1957 and the specific undertaking of Canada, in 1959, to accept the strike role. In signing a bilateral agreement we will be doing what the majority of our NATO allies have already done and we will be implementing the commitment given to the NATO Council in 1959.

A number of questions have been raised about the strike role being truly "tactical", because of the ability of the weapons carrier, the CF104, to penetrate into enemy territory. The designation "tactical" is basically related to the type of target rather than to the weapons carrier used although in common usage the range of the vehicle often does have a relationship to target assignment. The targets which would be assigned to our air force are military targets only. This type of target could involve military bases including dockyards and airfields; radar installations and military command and control centres; depots and dumps containing fuel or other supplies directly supporting enemy combat forces; key road, rail or waterway facilities used for supporting the combat area, and so on. The yield of the bomb assigned would depend on the particular

target but in most of these cases would be relatively low-yield—a very small fraction of figures which have been used in the House and in the press. "Tactical" targets do not include population centres as such. Now, I am not suggesting that all civilian populations would be left untouched by the use of these tactical weapons, but I am saying that all targets assigned to the air division will be of direct and immediate significance to a possible battle in allied command Europe.

I know some honourable members are concerned about the moral aspects of these assignments. It is a matter of concern to all of us. As a member of NATO we have agreed to a strategy of nuclear deterrence. As long as we remain a member of the alliance we cannot separate ourselves, morally, from the general policy. We rely on the protection of the strategic air command and approve of its constant flights over our territory. Additionally, we have sold the uranium for most of the free world's arsenal and would, no doubt, sell more for military purposes if our friends were interested in buying it. Any attempt to get out of our part of the collective responsibility on moral grounds seems a hollow gesture.

It is important to bear in mind that NATO is a defensive alliance and that the forces assigned to it in the European theatre are for defensive purposes. The more effective these forces are, the more credible is the deterrent to any aggression in that area.

NORTH AMERICAN AIR DEFENCE

In the fall of 1957 the North American air defence command came into being. It is charged with the responsibility of protecting, in so far as that is possible, the North American land mass from attack by air. The headquarters of this command is located in Colorado Springs, Colorado. The commander-in-chief is U.S. general John K. Gerhart, and the deputy commander-in-chief is Canadian air marshal Roy Slemon.

To assist this command in its function, information is funnelled into its headquarters from a network of warning lines and control stations. These include the pinetree radar system roughly along the Canada-U.S. border, the mid-Canada line approximately along the 55th parallel, the distant early warning line along the northern periphery of the continent and the ballistic missile early warning system with stations in Alaska and Greenland, and under construction in England.

These systems have been altered and augmented from time to time in accordance with changing requirements and circumstances. For example, it was agreed in 1959 that seven additional heavy radars should be constructed in Canada as reinforcement for the Pinetree line. A number of exposed semi-automatic ground environment (SAGE) combat centres located on U.S. strategic air command bases and considered redundant, are being abandoned. A new hardened SAGE centre near North Bay is just nearing completion. Additional changes are contemplated.

The air threat to North America consists of long range intercontinental ballistic missiles (ICBM's), submarine or ship-launched intermediate range ballistic missiles (IRBM's) and manned bombers. At the moment there is no protection against ballistic missiles. The United States has under development an anti-missile missile known as the Nike-Zeus but no decision has been taken to put it into operational service largely because of the considerable cost involved. Development is continuing of potentially more effective means of anti-missile protection.

At this moment the active air defence is limited to the anti-bomber field, and a considerable effort is expended in this direction. If members of the committee recall statements I made when in opposition, you may wonder why I

now support the use of some of our resources for this purpose. The opinions I expressed during the last few years were based on knowledge of the threat made available to us at that time—1959. The estimates have subsequently turned out to be incorrect. The rate of Soviet missile production anticipated at that time has not materialized. In consequence the bomber threat remains at this date a very much larger proportion of the total threat than was expected. On the basis of present information I feel that active air defence is a proper demand on part of our resources.

Our contribution to the active air defence consists of a substantial participation in the radar warning lines, five squadrons of CF-101B—Voodoo, interceptors, and two squadrons of BOMARC surface-to-air missiles.

At the outset Canadian authorities had noted that the initial U.S. plans for the installation of these missiles confined them completely within the bounds of the continental United States. Canadian comments on these U.S. plans expressed concern that this proposed deployment would result in conduct of the air battle over the most densely populated areas of Canada, particularly in the area between Montreal and Toronto. The proposition was advanced that this undesirable situation could be easily rectified without any compromise to U.S. air defence by moving a small portion of the planned BOMARC deployment further northward. In particular, it was proposed that the two BOMARC squadrons programmed for a site in northern Michigan and another in northern New York state, just south of Montreal, should be deployed further north.

Meanwhile, the North American air defence command had come into being and, operating through these channels, little difficulty was experienced in persuading the U.S. to locate the northern Michigan squadron to North Bay, Ontario, and the northern New York state squadron to La Macaza, P.Q. From the NORAD point of view, this deployment was desirable not only because it moved the defence line outward toward the periphery of the ground radar system, but also the two BOMARC squadrons, previously programmed for location at SAC bases in the U.S.A., were moved to more isolated locations.

Many of the early tests of the BOMARC B were not successful and it was also subject to electronic counter measures. Consequently a number of observers, myself included, were extremely critical. More recently the defects have been solved and a device has been developed to overcome the effects of electronic counter measures. It is now an effective anti-bomber weapon—as good as anything we have available. Like Mr. McNamara, the U.S. defence secretary, I believe that after approximately $3 billion has been invested in the BOMARC system, practically all by the United States, the effectiveness of the system is sufficient to justify the maintenance costs involved.

In order to be effective, however, the BOMARC must be armed with an atomic warhead. No conventional warhead exists and none was ever developed. The advantage of the nuclear warhead is twofold. First, it has a good "kill" capacity in that a direct hit is not required. Second, the bomb or bombs carried by the attacking bomber can be rendered harmless by "cooking". If a high explosive warhead was available it might bring down the bomber but the resulting explosion from the bombs being carried would be devastating in comparison.

It is expected that enemy bombs are designed with "dead man" fuses. These fuses permit the bombs to detonate on impact even though the aircraft or other device which is carrying them has been shot down in flames or has disintegrated in the air. There is therefore considerable advantage in the use of nuclear air defence warheads which will kill the weapon and not just the carrier.

In all, there are more than 40 regular fighter-interceptor squadrons in the NORAD system, of which five are the recently re-equipped RCAF CF-101B

squadrons. The CF-101B Voodoo aircraft are designed to carry both conventional and atomic air-to-air missiles. At present the Canadian squadrons are armed with the conventional missiles only. The advantages of having atomic missiles available are obvious since the "kill" capacity of the Genie atomic rocket is several times greater than that of the conventional Falcon rocket.

The bilateral agreement now being negotiated with the United States will permit the stockpiling in Canada of nuclear devices to be immediately available in an emergency. It should be remembered that these weapons are purely defensive. They do not constitute a threat to other nations. NORAD forces go into defensive action only after absolute proof is established that the North American continent is under attack by aggressor forces.

Another point, the Voodoo interceptors would not be flying around during day-to-day operations with nuclear rockets aboard. Normal training and operational interceptions would be done, as they are by the USAF, with aircraft equipped with high explosive—not atomic—rockets.

The nuclear-equipped Canadian interceptors would only take off under the authority of the Canadian government subsequent to the release of the weapons themselves by the President of the United States. Similarly, the BOMARC could not be fired without the prior approval of both the U.S. and the Canadian governments. And, I repeat, both weapons systems would only be put into action if North America was under attack.

THE UNITED NATIONS

It is an important aspect of Canadian defence and foreign policy to support the peace-keeping operations of the United Nations. Apart from U.N. action in Korea, Canada over the years has undertaken a number of military commitments to the United Nations. In November 1956, the United Nations emergency force in the Middle East was formed to secure and supervise the cessation of hostilities between Israel and Egypt. Since the inception of this force, Canada has made a major contribution of Canadian army personnel and has furnished an air transport unit operated by the RCAF. At the present time, there are over 800 members of the Canadian army and some 80 RCAF personnel serving in UNEF. It should be noted here that we recently agreed to contribute to the U.N. force—made up in part from personnel in UNEF—which is being sent to Yemen in an effort to stabilize conditions in that country.

In accordance with the security council resolution of July 14, 1960, the Canadian government approved a request by the secretary general for the provision of a signals unit to provide communications facilities for the United Nations headquarters in the Congo and the first Canadian element arrived in that country in August of that year. In addition to signals personnel, we also supply a small number of staff officers at United Nations headquarters, a provost section operating under the direction of this headquarters and representatives of the RCAF are in the Congo in support of United Nations air operations.

The RCAF supplies airlift for personnel and equipment not only to and from Egypt, but also for our forces in the Congo. At the present time there are some 280 army and 24 air force personnel in the Congo.

Canadian servicemen also form part of the United Nations truce supervisory organization in Palestine. The duty of this team is to observe and maintain the cease-fire ordered by the United Nations council in 1949 and to assist the parties to the general armistice agreements in the supervision of the terms of the general armistice agreements concluded severally between the governments of Egypt, Lebanon, Jordan and Syria on one hand and Israel on the other. There are a total of 18 Canadian army officers on this team.

The United Nations military observer group was formed as the result of a resolution by the United Nations commission for India and Pakistan in August 1948. The military observer group is made up of representatives from various countries and of the total 35 officers involved, Canada supplies eight.

Although the truce team in Indo-China is not under United Nations control, it is, I think, related to the peace-keeping operations of that organization. The truce commission is composed of representatives from Canada, India and Poland and has been functioning continuously since 1954 under the terms agreed to by the United Kingdom and the Soviet Union. There are at the moment 75 representatives of the Canadian army, two from the RCN and two from the RCAF in Indo-China.

In addition to the Canadians serving abroad on behalf of the United Nations, since September 1960 an army battalion has been available in Canada for United Nations service. Plans have been made and exercises have taken place in order that this battalion could be provided on short notice in the event of a request being received. The 1st Battalion, Royal 22e Regiment has been designated as the main element of the group. This battalion took over the responsibility from the 2nd Battalion, the Royal Canadian Regiment in April 1961.

From time to time suggestions have been made that we should turn over part of our armed forces to the U.N. To date there has been no inclination on the part of the U.N. to accept this kind of offer, and the maintenance of a standby battalion which would be available if required seems to be the best alternative in these circumstances.

CANADIAN DEFENCE POLICY

As I said at the outset, Canadian defence policy is an extension of our foreign policy. We provide contributions to the collective defence of the free world and to the maintenance of peace. Our contributions are pooled with those of other nations through the agencies of NATO, NORAD and the United Nations.

Our contributions at this time are those which have been agreed to in the past. They are as I have set them out for you. It is the policy of the government to make effective those weapons systems which have been acquired as part of the Canadian contribution, including making immediately available nuclear devices required to make our contribution credible. Furthermore, it is the policy of the government to undertake a thorough review of our defence policy and commitments in order to determine the best and most effective contribution we can make to the collective defence of the free world and to the maintenance of peace in the years ahead.

In order to facilitate the review, certain action has been taken. All major procurement programs are being reconsidered. In particular, any procurement program which would tend to limit future policy or interfere with the exercise of future options is being carefully reviewed.

One of these programs is the general purpose frigate program. It is a project involving the expenditure of large sums of money. For this reason all present and likely future options have to be carefully considered before proceeding.

Another major program under review is the acquisition of additional CF-104 aircraft for backup to the eight squadrons being formed in Europe. We are considerably concerned about the effectiveness of the four squadrons to be located on the two French bases at Marville and Grostenquin. As members of the committee know, the French government has so far not permitted the stockpiling of nuclear weapons for NATO on its territory. In consequence, the weapons for the four squadrons would not be readily at hand, and those

aircraft to be maintained on quick reaction alert would have to be deployed to other bases. This raises the further question of vulnerability. In view of these problems, it is considered desirable to review at once the alternatives which may be available now or in the future. The CF-104 is specially designed for the strike role and does not readily lend itself to other employment. Consequently we intend to carefully review the question before proceeding with any additional procurement.

To assist in the review of current procurement programs and in the consideration of future policy, a special advisory group has been set up in the department under the chairmanship of Dr. R. J. Sutherland, chief of operational research in the defence research board. This group has undertaken a number of studies intended to demonstrate the reasons for and against a particular course of action and to list the available options. It does not make recommendations. This committee which has been functioning for some weeks now reports directly to the Minister.

As soon as a review of existing procurement programs is complete and decisions taken, which I hope will be within a few weeks, the general review of future policy will commence. It is intended that it will be a most thoroughgoing study. We will consider not only the best tasks and contributions which Canada can make in future years but also how they can be most efficiently organized. The recommendations of the Glassco commission are being studied and will be considered in the context of future policy. The relationship between our forces and those of our allies will be considered. In this connection I am pleased that General Lemnitzer, the new Supreme Allied Commander Europe, will pay a visit to Ottawa on July 23rd and that we will have the opportunity to discuss mutual problems. It is also fortunate that the general review of NATO strategy being undertaken by the standing group will be going ahead simultaneously with our own studies. This should greatly facilitate our appreciation of future requirements of the alliance and the best use of available resources to meet those requirements. An interim report by the standing group is expected to be available in time for the ministers' meeting in December. Assuming this to be the case, it is hoped that notwithstanding the considerable scope and magnitude of our own studies we will be in a position to reach conclusions early in the New Year. I am sure that the views of this committee will be most helpful in assisting us to determine the best role for Canada to play in future years.

Before concluding my remarks I would like to repeat the essence of my admonition to the graduating class of Royal Military College on May 31st. It was my opinion that the world's problems could not be solved by force of arms. The object of our readiness is to provide an umbrella under which men of goodwill may work toward the solution of those problems. It was gratifying to learn that my view was shared by the young graduates who are enlisting in the service of their country.

May I thank honourable members of the committee for their courtesy and repeat the undertaking on behalf of the associate minister and myself to do everything we can to assist the committee in its deliberations.

The CHAIRMAN: I would like to thank the minister for his statement. I have just conferred with the minister and I am advised that he will have to leave at 12 o'clock. If there are questions which members of the committee would like to direct to the minister, there is time to do so. When you are recognized by the Chair please direct your questions to the minister. In order to assist the Committee Reporters, please speak slowly and clearly.

Mr. FAIRWEATHER: I am wondering whether members of this committee are going to be cleared by NATO security procedures so as to enable us to receive and consider classified or sensitive information.

Mr. HELLYER: If your question is directed to me, I may say that there has been no formal suggestion from this committee that this be done, and I would doubt very much whether the committee members would wish it to be done. I think that all the information which really is essential to your deliberations can be made available on an unclassified basis.

M. LESSARD (*Lac-Saint-Jean*): Monsieur le président, le ministre de la Défense pourrait-il nous informer si les États-Unis ont réussi à trouver un dispositif de sécurité pour prévenir toute explosion possible pouvant résulter de l'écrasement d'un bombardier ou transporteur d'engins nucléaires?

Je pose cette question parce que j'ai lu dans un article qu'un bombardier qui, effectivement, transportait une bombe atomique s'était écrasé aux États-Unis et que des trois dispositifs de sécurité, deux n'avaient pas fonctionné et que, par conséquent, un seul avait empêché l'explosion de se produire.

(*Note: English translation of the above question appears at the back of this issue.*)

Mr. HELLYER: Yes, they have had very great success. Every possible precaution is taken. I think the best witness to the effectiveness of those precautions is the fact that in all the years during which the United States has had a stockpile of atomic weapons of various kinds, there has never been any accidental explosion, any fissionable explosion of any kind in all the years they have had those weapons.

Mr. BREWIN: Mr. Chairman, the point I wanted to raise is this: I understood you to say that Mr. Hellyer can only be here for another 15 minutes at this time. I have a number of questions I would like to ask the minister, but I would like to have an opportunity to think about them, and I wondered if it would not be better for us to adjourn, in order that we may have time to think about the question that we want to ask the minister. I make this request, in view of the fact that he has given us a very full and interesting statement today, and in view of the fact that we want time to digest it before we proceed to question him, and that we want to think out our questions very carefully and not throw them haphazardly at the minister. So I would like to suggest, as far as I am concerned, that while I have a few questions to ask, I would rather not pursue them at the moment. I do not know what other members of the committee may think about this.

The CHAIRMAN: Well, if it is the wish of the committee we could perhaps adjourn now, or we could go on until 12 o'clock. The minister will be available next Tuesday for questioning.

Mr. SMITH: Mr. Chairman, why not go on to 12 o'clock today and then adjourn to come back on Tuesday?

The CHAIRMAN: All right. Let us proceed. You will ask your questions next Tuesday, Mr. Brewin?

Mr. BREWIN: Yes.

The CHAIRMAN: Now, Mr. Laniel.

Mr. LANIEL: I wonder if the Hon. Mr. Hellyer could join with his statement a report on the different contributions by NATO countries in the matter of armed forces, or even in the form of money, so that we might judge our policy on a financial basis at the same time.

Mr. HELLYER: I do not think I am at liberty to disclose the contributions of other members of the alliance to the total. There may be some figures available on a comparative basis with regard to expenditures, or something of this order, and if I could find something available, I would make it available to the committee, but it is not the practice for one member nation to disclose or to make public the contributions of any other member nation.

Mr. LANIEL: Could we get from you whatever is available?

Mr. HELLYER: I shall look into the question to see if there is any information which could be helpful and could be made available.

Mr. WINCH: I have a question to ask, and perhaps the minister might consider it and be able to answer it next Tuesday. I was very interested in what the minister had to say in paragraph two on page 18 of his presentation, where he indicated that if we have defensive weapons equipped with atomic warheads they will be able to shoot down aggressive atomic attackers on us, and by shooting them down in the air, that will result—to use his own term—in cooking.

My question is this: in view of his statement, has the minister had an opportunity, or will he check the statement made by Mr. McNamara before the defence appropriation committee this year of the house of representatives of the 88th congress, as far as they permit security measures to make it public?

It is most interesting because Mr. McNamara and others who were called before that committee gave evidence to the effect that any defensive operations using atomic warheads to shoot down atomic attackers would mean a greater radiation fallout over Canada and the United States. I think the minister will understand, in view of the evidence given this year by Mr. McNamara before the congress. How does it tie in with what, I presume, is the suggestion of the minister here that by Canada having atomic warheads to shoot down atomic attackers, and with defensive weapons of an atomic character, it might result in cooking. I cannot put the two together.

Mr. HELLYER: I would not want to answer your question without first getting the text of that statement. It may be that it is a verbatim report, but I would have to see the context.

Mr. WINCH: I draw it to the attention of the minister. It is a statement made by Mr. McNamara before the appropriations sub-committee this year of the house of representatives.

Mr. HELLYER: Could you say if the reference is to shooting down intercontinental ballistic missiles?

Mr. WINCH: Yes, definitely. What is the difference between an atomic warhead carried by a manned bomber, and one carried by an ICBM?

Mr. HELLYER: There is a very substantial difference and I will try to get you some information.

Mr. SMITH: Mr. Chairman, on page 8 of the minister's statement he said that in 1959 the government of Canada agreed to change the role of the air division from air defence to strike-reconnaissance.

I wonder if that is the actual sequence, or if there was not a change made after a request by the supreme allied commander in Europe, of NATO headquarters, asking Canada to change its role, or to accept a changed role?

Mr. HELLYER: I am not sure I can answer that question.

Mr. SMITH: Could we get an answer for it?

Mr. HELLYER: I do not know if it is really relevant, because these contributions are worked out in agreement between the supreme allied commander, the standing group and the individual nation. As is well known to members of the committee, some of the military officers in NATO are anxious that our air division do this role because of its extreme competence. I would not be surprised if they were anxious to have it taken on. All decisions as to the general necessity of contributions are made by the members involved.

Mr. SMITH: I seem to recollect General Norstad coming and speaking to members of the house in relation to that particular matter.

Mr. HELLYER: He came at that time to discuss the matter with the government.

Mr. SMITH: And he spoke to members of parliament supporting it.

Mr. HELLYER: I do not recall whether he did or not.

Mr. MATHESON: May I ask the minister if there is a non-nuclear warhead available for the Bomarc and for the Honest John?

Mr. HELLYER: There is no nuclear warhead available for the Bomarc B, and there has not been, nor is any contemplated. There is a non-nuclear warhead available for the Honest John.

Mr. LLOYD: Mr. Chairman, I appreciate the question of the hon. member to the minister which was designed to obtain information on the contribution made by other countries, and I appreciate it that the minister said it was not customary to do that.

Mr. HELLYER: No, I do not think it is customary for one country to release information in respect of contributions of other countries.

Mr. LLOYD: I have had some experience in this field, and I think that with a little imagination on our part we should certainly not miss any opportunity to use our skills so as not to effect an overlapping of the effort that is being made by the respective countries. If this information can be obtained, I think we should obtain it.

Mr. HELLYER: I think this can be done. There is information available from other sources, but we cannot do it.

The CHAIRMAN: In order to help the reporters, would you please refrain from cutting in to the answers, because the reporters cannot catch all your comments.

Mr. CHURCHILL: I would like to support the question asked by Mr. Winch. In fact, I was going to ask it myself. But I would like to go a little further and suggest that we have brought before the committee complete evidence with regard to the allegation that nuclear tipped bombs can be cooked by a blast from a nuclear missile.

My second question is this: On pages 11 and 18 the minister has made reference to Mr. McNamara and statements made by him. As there is a notation on page 11 by Mr. McNamara I think the committee should have made available to it the full text of what is available for public information in connection with that statement by Mr. McNamara to the congressional subcommittee on appropriations, as well as the full text of the other evidence referred to on page 18 wherein the minister says he agrees with Mr. McNamara. Could we have Mr. McNamara's actual statement in respect of the investment in the Bomarc system.

Mr. HELLYER: I think the statements are included in published evidence of the subcommittee on appropriations and, therefore, are available in public libraries for the honourable gentleman and other members of this committee to see.

Mr. CHURCHILL: Yes, but—

The CHAIRMAN: I am sorry, but could we have one speaker at a time.

Mr. HELLYER: If the committee would like to get those published statements I am sure they could be made available by the United States congress.

Mr. FAIRWEATHER: I move that the committee request this information.

The CHAIRMAN: There is no need to make a motion to that effect.

Is it agreed that we request the necessary documents.

Some hon. MEMBERS: Agreed.

The CHAIRMAN: I am informed that either the minister or some of his officials will look after this for us.

Mr. BALDWIN: Could the minister say what other countries now have bilateral agreements with the United States for the use of nuclear warheads or missiles under the terms of the Atomic Energy Act.

Mr. HELLYER: I am sorry but I cannot. If you look at some of my speeches which I made previously you would obtain what I believe to be the names of some of them and if you would care to check other sources I am sure you would find most of them. However, it is not permissible to give these names officially.

Mr. BALDWIN: But the agreements you refer to are agreements negotiated with the United States under the terms of that act?

Mr. HELLYER: They are bilateral agreements which permit the stockpiling of nuclear devices to be immediately available for use in an emergency by the signatory nations.

Mr. BALDWIN: And, any flexibility of negotiation is limited by the terms of the Atomic Energy Act?

Mr. HELLYER: Yes.

Mr. LAMBERT: At the top of page 9 of your statement it says:

> The strike role is one requiring the ability to drop atomic bombs...

Does that really mean the strike role is one requiring, among others, the ability to drop atomic bombs?

Mr. HELLYER: The strike role as defined in the NATO text is this.

Mr. LAMBERT: In other words, it is exclusive?

Mr. HELLYER: Yes.

Mr. MCMILLAN: I was interested in the increased effectiveness which you report for the Bomarc. Have you actual reports of the increased effectiveness of that nuclear arm?

Mr. HELLYER: Yes. As far as we are concerned, the evidence is quite clear that both the kill capacity of the nuclear warhead is several times that which the non-nuclear would be if it is available, which it is not, and also it has this additional advantage which I have stated, which is a very important one.

The CHAIRMAN: Gentlemen, it is now twelve o'clock. The minister will be available for questioning at our next meeting.

Mr. WINCH: I would like to place one question on the record, if I could, because I think the minister would like prior notice of some of these questions.

Would it be permissible, Mr. Chairman, if we directed through you in the next day or two questions which we would like to have information on from the minister?

Mr. HELLYER: Yes, Mr. Chairman, it would be very helpful if honourable members submitted to the Chairman questions which they would like to have answered as in this way we could get fuller and more accurate information than would be possible if it was done spontaneously.

The CHAIRMAN: The meeting stands adjourned until Tuesday morning at 10.30.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

Page 21.

Mr. LESSARD (*Lac St-Jean*): Mr. Chairman, could the Minister of National Defence inform the Committee as to whether or not the United States have found a safety device capable of preventing any possible explosion which could result from a crash landing of a bomber or carrier of nuclear arms?

I am asking this question because I have read in an article that, when a bomber carrying an atom bomb crashed in the United States, two of the three safety devices failed to operate and, therefore, only one device prevented the explosion.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 2

TUESDAY, JULY 2, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and
Dr. G. S. Field, Chief Scientist, Defence Research Board.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29122-9—1

SPECIAL COMMITTEE
ON
DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, July 2, 1963
(3)

The Special Committee on Defence met at 10.40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Baldwin, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Sauvé, Smith, Temple, Winch (19).

In attendance: The Honourable Paul Hellyer, Minister of National Defence; The Honourable Lucien Cardin, Associate Minister of National Defence; Air Chief Marshal F. R. Miller, Chairman of the Chiefs of Staff Committee; and Dr. G. S. Field, Chief Scientist, Defence Research Board.

Mr. Hellyer proceeded to supply answers to questions asked at previous meetings by Messrs. Churchill and Winch; he was questioned on these answers and related matters.

Agreed,—that the question of calling certain outside witnesses be referred to the Steering Subcommittee.

The Chairman announced that the Subcommittee on Agenda and Procedure would meet in his office at 5.00 p.m. this day.

At 12.30 p.m. the Committee adjourned until 10.30 a.m. Thursday, July 4, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

TUESDAY, July 2, 1963

The CHAIRMAN: Gentlemen, we now have a quorum and I call the meeting to order. In order to facilitate things, if it is at all possible for you to refer to the minister's statement in the printed report rather than in his own document, it would be very helpful to the reporters.

I now call upon members of the committee to pursue their questions.

Mr. LAMBERT: It is not entirely possible unless you have other copies available, because I had not received my copy of the printed report when I left my office this morning.

Mr. WINCH: Nor had I.

Mr. DEACHMAN: Are you ready for questions to the minister?

The CHAIRMAN: Yes.

Mr. DEACHMAN: There has been some considerable comment and discussion in regard to the Bomarc which is defensive to Toronto, Montreal, and the industrial east, but not too much in regard to the defences of the west coast. I am particularly concerned with that coast because I happen to be a member from Vancouver. I have a few questions which I wish to direct to the minister which are concerned with the problem of the defence of the west coast. Is the city of Vancouver within target range of manned bomber attack by Russia?

The HON. PAUL T. HELLYER (*Minister of National Defence*): The answer to that question is yes.

Mr. DEACHMAN: Is it also within target range of stand-off bombers, capable of firing self-propelled drones or unmanned flying bombs?

Mr. HELLYER: Well, Mr. Chairman, we do not know the ranges of the stand-off bombs which might be carried by Russian bombers.

Mr. DEACHMAN: And from rocket launching submarines, we are vulnerable on the west coast to them as well?

Mr. HELLYER: If a potential enemy were to use missiles launched from ships or from submarines on the west coast, those cities would be vulnerable to that type of attack.

Mr. DEACHMAN: If Russian bombers, or drones from stand-off bombers were identified while approaching Canada's west coast today, what Canadian units would move to intercept them and to defend Vancouver?

Mr. HELLYER: I think this particular area would be better dealt with at the time when the Air Force briefing is before the committee, where you will be told what units are available, and where they are situated, and a statement giving you a better background in respect of just what capacity we have in that regard. I think there may be quite a few questions which hon. gentlemen would put along those lines, which are fairly specific, that could better be dealt with after the service briefings. Many of your questions will be answered during the course of the service briefings. Immediately concluding the service briefings those questions that have not been answered can be dealt with.

Mr. DEACHMAN: Would it be possible to answer questions speedily with regard to weaponry and agreements in regard to weaponry and cover the structure of such agreements or proposed agreements?

Mr. HELLYER: I think they could answer most of your questions. I would be in attendance at each meeting, and if a question arose which offered any difficulty, it might be dealt with at a subsequent meeting.

Mr. DEACHMAN: Very well, I shall reserve the balance of my questions.

Mr. HELLYER: Thank you. Before we proceed, there were two or three questions asked at the last meeting. If it would be convenient to the hon. members we might deal with them at this time. One of the questions was asked by Mr. Winch, I believe, and Mr. Churchill in respect of the effectiveness of nuclear weapons in air defence in cooking the bombs of incoming attacking bombers.

The evidence that offensive nuclear weapons can be cooked by an explosion of defensive nuclear weapons has been supplied to the government by its top air force military and scientific authorities. Such information upon which our authorities have based their advice was supplied to them on a classified basis, under the agreement between the governments of Canada and the United States regarding cooperation in respect of the uses of atomic energy for mutual purposes which was entered into in 1959. The information has been confirmed by our advisors as being consistent with scientific theory.

The committee will appreciate that I am not at liberty to reveal the classified information upon which our statements concerning the cooking effect are based. I should like, however, to introduce to you Dr. G. S. Field, who is the chief scientist of our defence research board. He will answer questions referring to this subject and conceivably other questions asked at the last meeting.

Mr. WINCH: Mr. Chairman, just before Dr. Field answers, might I ask the minister just what he means by classified information in view of the fact that I have here—as I had at the last meeting,—a photostat of the submission of Mr. McNamara before the appropriations committee this year, wherein at page 439—which I assume cannot therefore be classified—I find this statement:

> Mr. FORD: Mr. Secretary, for the first time I have heard a witness say that our own anti-ICBM program will create a fallout problem. I have never heard that expressed here before.
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> Secretary MCNAMARA: I cannot speak with accuracy about the past, but I think I am right in saying that our own program will create a fallout problem. We are using nuclear warheads, of course, and there are literally hundreds of them that would be detonated under these circumstances.

We are using nuclear warheads, and here is an illustration, and I think there may be continuity under these circumstances. I give you that as an illustration.

Mr. HELLYER: That information is not classified and we are quite prepared to deal with that question and with other ones raised in respect to our defence. May I now call on Dr. Field.

Dr. G. S. FIELD (*Chief Scientist, Defence Research Board, Department of National Defence*): Mr. Chairman, with respect to the subject of cooking, I think we should first of all say that these defensive weapons were not introduced originally to cook bombs, but merely to be more effective in bringing down bombers or ICBM's; and when I say more effective I mean it in the sense that the range of destruction of the nuclear warheads in a defensive weapon, has a much greater range of destruction than a high explosive; so that these weapons were introduced originally to have a greater range and thus to have greater success in bringing down incoming missiles or bombers.

However, it turned out on later examination of the nuclear weapons and the nuclear defensive warheads that it showed that it did something called

cooking. Although the details of this are not fully known to us in Canada, basically what happens is that when the neutrons from a defensive weapon strike an incoming warhead, the latter becomes heated so much that it completely distorts the warhead, and if it distorts, then it no longer explodes as a full-scale nuclear weapon.

These nuclear weapons are very critical in their manufacture; they are highly complex and if any part of them is disturbed they no longer go off. As members of this committee no doubt know, there have been cases when bombers have crashed carrying nuclear warheads and the warheads have not gone off; just banging them or crashing them does not make them go off—and if they are subjected to something which distorts them they no longer go off as full scale nuclear warheads. So "cooking" consists of our deforming the incoming bomb so that it is no longer effective as a full scale nuclear weapon.

Mr. McMillan: Then the "cooking" is not associated with heat?

Mr. Field: Yes, it is, through the attack on it by neutrons from the defensive warhead. The defensive warhead emits a great number of neutrons which heat the bomb and render it inoperable.

Mr. Winch: Have you read the evidence of Mr. McNamara and General Taylor at the subcommittee meeting which you will find recorded on pages 439 to 447 inclusive?

Mr. Field: Yes, we have that evidence in front of us and it is my opinion that that concerns a question of fall-out rather than "cooking" the bomb, which we are discussing.

Mr. Winch: But that is the very point; that concerns the utilization of an anti-attack weapon and, according to this evidence, as I read it, if it hits it does not cook but means there will be a fall-out. Dr. Field, how do you explain what you now say, that it will cook, whereas, as I read the evidence here, it means there will be fall-out, and an extended fall-out because the anti-missile hits an atomic warhead.

Mr. Field: Actually, in this testimony there are two points, and perhaps I could deal with them one at a time and, in turn, explain each of them.

I think we have to distinguish between two kinds of fall-out. If a nuclear weapon explodes on the ground in such a position that the fire ball of the bomb touches the ground that bomb sucks up with it into the atmosphere a tremendous amount of debris from the ground, including pieces of earth, stones, rocks and so on. These particles are very heavy and they are contaminated by the bomb; they are loaded with nuclear material and become very dangerous as fall-out. And, as these particles are heavy they fall out quickly in the form of ash; so, in the immediate neighbourhood of a bomb which has engulfed the ground you get these particles falling out in the form of very highly dangerous ash over the countryside. If a bomb is detonated in the upper atmosphere it does not involve the ground itself but is blown into extremely small fragments and, as you know, these remain in the upper atmosphere for days, weeks and sometimes months, and so we have the case of particles from nuclear tests which often come down thousands of miles away days and weeks later. This fall-out is very small and, as you know, some of it has occurred over Canada in the last few years as a result of these tests. This fall-out is very light; the particles are very small and the contamination on any particular part of the ground is, in fact, very small. But, as I said earlier, if you are near a bomb which has engulfed the ground you often do get these larger particles which are very highly dangerous.

Mr. McNamara, in his testimony, referred to both of these though, perhaps, not quite in the way I have done.

In respect of the second kind, fall-out from bombs detonated in the upper atmosphere, he said if you had 100 of these detonated in the upper atmosphere there would be fall-out. Now, that fall-out would be spread over a long period of time and would be of the same kind we have now from the tests of nuclear weapons only much more intensified. It would result in genetic hazard which may harm our progeny—that is, our children—but it would not be a great danger to us because it is so fine and spread out over so much territory.

Mr. McNamara referred to the other kind; he said if we install a Nike-Zeus system designed to defend a city we will shoot up our defensive weapons around the city and keep the atomic warheads away. He said if we do that the enemy will try to destroy us by fall-out; they will then shoot their ICBMs so that they will hit the ground some distance from the city. This will have the effect of sucking up into the atmosphere some of this heavy fall-out which is dangerous and then this will come down in cities, with the result that it will be a considerable hazard to people. I think this is what he said on pages 439 to 440; he says:

> There is an almost certain serious fall-out problem associated with the deployment of an anti-ICBM system.

And that is what he was referring to particularly, this danger of large particles in the form of fall-out on a city.

Mr. WINCH: I would like to refer you to page 438 where it is stated:

> As a matter of fact, any one of these programs demands a complimentary civil defence program, because there will be such a huge amount of fall-out generated by our own anti-ICBM system and the incoming warheads of the strike that it would be foolhardy to spend funds of this magnitude without accompanying it with a civil defence program.

This does not concern bombs landing but the anti-ICBM's which are in the air.

Mr. FIELD: I think he says our own warheads and the incoming weapons.

Mr. WINCH: It is based on a strike, as I understand it.

Mr. FIELD: I am sorry but this is not too clear here on my copy.

Mr. WINCH: I have a photostat of it.

Mr. FIELD: Your last remark was: "and the incoming warheads".

The CHAIRMAN: Mr. Winch, would you read it again.

Mr. WINCH: And, in answer to a question by Mr. Ostertag. Mr. McNamara says:

> I think that is a good question. I would say the quickest way to provide for a saving in lives under these circumstances is to advance the civil defence program at an expenditure which is just a small fraction of this. As a matter of fact, any one of these programs demands a complementary civil defence program, because there will be such a huge amount of fall-out generated by our own anti-ICBM system and the incoming warheads of the strike that it would be foolhardy to spend funds of this magnitude without accompanying it with a civil defence program.

This I have read before; it is based, as I understand it from the previous pages, on an anti-ICBM with a nuclear warhead being able to actually hit an incoming offensive missile.

Mr. FIELD: I have this now; he says: "and incoming warheads". Mr. Ford said:

> Mr. Secretary, for the first time I have heard a witness say that our own anti-ICBM program will create a fall-out problem. I have never heard that expressed here before.

Then Secretary McNamara goes on to say:

> I cannot speak with accuracy about the past, but I think I am right in saying that our own program will create a fall-out problem. We are using nuclear warheads, of course, and there are literally hundreds of them that would be detonated under these circumstances.

Then, as a result of another question by Mr. Ford, he says:

> So, in a sense, it is an academic question. There is an almost certain serious fall-out problem associated with the development of an anti-ICBM system.

Then, Secretary McNamara goes on to say:

> On this point, may I add one further thought: if we had a Nike-Zeus or X system in being, the Soviets almost certainly would target some of their missiles outside the range of those systems. They would know where the defence systems were located and they would target their missiles outside the range of those systems with ground bursts to insure that we had a substantial degree of fall-out even though the defence system might have been successful in intercepting some or even a majority of the warheads targeted against the urban areas themselves.
>
> Mr. Ford: So, it is an academic question.
>
> Secretary McNamara: So, in a sense, it is an academic question.
>
> There is an almost certain serious fall-out problem associated with the deployment of an anti-ICBM system.

He explained why. He said that it is because of this great fall-out arising from this weapon hitting the ground some distance away.

This is testimony which occurred after the comments which you indicated were made when he first of all stated that there was fall-out and then went on to indicate that most of it would come from this large fall-out from enemy warheads detonating on the ground in an attempt to circumvent the defence.

Mr. LAMBERT: Dr. Field, referring back to this problem of cooking or the distortion of the nuclear weapon in the air, there is some scientific disagreement about this, is there not?

Mr. FIELD: There is no scientific disagreement in respect of the capability of this method. There have been discussions in respect of the range at which this can happen. There is no question or disagreement about the possibility or the certainty of this within certain ranges.

Mr. LAMBERT: Within the field of unclassified information, are there not certain physicists who maintain that this is not possible?

Mr. FIELD: I am not aware of that disagreement.

Mr. LAMBERT: Is there some suggestion that this is not effectively possible?

Mr. FIELD: I am not aware of that.

Mr. LAMBERT: I ask these questions because I understand there has been some expression of this disagreement.

Mr. SMITH: Dr. Field, you referred to the upper-upper atmosphere. What is meant by that term? Would you define that term?

Mr. FIELD: I really had in mind somewhere above 40,000 feet. Basically the point is that the fire ball of the bomb must not engulf the ground.

Mr. SMITH: What is the greatest height at which the Bomarc is effective?

Mr. FIELD: I am sorry, but I would sooner you ask questions of this type of the air force personnel later, because some of these points are classified and I am not sure whether that point is or not.

Mr. SMITH: I was trying to find out whether or not the Bomarc would be effective in the upper atmosphere.

Mr. FIELD: It would be effective above 40,000 feet, yes.

Mr. SMITH: In that regard, the lower an explosion takes place the greater fall-out there would be from cooking a weapon, is that right?

Mr. FIELD: That is true.

Mr. SMITH: The comparative amount of fall-out depends in some respects on whether the weapon was cooked or exploded in the air as well as on the size of the attacking weapon and the size of the cooking weapon?

Mr. FIELD: That is true.

Mr. SMITH: The height at which this weapon was detonated would also have some bearing?

Mr. FIELD: Exactly, yes.

Mr. LAMBERT: In this regard, Dr. Field, in view of the fact we are considering Bomarcs designed to attack manned bombers, and a manned bomber has a certain accepted maximum range, even though that range might be within 50,000 feet, this is below the stratosphere and therefore a danger zone?

Mr. FIELD: One would expect these to come in above 40,000 feet, as I said earlier in respect of the height of the Bomarc.

There is, of course, one point which I have not mentioned. If one brings down a bomber or weapon in an uninhabited area it is obvious that the danger is much less than if the weapon itself is detonated on a city. The principal objective is to attempt to bring the weapons down before they are anywhere near cities. This is, of course, the prime objective.

Mr. BREWIN: Mr. Chairman, I have a question on a completely different subject so perhaps if other members of this committee have related questions they should ask them now.

The CHAIRMAN: Other members have raised their hands in order to get the floor and if they wish to ask related questions they should proceed before the subject is changed.

Mr. LAMBERT: I think as a matter of procedure, Mr. Chairman, you will find from experience that it is much better to exhaust one range of questions rather than to adopt a policy of letting the witness go now and catching him tomorrow.

The CHAIRMAN: You may proceed to ask your questions.

Mr. LAMBERT: I should like to put a further question in so far as the distortion of an enemy bomber and its load, is concerned, because we are not talking about missiles here but rather about Bomarcs. Am I correct in my understanding that there is still a danger of ultimate fall-out possibly effective to 300 miles even though the distortion took place in an uninhabited area?

Mr. FIELD: I cannot give you the exact details in respect of fall-out in an uninhabited area with certainty, but fall-out is still a danger.

Mr. LAMBERT: I am referring to the potential of an unexploded nuclear bomb because after all the atomic warhead is used only to cook. If you are not going to cook with it, then we are sure that the knocking down of that bomber will result in a nuclear explosion?

Mr. FIELD: When a bomber is shot down and the bomber is carrying an atomic weapon several things may happen. The warhead of the atomic weapon may be cooked, as we have said, so that it would be rendered almost completely harmless. It may not be cooked, being beyond the range of cooking, but the bomber might suffer sufficient damage making it come down. The bomb may be fully cooked or partially cooked in which case there might be a very small nuclear explosion. It might well be that the weapon itself is not in any way harmed but the aircraft carrying it is damaged forcing it to bring the weapon

down. In that event the weapon may or may not explode when it hits the ground. It would explode only if the crew of the aircraft triggered something in the weapon to make it explode when it hit the ground.

Mr. WINCH: Mr. Chairman, in view of what has been said, I should like to direct a question to the minister. In view of the fact our Bomarcs are to be equipped with nuclear warheads, are our Bomarc installations located in uninhabited areas?

Mr. HELLYER: Mr. Chairman, as hon. members will appreciate, these things are relative. The Bomarc has a considerable range and presumably any explosion would take place perhaps hundreds of miles from the actual location of the squadrons themselves. I think one must look at the map and check the relative density of population several hundred miles north of La Macaza or North Bay, with the 100 mile strip immediately north of the great lakes.

Mr. WINCH: May I ask you, sir, whether it is the Bomarc B with which we are concerned?

Mr. HELLYER: That is correct, yes.

Mr. WINCH: It is my understanding that the range of the Bomarc B is 400 miles. If my understanding in that regard is correct, does that include the distance up as well as the distance away?

Mr. HELLYER: Mr. Chairman, in round figures this is the horizontal range.

Mr. GROOS: My question, Mr. Chairman should perhaps be directed to the minister.

The CHAIRMAN: Mr. Granger is next.

Mr. GRANGER: With reference to cooking a bomb, I think you said there would not be a full-scale nuclear explosion. Does that mean there is apt to be a partial explosion of the bomb?

Mr. FIELD: If the bomb were completely cooked there would be no nuclear explosion at all. There might be a "high explosive" explosion; only a few yards, in radius which would not amount to very much. If the bomb were fully cooked there would be no nuclear explosion at all. The bomb might be partially cooked in the sense that the defending weapon had been partially successful in neutralizing the bomb. In that event there would be only a small scale nuclear explosion. In other words, let us say the bomb was originally of the order of 50 kilotons and following the distortion it was of the order of one or two kilotons, that would be a very inefficient nuclear explosion and not nearly as dangerous a one. In other words we might expect a full cooking or partial cooking, or perhaps none at all.

Mr. CHURCHILL: I would like to ask Dr. Field a question on the same subject matter: what would be the effect of a blast from a Falcon conventional missile making a direct hit on a plane and therefore a direct hit on the nuclear bomb? Would that cause any distortion in the delicate mechanism of the bomb?

Mr. FIELD: This depends on how close to the nuclear bomb it actually occurred, but it would have to be almost right up against it, in other words the Falcon warhead would almost have to hit the nuclear bomb before it could do any damage.

Mr. CHURCHILL: I understand the Falcon warhead homes on the target and does make a direct hit?

Mr. FIELD: On the aircraft but not on the bomb, and the bomb would need to be only a few feet away from the point of impact before it would escape.

Mr. CHURCHILL: My second question is this: you explained the effect of neutrons from a nuclear explosion penetrating the nuclear bomb. Has this actually been tried out in an experiment or is this based on theory?

Mr. FIELD: We understand from our American sources that this has been theoretically and experimentally confirmed.

Mr. CHURCHILL: In other words, there has been a nuclear explosion where an anti-aircraft nuclear-tipped missile hit a nuclear bomb and the result was that the nuclear bomb failed to explode?

Mr. FIELD: We have not been given details on what was actually done because of the nature of this information. We have been told that the Americans have carried out work on this problem and are fully convinced that this is what happens. We have been informed of this.

Mr. WINCH: Will the minister explain why, since we are partners with the United States and tied up with them by agreements in NATO and NORAD, this information has not been made available to Canada? I am speaking now in view of the statement made by Dr. Field.

Mr. HELLYER: I cannot give you a detailed answer, but as you know the exchange of information is governed by U.S. law and there are certain classes of information which they just cannot make available. It is also a fact that once a bilateral agreement has been signed between the two countries in respect of the stockpiling of weapons, certain additional information will be made available in respect of the performance and characteristics.

Mr. WINCH: And we in Canada are expected to make our decisions with a partner without having full information?

Mr. HELLYER: I think on this subject the information we have and the verification which has been done by our own scientists is sufficiently adequate for reaching a judgment.

Mr. MATHESON: Dr. Field, I would like to ask you one question: Is a direct hit not pretty theoretical?

Mr. FIELD: I do not think I used the term "direct" except in respect of the question involving the Falcon.

Mr. MATHESON: Is the probability of a direct hit with a conventional weapon very great?

Mr. FIELD: If it is a homing weapon, it has a reasonable chance of a direct hit.

Mr. MATHESON: Is there a high probability of a direct hit with a homing device?

Mr. FIELD: Yes, the probability is quite good with a weapon such as the Falcon.

Mr. MACINNIS: In answer to a previous question, the minister indicated the potential of a Bomarc and its capabilities north of the Bomarc site. What is the intention should an enemy bomber bypass the Bomarc site and instead of 250 miles north, as he suggested, it would be necessary to bring down a bomb 250 miles south and close to a fairly populated area?

Mr. HELLYER: In that case I think, although it would have been much more desirable to intercept it north of the site, it would certainly be imperative that it be intercepted by the Bomarc, and that the weapons of the incoming bomber were cooked. I think that its value and effectiveness would probably be even more important under those circumstances.

Mr. CHURCHILL: Is there anything in the evidence of the congressional committee before which Mr. McNamara appeared concerning the alleged cooking of a nuclear bomb?

Mr. FIELD: I am not aware of any.

Mr. HELLYER: I could not say.

Mr. CHURCHILL: Where did this originate?

Mr. HELLYER: This information would originate in respect of information which is exchanged between friendly governments.

Mr. CHURCHILL: Mr. Chairman, it strikes me as rather strange that a topic as important as this should be of such major concern in Canada and apparently not mentioned in the discussion and in the investigations in the United States.

Mr. HELLYER: I think, Mr. Chairman, that this would be because they would have had so much more information for a longer period of time so that this would be accepted by them. It would not be a matter of current controversy.

Mr. WINCH: Why should it not be available to Canada?

Mr. HELLYER: It just has not been discussed here in the past to any great extent.

Mr. BALDWIN: Mr. Chairman, the minister indicated we must first enter into a bilateral agreement, which by implication suggests a bilateral agreement by which we take atomic missile weapons, before we have information available to us. In section 144(b) of the U.S. atomic energy act it says that the president may authorize the department of defense with the assistance of the commission to cooperate with another nation in the regional defence organization to which the United States is a party and to communicate to that organization restricted data necessary for the development of defence plans, training of personnel and evaluation of the capabilities of potential enemies. Nothing is said in this section about the necessity of a bilateral agreement being a condition precedent. Is it not possible, under the terms of that section, for the United States to make this type of information available to Canada which is a partner in a regional defence organization both on this continent and in Europe?

Mr. FIELD: I think it should be made clear that Canada is given all the information on weapons effects which it needs in order to plan the defence system. We are not told the mechanism of some of these effects; we are not told exactly what happens inside one of those bombs under a certain set of circumstances. We are told what the bomb will do when used as a weapon. Full information on weapons effects is made available to us and has been made available to us, which is all we need in planning our defence system. We do not really need to know what the inside looks like, any more than we need to know the inside of a watch in order to tell time. We are given the weapons effects information, and that is all we need.

Mr. BALDWIN: I am relating my question to what you said before and to the minister's amplification that certain details will not be made known to us until we do sign a bilateral agreement. Now, I do not want to refer back to those points—the minister knows what they are. Has any effort been made at this time, prior to a bilateral agreement being entered into, to obtain that information? Has that request been presented?

Mr. HELLYER: The information is made available on a "need-to-know" basis, as Mr. Field said. We were given the information that we should have and must have in order to plan a defensive system. In the event that we were to have weapons stockpiled for our use, such additional information would be made available as was necessary, that is what we would need to know to exercise the systems available to us.

Mr. BALDWIN: In an effort to evaluate and make up our minds whether or not we are going to have these nuclear weapons, should we not have that information prior to our decision?

Mr. HELLYER: We have all the information which is required upon which to make a decision.

Mr. WINCH: Mr. Chairman, I would like to ask one more question. I want to be clear in my mind on this point and at the moment I am not clear on it. Mr. Field said a little while ago, when explaining cooking, that the Bomarc could hit directly or within the immediate neighbourhood of 40,000 feet, and that it would then cook the bomb. He then came out with the statement which I would like to have clarified that there would be a greater fall-out if the offensive weapon with the nuclear warhead were closer to the ground. The point I wish to get clear is this: if he is correct that, when a nuclear warhead on the defensive weapon strikes a nuclear warhead on an offensive weapon, it cooks it at 40,000 feet, why not also at 10 or 20 thousand? There should not be any fall-out at all if the cooking is correct.

Mr. FIELD: This is true; a defensive weapon will cook at these lower altitudes, but the fall-out I thought we were talking about was not from the bomb cooked, but from our own weapon.

Mr. WINCH: Is that not cooked also?

Mr. FIELD: No. Your own weapon goes off and in going off cooks the opposing weapon, but in going off your own weapon exploding produces a certain amount of fall-out. I pointed out earlier that that fall-out likely would be very small because the particles are tiny and most of them will go into the upper atmosphere.

Mr. WINCH: To me this is rather important. If one atomic warhead cooks the other, why is it itself not cooked?

Mr. FIELD: This is a good question. Your own weapon explodes; if it cooks the enemy weapon then that weapon does not explode at all, but simply collapses or distorts and is not usable; it is a piece of "dead" uranium or whatever happens to be in it. It does not cause anything in the nature of an explosion on the part of the enemy weapon. You just have nuclear material which is in the compact form and does not cause fall-out. The only time you get fall-out is when the weapon has exploded. Your own weapon explodes and generates fall-out, but the enemy weapon which is cooked does not explode and is not capable of generating fall-out.

Mr. WINCH: The way to kill ourselves is to stop the enemy.

Mr. FIELD: I do not think I suggested that.

Mr. WINCH: If we are going to have fall-out, it would be from our own defensive weapons.

Mr. FIELD: The only time you get a large amount of fall-out is when the weapon is allowed to touch the earth. When you explode them up in the air, the amount of fall-out that is generated is quite small.

Mr. MCMILLAN: My question has largely been answered. Mr. McNamara said there would be a lot of fall-out from an anti-ICBM, and I think the answer was that we have no such system now.

Mr. FIELD: That is right.

Mr. HELLYER: We have no anti-ICBM system. I think the point should be clearly made. Dr. Field indicated that in an anti-ICBM system, if the incoming warhead was intercepted by a defensive warhead it would be cooked; but as Mr. McNamara said, the enemy might divert its fire upwind away from the industrial target, outside the defensive area, and have a ground burst which would create fall-out to drift into the urban area with devastating effects, and that this could cause a very serious problem which would involve a major civil defence effort.

Mr. MCMILLAN: Within the range of cooking have any experiments been done?

Mr. HELLYER: We have been given information on the range of cooking.

Mr. McMILLAN: That is classified?

Mr. HELLYER: Yes.

Mr. SMITH: I suppose it is reasonable to assume that at the same time scientists are trying to develop cooking methods for nuclear weapons coming from a foreign country other scientists are trying to develop systems that will prevent them cooking.

Mr. FIELD: Yes. In fact, one of the possible defences is to armor your nuclear warheads. If you can put a big sheet of steel around it, you would have a protective device. There certainly are experiments going on to make ICBM's more effective, as you said.

Mr. SMITH: We seem to be talking about ICBM's and yet the weapon systems under immediate concentration are those of the Bomarc and Voodoos.

Mr. FIELD: Yes.

Mr. SMITH: Has there been any specific communication from the United States authorities to the Canadian government as to the effectiveness of the cooking powers of the nuclear warheads with which the Bomarcs and Voodoos will be armed.

Mr. FIELD: We have that information.

Mr. SMITH: There has been a specific assurance in that direction?

Mr. FIELD: Yes indeed.

Mr. HAHN: With regard to the fall-out situation and again dealing with manned bombers, and the Bomarcs, surely the maximum fall-out we could get would be if the weapon that is being sent to us explodes on the ground.

Mr. FIELD: Yes.

Mr. HAHN: And there is no way to stop that happening by using a high explosive means to shoot the weapon down.

Mr. FIELD: Yes, but the high explosive war-heads are not nearly so effective.

Mr. HAHN: So that by using nuclear Bomarcs we run the risk of having two nuclear explosions. The Bomarc might bring the weapon down and not cook it, but would also stand a fair chance of cooking and neutralizing the main weapon.

Mr. FIELD: Yes.

Mr. HAHN: If this happened at an altitude above the ground where the Bomarc itself would suck up radioactive debris from the ground, would the amount the Bomarc would suck up cause severe radioactive reaction.

Mr. FIELD: No. In this case the Bomarc would not suck up any debris from the ground because it would be detonated at a high enough level that it would not do this. With the Bomarc we suffer no danger from ground particles being sucked up.

Mr. HAHN: We do have a possibility of minimizing the fall-out from the main weapon?

Mr. FIELD: Yes.

Mr. MacINNIS: Mr. Chairman, Dr. Field previously referred to the cooking of the enemy weapon and he made reference to the fact that he thought something could be done to the bomb to ensure explosion. Does this necessarily mean that they could activate the bomb to ensure explosion when cooked?

Mr. FIELD: No. If the aircraft were brought down, and the bomb itself not damaged, the crew could fuse it so that when it crashed the bomb could go off; but this they could do only if the bomb itself were not damaged.

Mr. HAHN: Or if they pre-arranged this activation of the bomb before they reached the target sight. If within a few thousand miles of the target area they activated that bomb, which would be a very simple thing for them to do, what would be the result of the cooking then?

Mr. FIELD: If the bomb were cooked, it would be effectively destroyed, no matter what they did with it.

Mr. MACINNIS: You have already indicated that the bomb itself, the weapon, could be very easily protected against cooking.

Mr. FIELD: I am sorry, I did not mean that it could be very easily protected. I thought the question was whether or not the attacking side might try to avoid cooking. But the effect of all this, I think, would be only to limit the range of the cooking; that is, to lessen the space in which it could be cooked; for example if it were a mile without any protection, then by protection you might be able to reduce it to one-half or three-quarters, and so on. But any protection you gave the bomb would only shorten the range at which it could be cooked, but it would still be cooked, if an atomic bomb were close enough.

Mr. MACINNIS: Would it not be a simple matter to operate a bomb outside the range of the Bomarc, so that any disturbance would explode that bomb rather than cook it?

Mr. FIELD: No, that is not possible.

Mr. MATHESON: On page 17 of his evidence the minister said that "our contribution to the active air defence consists of a substantial participation in the radar warning lines, five squadrons of CF-101B-Voodoo, interceptors, and two squadrons of Bomarc surface-to-air missiles". If we had not taken these five squadrons of Voodoos and two squadrons of Bomarc's, would the American forces have been stronger to that extent, and would they have been nuclear armed, or does the minister know?

Mr. HELLYER: Well, I think any contribution to the total defensive capacity reduces the danger from the threat as it presently exists. What someone else might have done under different circumstances is, of course, hypothetical. But any contribution we can make to active air defence would make it that much stronger.

Mr. MATHESON: If we did not have this equipment would the Americans have this same equipment, or would we take it out of service from them?

Mr. HELLYER: Yes, in both cases it would be equipment which would have been available to the United States of America. And if the second part of your question was: would they then have armed them with nuclear type of missiles, warheads, I think the answer categorically is that they would have, because they have other equipment of the same class armed with nuclear warheads.

Mr. LAMBERT: Is it true that the American air components or air defence are all nuclear armed, or only a portion thereof?

Mr. HELLYER: I do not know.

Mr. LAMBERT: Is it not general information that only a portion thereof, and maybe as low as 50 per cent of it?

Mr. HELLYER: I am reluctant to answer, because it involves the United States of America. I think they would have nuclear capabilities and I think it has already been stated publicly.

Mr. MACLEAN: I have a couple of questions. I gathered from Dr. Field's reply to Mr. MacInnis that we can be assured that it is not possible to design a fuse for an atomic weapon which would be more sensitive to the cooking effect, other than the weapon itself; in other words, that it is considered not

possible to design a fuse which would result in disintegration if it were cooked, and by the same effect?

Mr. FIELD: This I believe to be the case but assuming that it were not, would there be any advantage in doing it? If you were, let us say, up 60 to 80 thousand feet or so, and if you had a fuse which would explode the bomb before cooking started, this would do nothing much except to destroy its own aircraft which is what we want to do anyway, and the explosion would be up in the air where it would do the least harm to anybody else.

Mr. MACLEAN: I have a couple of other questions: is there any evidence that a potential enemy might have stand-off bombers which could fire atomic arms or missiles and which would do their final approach, let us say, the last thousand miles or so, at a low altitude, rather than to have the intervention of the Bomarc, which might cause a high fallout effect?

Mr. FIELD: I think since we are talking about specific weapons, it would be better if it were discussed with the air force, because your question has more to do with the behaviour of weapons than with the nuclear side.

Mr. MACLEAN: I have a question which may fall in part in the same category. What about the possibility of distinguishing atomic weapons? Is it possible to distinguish on the approach of a weapon, between one carrying a dummy and one which actually carries an atomic warhead? I think it would be relatively simple to launch a number of dummies which would have the effect of setting off your Bomarc missiles, while reserving the real attack until later?

Mr. FIELD: It is true that one might conceive of dummies; and think your suggestion is that an enemy in this case might try to have dummies come over which would look like bombers. But those dummies would have size, speed capability, and so on, similar to a bomber and so it is not an easy thing to have such dummies coming in in place of bombers. I think the possibility exists, but it is not really a simple solution, because it means that it must be something complex and something like a bomber, if you like.

Mr. MACLEAN: Would it not be possible to have something easy to carry which a bomber might launch far off at some distance and which would fool the radar defences?

Mr. FIELD: This comes under the heading of electronic counter-measures; and I think that electronic counter-measures have not only been recognized but that much work has been done to counter such attacks. This is part of the defence system, so that the defending people are trained to be aware of the fact that they are being attacked by the real thing and not by dummies, or at least by the real thing accompanied by dummies in the sense in which you use the term; and this is part of the over-all defence problem. Defence recognizes it and there has been a great deal of work done to try to avoid being caught under the circumstances you mention. So it is in any case a well recognized threat.

Mr. CHURCHILL: Dr. Field mentioned earlier the possibility of an enemy shielding a bomb against the effects of missiles, Bomarc missiles. Is this shielding against a blast effect or against the effect of neutrons?

Mr. FIELD: We could conceive of trying a defence against both things, but it is not simple, particularly with neutrons, and it is likely to make the bomb so heavy that you would not be able to carry it. It is not easy to shield a bomb. You can do something toward shielding it, but it is not easy to make the shielding effective. So while you might reduce the effectiveness of the defence somewhat, you are most unlikely to be able to offset the defence very much by such tactics.

Mr. CHURCHILL: What happens in an atomic explosion? How is the chain reaction developed? Can you explain that to us in layman's language?

Mr. FIELD: Well, actually the mechanism of the bomb we cannot discuss, because we do not have the exact details, although we do have a pretty good idea. But in respect of a chain reaction in general—and this applies of course to power plants as well as to bombs—what happens is that there are two main types, the so-called fusion and the so-called fission. It was discovered that certain substances could be made to break into two pieces. Now, in breaking into two pieces they gave out energy and heat, and, in addition, they gave out neutrons; and it was found that you could trigger a fission and make one of those substances break into two parts by hitting it with neutrons. So, the general reaction consists of some neutrons which start off by one piece of this fission material breaking into two parts. As it breaks it liberates heat, and as it breaks, it gives off more neutrons; these neutrons themselves hit other pieces of the same material and make it break up and give off neutrons and heat. Therefore, the more you have breaking up the more neutrons you have and the more heat you have, hence the expression "chain reaction" because one fission or separation starts a whole series of fissions and separations, and as it does you get neutrons and heat, with the total result of a tremendous amount of heat and neutrons. This is what happens in a bomb explosion—and that is in the first kind, the fission explosion.

The fusion explosion consists of making two substances join together or fuse and, as they do, they liberate a tremendous amount of heat and start other parts of the material joining together. So, the so-called hydrogen bomb is a fusion bomb, where certain substances containing hydrogen are brought together and as they join together they give out this tremendous amount of heat as well as neutrons. So, we have the two kinds.

Mr. CHURCHILL: What bothers me in connection with the alleged "cooking" of the bomb is this: as you said earlier, when the material explodes the anti-aircraft missile explodes and neutrons are released which penetrate the bomb and cook it; why on penetration do they not cause a chain reaction?

Mr. FIELD: Because the penetration of neutrons is so intense before the chain reaction can occur that the whole thing is distorted and rendered inoperable—in other words, deformed. The deluge of neutrons from an atomic bomb is so great there is not time for a chain reaction to occur; it is destroyed before then. The chain reaction has a slow build-up, starting with few and then more and more and this gives time for the whole thing to be in a fissionable and explosive state. But if this deluge of neutrons is of sufficient intensity and rapidity the whole thing is destroyed before the chain reaction occurs.

Mr. LLOYD: My question is directed to what we hope to arrive at during this stage of the proceedings. From what Mr. Field has said I gather that the role of the Bomarc as a defensive weapon is relevant to all the other defensive weapons systems and it is my belief that you cannot evaluate its true relationship without knowing of the other weaponry systems you propose.

Mr. HELLYER: This is part of the total active air defence of the North American continent.

Mr. LLOYD: My next question is related to the one asked by Mr. MacLean in connection with sending over prototypes to explode and, therefore, exhaust your supply of weapons with a wave of weapons later; I gather the whole defensive system must be oriented to the destruction of carrying vehicles?

Mr. HELLYER: It is preferable to destroy the vehicle before it has a chance to launch any sub-vehicles.

Mr. LLOYD: So you will have to examine the total air defence picture before you can evaluate the use of the Bomarc.

Mr. HELLYER: I think that is a fair statement.

Mr. LAMBERT: Referring back to the minister's statement as to the nature of the American air arm for continental defence, is it his information that a part of the American air arm is composed of conventional weapon carrying aircraft?

Mr. HELLYER: Mr. Chairman, I do not think I should say anything more about that at the moment.

Mr. LAMBERT: But in the event that the answer would in the affirmative would it not be that the original conclusion that the conventional weapon carrying fighter aircraft is satisfactory would apply?

Mr. HELLYER: No, I do not think so, Mr. Chairman, because the question is relative effectiveness, that is which type of defensive weapon can do the best job, and I think that is what we really are concerned with.

Mr. LAMBERT: Then let us use a concrete example, a squadron of Voodoos located in Michigan armed with conventional weapons; would there be any difference between that squadron and a squadron which is relatively north at North Bay or Uplands?

Mr. HELLYER: If they were the same type of squadron, the same size and carrying the same armament the only difference would be in the effectiveness of the crews or the geographical location.

Mr. LAMBERT: But I am referring to weapons as between the conventional and atomic or nuclear tipped type.

Mr. HELLYER: If the weaponry was the same, then the effectiveness would be only subject to these other considerations.

Mr. LAMBERT: All things being equal, the effectiveness would be the same?

Mr. HELLYER: Right.

Mr. TEMPLE: My question arises out of the same subject. Do I take it then that the farther north our defensive squadrons, say of Voodoos, are then the better it is?

Mr. HELLYER: I think as a general statement it is fair to say the farther away from the prime target areas that interception is made the better will be the result.

M. LESSARD (*Lac-Saint-Jean*): Monsieur le président, les permis de survol du Canada accordés aux appareils américains sont-ils émis sur une base mensuelle ou annuelle? Le Canada a-t-il un contrôle constant de tous les appareils américains qui survolent le Canada?

(Note: English translation of the above question appears at the back of this issue.)

Mr. HELLYER: Mr. Chairman, there are a number of controls and I think the answer that the honourable gentleman would be interested in is that we actually control the matter right down to the number of flights.

Mr. MCMILLAN: Once in a while the subject is brought up of us living in possible danger from the handling of Bomarc missiles and nuclear warheads on Voodoo planes; would the doctor comment on that?

Mr. FIELD: I do not know of any particular hazard. There is a hazard in the handling of any weapons, of course, but if the proper precautions are taken there would be no special hazard about this.

Mr. MCMILLAN: I understand the United States has not had any accidents?

Mr. FIELD: No.

Mr. BREWIN: I was wondering about the scope of our discussions. Are we discussing now, Mr. Chairman, the general usefulness of the Bomarc, in which case I have some questions, or are we discussing the effect of "cooking"? If we are discussing the general use of the Bomarc I have some questions which I would like to pose.

The CHAIRMAN: Would you proceed with your question?

Mr. BREWIN: I am referring to an article which the minister wrote on January 25 of this year in the VARSITY WEEKEND REVIEW; in that article he says:

> In respect to the value of air defence of North American continent, it is generally admitted that the Bomarcs usefulness as a protection for the deterrent is diminishing rapidly.

The article then continues as follows.

> It can then be argued that the marginal usefulness of these installations has been extended by a year or two.

I should like to ask the minister at this time whether this statement still stands or whether he would like to comment further at this time.

Mr. HELLYER: Mr. Brewin, I do not think that it would be helpful for me to stand necessarily just on statements that I made at that time.

Mr. BREWIN: I should like to receive a direct answer to the question then, Mr. Chairman. Is it true that the Bomarc's usefulness as a protection for the deterrent is diminishing rapidly?

Mr. HELLYER: I do not think I would place the same emphasis on that statement, Mr. Chairman, if I were now writing the article. All we can speak about is this moment in time and perhaps the preceding few months. I made the point in my opening statement that the bomber threat was not diminishing as a proportion of the total anywhere near as rapidly as I had thought previously, or as indicated by the information upon which the article was based. Secondly, I would say its usefulness has not declined as rapidly as I had thought.

Mr. BREWIN: I should like to point out to the minister that in this article he dealt with the fact that the Russians were producing missiles at a slower rate, and then went on to say that the marginal usefulness of these installations has been extended by a year or two. Does the minister still think that is an appropriate and correct statement?

Mr. HELLYER: Mr. Chairman there are two or three considerations involved in this situation. First of all, my appraisal of the total situation is, of course, based on new and much more complete and up-to-date information than was available to me at the time I wrote that article. I think that fact should be kept in mind as an important consideration and that hon. members should understand that that is the situation.

In respect of the interpretation of that phrase—and I hope that we will not set a pattern of going back to a discussion of things that have been discussed and said by me previously—Mr. McNamara said in testimony that the expenditure in respect of the total Bomarc system was something of the order of $3 billions and that if he had to go back and do it all over again he did not believe that the system would justify the expenditure of that amount of capital. However, he suggested that the situation was that the capital had been spent and the alternative or options available to him actually involved weighing the operating cost of the system against its effectiveness in active air defence. I think that is my position also. The operating cost of the Bomarc

squadrons is of the order of a magnitude which is justified on the basis of the effectiveness of the weapons system as part of the active air defence of North America.

Mr. MARTINEAU: I should like to ask a supplementary question related to page 16 in reference to the effectiveness of the Bomarc. The minister made the following statement:

> The opinions I expressed during the last few years were based on knowledge of the threat made available to us at that time—1959. The estimates have subsequently turned out to be incorrect.

Were the opinions of the minister based upon his knowledge of the probable diminishing threat of the Bomarc and the manned bomber, or were they based upon his knowledge of the ineffectiveness of the weapon itself, and I refer to the Bomarc B?

Mr. HELLYER: I think they were largely based on the reduction of the manned bomber as a proportion of the total threat with perhaps a residual question mark as to the effectiveness of the weapons system.

Mr. GROOS: Mr. Chairman, I should like to ask a related question.

The CHAIRMAN: Several members have indicated that they would like to ask questions which may or may not be related to the subject under discussion. I should like members to make note of unrelated questions and ask those questions at the time at which the subject is being discussed. Every member will be recognized according to the list I have before me. I am very sorry to have to impose this order of procedure but otherwise I do not think we will proceed in an orderly fashion, and I am sure the reporters will have difficulty in keeping track of your names.

Mr. MARTINEAU: Mr. Chairman, on that point of order, it does seem to me that if our deliberations are to proceed we must exhaust certain questions. Otherwise members who propose to ask questions relating to the subject matter under discussion may have to defer their questions while another member is asking questions of a completely foreign nature. I am afraid if we follow such a procedure we will get absolutely nowhere.

The CHAIRMAN: That is not the procedure I suggested at all. Several members have asked a number of questions in respect of a specific subject. Many other members wish to ask similar questions regarding the same field of consideration. I think it is only fair to ask members to make note of questions relating to other subject matters until we have reached our consideration of those matters. In this way I am sure we can come to some satisfactory understanding.

Mr. GROOS: Mr. Chairman, I did have the feeling that we were straying away from our subject of discussion. I should like to ask several questions based on the minister's statement but I can appreciate that we are still discussing the Bomarc so I will yield to another member.

Mr. BALDWIN: Mr. Chairman, my question has relation to my earlier remarks and deals with a matter referred to by Mr. Brewin.

I have been informed that until we sign a bilateral agreement we will be limited in the degree and the quantity of information received. I should like to ask what additional information we will receive after the signing of a bilateral agreement.

Mr. HELLYER: Only that additional information will be supplied, Mr. Chairman, that is required in order to use a particular weapon or weapons system effectively.

Mr. BALDWIN: So the fact is that despite the fact that we have signed a 1957 NATO communique and are partners with the United States in NORAD, until we sign a bilateral agreement on nuclear weapons we cannot receive that additional information?

Mr. HELLYER: I am sorry, I did not hear your question.

Mr. BALDWIN: Despite the fact that we signed a 1957 NATO communique and are a partner with the United States in NORAD, we are unable to get this additional information to which you have referred until we sign a bilateral agreement which requires us to take nuclear missiles?

Mr. HELLYER: I would put it the other way round. We get all the information we require at any stage and that will continue to be so.

Mr. BALDWIN: Mr. Chairman, I should like to take this question one step further. Does this information come almost exclusively from United States intelligence as analyzed and assessed by us?

Mr. HELLYER: I thought your previous question was related to weaponry and the technical aspects of weaponry.

Mr. BALDWIN: I should like to know now if the detailed information we will receive will be generally based on United States intelligence?

Mr. HELLYER: In respect of weaponry a question of intelligence is not involved. What is involved is United States development and research data only.

Mr. BALDWIN: Let us deal with the question of weaponry for the moment. The information we do receive is from United States sources?

Mr. HELLYER: I think the hon. gentleman is mixing two considerations. He is mixing information in respect of weapons or a weapons system and intelligence, which is really the evaluation of the enemy's capability.

Mr. BALDWIN: I wished to tie in the question with that which the minister said regarding his own evaluation of the diminishing or increasing bomber threat, as the case may be. I should like to know whether the information he receives and his department officials receive as to this diminishing threat of manned bombers comes from United States intelligence.

Mr. HELLYER: The information that we have, Mr. Chairman, is pooled intelligence.

Mr. BALDWIN: Would you agree that a large portion of it does come from the United States?

Mr. HELLYER: A significant portion of this information comes from the United States, yes.

Mr. BALDWIN: I understand there is considerable variation in the United States assessment of the situation from time to time. I have particular reference to the statement in 1960 during the presidential election that there was a missile lag and the fact that within a year an admission was made by secretary McNamara that that assessment was incorrect and that there was not a missile lag but that the United States had a preponderant majority.

Mr. HELLYER: Mr. Chairman, there has been some variation in the estimates in the past, but I have looked into the situation very carefully and am satisfied that the information which is presently available to us is quite adequate.

Mr. DEACHMAN: I want to come back to a line of questioning which was opened up earlier by Messrs. Matheson and Lambert in respect of the Voodoo and the Bomarc. Do I understand that the Voodoos which we have in service in Canada were taken out of service in the United States in order to be brought here?

Mr. HELLYER: That is correct.

Mr. DEACHMAN: And do I understand that the Voodoos in the United States—or some of them—are equipped with Genie nuclear-tipped rockets but that that is not available in Canada?

Mr. HELLYER: It is available in the United States but not in Canada.

Mr. DEACHMAN: Are any Voodoos in the United States equipped with brackets or attachments to carry either the Genie or the Falcon rocket interchangeably if they are so required?

Mr. HELLYER: All of the Voodoo aircraft are equipped that way.

Mr. DEACHMAN: Concerning Mr. Lambert's question in respect of the Voodoos in Michigan, would they be equipped with brackets to house both the Falcon and the Genie rocket if they were required for that purpose?

Mr. HELLYER: That is correct.

Mr. DEACHMAN: The next question, in the same line of questioning, is this: was the Bomarc largely paid for by the United States?

Mr. HELLYER: That is correct.

Mr. DEACHMAN: These Bomarcs would be in service in the United States today if they had not been placed in service in Canada?

Mr. HELLYER: I am sure.

Mr. DEACHMAN: Our policy has been to reduce the defensive fire power of the North American continent by accepting the Voodoo and the Bomarc. Is that correct?

Mr. HELLYER: That is a fair conclusion.

Mr. MATHESON: Mr. Chairman, the minister, on pages 12 to 14 of his statement, refers to NATO. He says that to redress the balance of power a family of tactical nuclear weapons have been employed. He then refers specifically to an undertaking given by us in December of 1957. This is a specific undertaking by Canada in 1959. My question is whether, when NATO decided to employ this family of tactical weapons, Canada was privy to these discussions and a party to the decisions taken. Having once agreed to specific military contributions within the NATO alliance, how soon does the minister feel it might be practical for Canada, without doing a disservice to her allies, to effect a change in the nature and the extent of her contribution.

Mr. BREWIN: On a point of order, Mr. Chairman, this is an extremely interesting question and I would have liked myself to put it to the minister. However, it is right off the point we are now discussing which, I thought, was the usefulness or otherwise of the Bomarc missiles in defence against air bombers attacking this continent. I suggest, with respect to my friend Mr. Matheson, that we defer his question until we have exhausted the other one.

Mr. MATHESON: If I may say this, the only basis on which we have questioned the minister today is as a result of the chairman's statement, appearing on page 24, where he says the minister will be available for questioning at our next meeting. I understood at our last meeting it was assumed we were having the service chiefs here, and it seems to me we could go on for months and months on every little part of this defence statement because it covers virtually everything. I did not realize we were being confined today. I do not know how often we may hope to have the minister here for questioning.

Mr. WINCH: He is going to be here for a long time.

The CHAIRMAN: We are not confined to any specific field of questioning, but I would tend to agree with Mr. Brewin. As we started to discuss a specific aspect, it would be more valuable for the committee to follow this line, and you, Mr. Matheson, could keep your question in mind for the minister later. The minister will be available at other meetings of the committee as he men-

tioned himself at the beginning of his statement this morning. He will be attending most of the meetings of this committee. I take it from that that he is ready to appear before us to answer the questions which members will put to him for many more meetings to come if need be. Mr. Matheson, is this agreeable to you?

Mr. MATHESON: If our questioning at the moment is confined to the NORAD agreement, I would like to ask the minister what in fact are the provisions respecting over-flight privileges? I would be curious to know whether or not our Voodoo interceptors are under joint command with American aircraft interceptors? I would like to know if, for example, Canadian aircraft have been denied over-flight privileges in the United States and American aircraft have been denied over-flight privileges in Canada? How is this matter resolved? I am thinking of the sovereignty of each of the nations with respect to air space.

Mr. HELLYER: Mr. Chairman, the total answer to this question is long and intricate. However, in general, I may say that there are reciprocal arrangements in respect of over-flight privileges. These are worked out between the two governments, and they give the aircraft of each country the privilege of flying into the territory of the other country on a reciprocal basis. Now, this is all part of the whole, part of the total of the North American air defence command, and our interceptors, as you know, are part of our contribution to the North American air defence command. The arrangements between the two governments cover not only our contribution but also that of the United States air force and of other American military components which are assigned to NORAD under certain circumstances.

I think that on this particular question the hon. members should consider the desirability of going to NORAD and of getting a briefing there as to just what elements are assigned by Canada and by the various forces of the United States, the command and control arrangements and the interworking of the elements of the two countries in this combined command.

Mr. MATHESON: Is this tantamount to saying that the boundary between Canada and the United States does not really exist for defence purposes?

Mr. HELLYER: I think, Mr. Chairman, it is difficult to separate the two parts of the North American continent when thinking about air defence because obviously any attack that might take place against North America would involve the air space of both countries, therefore it has to be looked at in its entirety. For this reason it is not possible to just draw an arbitrary line and say that one set of rules shall apply to one area and one to another; at least, that would not be an effective defensive arrangement.

Mr. LLOYD: I have a question of procedure, Mr. Chairman. There was some mention about the frigate program being reviewed. Do I take it from the explanations given today that when the navy chiefs of staffs are here this matter will be then examined?

Mr. HELLYER: I did not intend to give that impression, Mr. Chairman. The review is being carried on by the department and a decision one way or the other will be announced when the review is completed.

Mr. LLOYD: Does this mean that this committee will not have an opportunity to review this program?

Mr. HELLYER: If the committee wishes to inquire into the program, I feel it is at liberty to do so, but the review was going ahead in the department because, as you will all appreciate, the government has a responsibility in these matters and we cannot wait indefinitely before coming to some decision.

Mr. LLOYD: There is a sense of urgency and that is why I asked this. I understood the position had been taken and that it was proposed to allocate certain ships to what I believe was a maritime or equivalent agency. I was concerned with this.

Mr. HELLYER: No decision has as yet been taken.

Mr. LLOYD: I took it from the statement that was made. I cannot find the page at the moment. Some mention was made to the effect that the program would be under review. You did not mean by this committee?

Mr. HELLYER: Not necessarily, unless the committee so wishes.

Mr. LLOYD: To come back to the matter of the Bomarc, I would like to emphasize this point which I believe has been answered, but is not clear in my mind. Is the Bomarc detonated by a ground control system?

Mr. HELLYER: It is a combination; the first part of its flight is controlled by ground control and the balance by the mechanism itself.

Mr. LLOYD: Is the actual detonation of the nuclear warhead ground controlled, or is it on contact, or what?

Mr. HELLYER: During the first part of its mission it is ground controlled and after that there is a lock-on device.

Mr. LLOYD: I do not know what a lock-on device is.

Mr. HELLYER: Perhaps Dr. Field might answer that.

Mr. FIELD: This refers to a built-in device. Once the Bomarc is within a certain range of the oncoming bomber it heads to it automatically. It is an automatic device which makes it go to the target. It is fused so that it goes off at the closest point to the target. If it goes by, it would detonate as it goes by.

Mr. GRANGER: If it comes within a certain range of the target, it would explode.

Mr. FIELD: Yes; but generally it would go off at the closest distance at which it comes to the target.

Mr. LLOYD: If somebody miscued in its direction, what would happen to the Bomarc? Can it be destroyed by ground control?

Mr. FIELD: Generally these weapons can be destroyed from the ground. But to be specific, I cannot answer it; it is an air force responsibility.

Mr. WINCH: I would like to ask a question of the minister. I feel that if he agrees he will be of great assistance to this committee. In this last hour and a half you will note that we have been discussing, and have been most interested in, the question of the Bomarc. The question was even brought up of the range or the possible range over North America of attacking assault weaponry and other matters which are of keen importance to us.

Now, sir, last January Mr. Drury, then in the opposition but now a member of the cabinet, and I had an opportunity at Victoria College in British Columbia and at U.B.C. a day later of attending a meeting open to the public but in camera.

An hon. MEMBER: Open to the public and in camera?

Mr. WINCH: I say open to the public. If you paid $10 you could attend these meetings, and anything that was said there could be used but could not be applied to the person who had said it. Now, sir, at that meeting at Victoria College and the university of British Columbia were present—

An hon. MEMBER: What is the question?

Mr. WINCH: I have to make a statement in order to put the question. There were present higher ranking officers of the Canadian and also the United States services from Colorado Springs, and they produced there I think ten charts which outlined all the Bomarc stations, not only the two in Canada, but also all

the Bomarc stations just south of our international border. By those charts they showed the range of possible attack, both by ICBMs and submarines.

In view of the discussion we have had this morning on defence, on nuclear weapons, and on Bomarcs, I think it would be most valuable to this committee if the minister could arrange to have the United States officers or the Canadians, whichever is required, or both, produce before this committee in camera, if necessary, the information and the detailed charts that we saw last January. I think I can say to the members of the committee that it would be most valuable to us early in our discussions if this could be done.

Mr. HELLYER: I agree with you, Mr. Winch, and I think it can be arranged. It can be done either in our air force brief or, if members of the committee wish, they could go to Colorado Springs and it could be done there.

An hon. MEMBER: With the $10 cost.

Mr. HELLYER: I think we can keep the cost to a minimum.

Mr. BREWIN: Mr. Chairman, I have a series of statements here which were made by General Guy Simonds in February of this year. They deal with the usefulness of the Bomarc. I am wondering if the minister might care to comment on these statements, perhaps not now, but I might give them in summary and then he might deal with these points at some time. I do not know whether or not the minister has the article. The one I have is dated February 20, and is in a newspaper called the Toronto Daily *Star*. The article is written by Mr. Ross Harkness. A series of statements were made on the usefulness of the Bomarc which I think is of great interest to the committee. I would like the minister's comment on these statements. I see here that my friend Mr. Smith has another copy. I think it is the same article. Perhaps I might read one or two of them. General Guy Simonds who was chief of the Canadian General Staff said as follows:

> Even when Canada was making the decision to accept the Bomarc in 1959 military men in the U.S. were saying it was useless as a defensive weapon.
>
> Our poor little Bomarc bases couldn't knock out more than .0001 per cent of an attacking force. They will not defend Canada, they will not defend America, they do not make the slightest bit of difference in the present world balance of power.

Then he goes on a bit further:

> The Russian military leaders would be crazy—which they are not—to launch an attack upon this continent with manned bombers, giving us three to four hours warning to get ready for them or launch a retaliatory attack. Their first attack, if they make one, will be by intercontinental ballistic missiles, for which there is only 15 minutes warning, and for which there is as yet absolutely no defence.
>
> Half America could be destroyed before a Bomarc could be got ready for launching.
>
> He recalled that at the time Canada was deciding to accept the Bomarc, General Maxwell D. Taylor of the U.S. army said the weapon was "neither feasible nor economical".

He also referred to Brigadier General Thomas R. Phillips as having said it would be "enormously expensive" and that the U.S. congress had ordered a re-appraisal of its worth.

Then there is the comment, I think by General Simonds:

> Within six months of the time Canada agrees to accept nuclear warheads for the Bomarc, I am convinced the United States will declare it obsolete and recommend another nuclear weapon.

Then he points out later:

> Even should the Russians be so foolish as to tip their hand by sending over manned bombers first, the Bomarc would be of limited effectiveness.
>
> If only one bomber gets through it can wipe out a city. Even if we kill two-thirds of those launched against us, a bomber attack could destroy 100 cities.

Now, Mr. Chairman, I take it that General Simonds, a former Canadian Chief of General Staff, would be qualified, experienced and expert on these matters, and I would like at some time to have the minister's comments in respect of these statements. There certainly is some doubt in respect of the usefulness of this particular means of defence.

Mr. HELLYER: One of the experts that General Simonds quoted was General Maxwell D. Taylor. As hon. gentlemen know, he now is chairman of the United States Chiefs of Staff Committee and is probably the closest military adviser to the president of the United States. I would suspect that if he now felt that the usefulness of the Bomarc-B did not justify the cost of maintenance, he would not recommend that it be carried on. But I would just like to qualify that by saying that if after the air force or the NORAD briefing there are any questions relating to this article, I would be glad to deal with them.

Mr. MARTINEAU: Mr. Chairman, would it be proper for me to move at this time to have General Simonds appear as a witness before this committee?

Mr. LLOYD: Mr. Chairman, on this matter of bringing witnesses to discover facts, I think we should first be informed about the facts of our position, and then if we want to call witnesses, it would be more appropriate.

Mr. MARTINEAU: That would be the purpose of having witnesses, for us to be informed on the facts.

Mr. WINCH: May I remind the committee that there was unanimous acceptance of the steering committee's report at the last meeting, when it was stated that we should get all we can now, but that in the meantime we would welcome any submission from those who have an opinion to give, and that following upon our study we would consider an invitation to outside witnesses. That was accepted by the committee when they accepted our report.

The CHAIRMAN: I was about to say that this matter would be brought to the attention of the steering committee—I mean the question of having other people appear before the committee—and we would make a report in due time.

Mr. LLOYD: Surely the time of their appearance is related to the progress of this committee.

The CHAIRMAN: Certainly.

M. LESSARD (*Lac-Saint-Jean*): Monsieur le président, je désire poser une question très courte au ministre. Le ministre nous a dit que le fait d'acquérir prochainement des armes nucléaires n'est pas une indication que nous devenons membre du club nucléaire. Pourrait-il nous dire quelles sont les conditions requises, selon lui, pour devenir membre du club nucléaire, et considère-t-il que nous devions nécessairement fabriquer entièrement une arme nucléaire pour être membre du club nucléaire?

(*Note: English translation of the above question appears at the back of this issue.*)

Mr. HELLYER: To become a member of the nuclear club, as it is commonly known, requires the custody and control of nuclear weapons. There are at the present time in so far as we know only four countries which have custody and control of nuclear weapons. They are the United States, the Union of Soviet Socialist Republics, Great Britain and France. They are the only countries

which have weapons which they can use on the basis of a decision made by their own governments. No other countries have, that we know of, and it is the four countries which are considered to be members of the nuclear club.

The fact that in NATO some countries have weapons stockpiled under the custody and control of another country for use by them in case of an emergency does not mean that they may use those weapons independently. Quite the contrary; they could not, and for that reason they are not considered to be members of the nuclear club.

Mr. LAMBERT: In other words, they have to be "independents"?

Mr. HELLYER: There seems to be some independence.

Mr. BREWIN: Would the minister not agree that it is a sort of junior membership in the nuclear club in the case of those who have these weapons under their control which can be removed at some time, or do they feel they are full members?

Mr. WINCH: An associate membership?

Mr. HELLYER: No, I do not think it is the same club.

Mr. SMITH: Referring to Mr. Deachman's question in which it was suggested that the Americans had diverted the Voodoo bombers or planes from their own forces to the Canadian forces, is it not true that General McNamara, when giving evidence to the budget committee of Congress this year, made it very plain he did not want any additional Voodoos in the American forces and that one of the reasons he was keeping them was they were built and paid for?

Mr. HELLYER: I am not familiar with that evidence; I would presume the reason he would not be considering them at the present time is that they are no longer in production.

Mr. SMITH: And that they are not considered to be very useful for the future?

Mr. HELLYER: I would not say that; I think the reason would be that if future production requirements occurred they would be of a later mark.

Mr. WINCH: Are they not actually obsolete?

Mr. HELLYER: No, I do not think they would be classified in that category.

Mr. SMITH: Another question along the same lines: originally how many Bomarc sites, stations or installations did the American service plan?

Mr. HELLYER: I do not have that information with me but if it is of general interest I could find out.

Mr. SMITH: Was it not 24 or 26?

Mr. HELLYER: I think, Mr. Chairman, it was considerably more than that at the outset.

Mr. SMITH: Of those how many were built; was it 6 in the United States and 2 in Canada?

Mr. HELLYER: I would not care to give a figure today.

Mr. SMITH: Would that be correct?

Mr. HELLYER: It could be but I would not want to take responsibility for it without checking.

Mr. SMITH: Would you mind getting the answer to that question, please.

Mr. HELLYER: I would be pleased to do so.

Mr. GROOS: I notice that in the minister's statement at page 26 he says:

> As soon as a review of existing procurement programs is complete and decisions taken, which I hope will be within a few weeks, the general review of future policy will commence.

In respect of this existing procurement program, I take it this includes nuclear defensive weaponry and so forth which, I must say, confuses me because I understand this calls for decisions to be taken on what equipment we are going to have, first of all, and then we will get on with the business of deciding policy. Was this intended? It was my understanding that it was one of the duties of this committee to recommend the future defence policy of this country to the government. If so, this depends upon the theatre to which we intend to apply our defence effort. This, in itself, will affect the future equipment we require. Would you care to clarify this?

Mr. HELLYER: I will try to do so. What I had in mind was that by proceeding along a certain course at the present time any real reorganization of policy would become impossible or made extraordinarily difficult owing to the future commitments that are involved and the allocation of resources which, in fact, would already have been decided. I think it is necessary for the government in its review of policy, and in order that any suggestions which might come from this committee or other sources could be given practical consideration in so far as implementation is concerned, that some major items be reviewed at once. This is in order to provide, if necessary, a greater flexibility and a greater number of options for choice of task and role in years ahead. In fact, it is a preliminary look at policy in a sense that we are trying to decide now whether it would be a good idea to bind our hand and to rubber stamp, in effect, programs which have been initiated which might seriously limit the more general review we hope to undertake shortly and the implementation of any views which the committee or others might have on the subject of future policy after they have had a chance to think about it.

Mr. MCMILLAN: I would like to ask if nuclear warheads are being extended for the use of our naval forces.

Mr. HELLYER: I did not hear your question.

Mr. MCMILLAN: I should like to know whether the use of nuclear arms is to be extended to the naval forces?

Mr. HELLYER: No decision has been taken in this regard as yet, doctor.

Mr. MCMILLAN: I have read something in the newspapers regarding a possible strike on the DEW line as well as the resignation of some personnel. Has this situation had any serious effect on North American defence?

Mr. HELLYER: So far, Mr. Chairman, this has not had any serious effect.

Mr. HAHN: Mr. Chairman, I would like to direct two questions to the minister. We have been discussing the Bomarc and Voodoo situation. Is it correct to assume that when we reach the stage in our deliberations of receiving a brief from the air force we will be given some better understanding of the respective roles of each of these sectors of that defence system, and will that be the appropriate time to ask questions in this regard?

Mr. HELLYER: I should hope, Mr. Hahn, that following the air force briefing and the possible visit of this committee to NORAD, the members of this committee will have a much better idea of the prospective relationships of our contribution to the total North American air defence.

Mr. SMITH: I assume that understanding will relate to air defence only?

Mr. HAHN: The whole usefulness of the Bomarc and Voodoo depends on the relative strength of manned bombers versus ICBM's. We realize that manned bombers some day will go down in usefulness while ICBM's will come up in usefulness. May we expect to receive, somewhere along the way, some estimate or guesstimate of the relative change in importance of these two means of attack?

Mr. HELLYER: Mr. Chairman, I hope at the time the air force brief is presented members of this committee will be given ball park figures. For obvious reasons we cannot give you accurate figures, but you will receive some figures close enough to enable you to assess the relative threats at the present time.

Mr. SMITH: Mr. Chairman, we are not familiar with much of the terminology apparently used by the armed services. I had difficulty in understanding the word "cooking" and I now find it difficult to understand what a "ball park" figure is.

Mr. HELLYER: I understand the difficulty the hon. member faces in understanding these terms. I found some difficulty in understanding them for some time. However, as I understand it, the phrase "ball park figure" means a round figure. Some of these ball park figures are more rounded than others.

Mr. SMITH: Is it a guess?

Mr. HELLYER: No, this will not be a guess.

Mr. WINCH: I understand this involves an approximation.

Mr. HAHN: Mr. Chairman, my third question is perhaps a general question which should be put to the steering committee. We seem to have been dealing with problems of NORAD. Is it worth while for the steering committee to consider following right through to the conclusion of this general line of questioning before we jump to something completely unrelated?

The CHAIRMAN: I intended to inform members of the steering subcommittee that I should like to discuss the procedure of the last two meetings of this committee in my office this afternoon at 5 o'clock and at that time decide whether we should change our proposed plans.

Gentlemen, it is now 12.30.

Mr. MARTINEAU: I move the adjournment.

The CHAIRMAN: This meeting stands adjourned until 10.30 Thursday morning.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

Page 43.

Mr. LESSARD (*Lac-Saint-Jean*): Mr. Chairman, are permits to U.S.A. aircraft for flight over Canada granted on a monthly or annual basis? Has Canada a continuous control over all aircraft flying over Canada?

* * * *

Page 51.

Mr. LESSARD (*Lac-Saint-Jean*): Mister Chairman, I have a very brief question for the Minister. The Minister has told us that the fact that we shall soon acquire nuclear weapons does not indicate that we are to become a member of the nuclear club. Could the Minister tell us what, to his way of thinking, are the requirements for such membership and whether he considers that it is necessary to produce every part of a nuclear weapon to become a member of the nuclear club?

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

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SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 3

THURSDAY, JULY 4, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Air Chief Marshal F. R. Miller, Chairman, Chiefs of Staff Committee.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29124-5—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Fairweather,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

THURSDAY, July 4, 1963
(4)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch.—(21)

In attendance: Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; and Air Chief Marshal F. R. Miller, Chairman of Chiefs of Staff Committee.

The meeting being called to order, Mr. Churchill advised that he had a point to raise respecting certain information that had been supplied to the Committee, and he expressed the wish that the Minister of National Defence be present when this matter is being discussed.

The Chairman submitted the Second Report of the Steering Subcommittee as follows:

The Subcommittee on Agenda and Procedure recommends:

1. That, following the meeting on Thursday, July 4, 1963, the Committee defer, until a later date, the questioning of the Minister, respecting the contents of his statement of June 27, 1963;
2. That, on Tuesday, July 9, 1963, the Committee proceed with its schedule of hearings as set forth in paragraphs 7 and 8 of this Subcommittee's First Report, dated June 27, 1963.

On motion of Mr. Winch, seconded by Mr. Smith,—

Resolved,—That the Second Report of the Subcommittee on Agenda and Procedure, presented this day, be now concurred in.

Mr. Miller was called and he supplied information respecting contributions to NATO by various member countries. He then made a brief statement respecting the North Atlantic Treaty Organization, and was questioned by members of the Committee.

During his questioning Mr. Miller tabled information respecting *Total Defence Expenditures of NATO Countries—1949-1962.*

Agreed,—That the above mentioned information be included in the Committee's proceedings. (*See this day's Evidence.*)

The Minister of National Defence having arrived, Mr. Churchill again raised the question of certain information that had been supplied at previous meetings. Mr. Hellyer replied to the points raised by Mr. Churchill.

The Minister of National Defence and Mr. Miller answered additional questions respecting Defence.

At 12:35 p.m. the Committee adjourned until 10:30 a.m. on Tuesday, July 9, 1963.

E. W. Innes,
Clerk of the Committee.

29124-5—1½

EVIDENCE

THURSDAY, July 4, 1963

Mr. WINCH: Mr. Chairman, I see a quorum. May I ask whether or not the minister is going to be able to attend this morning?

The CHAIRMAN: Unfortunately, the minister had to attend a cabinet meeting at Harrington lake. In his absence, he has asked Air Chief Marshal Miller, Chairman of the Chiefs of Staff, to make a presentation to the members of the committee. Following this you will be able to put questions to Mr. Miller.

It is the minister's hope that he will be back here sometime this morning in order that members of the committee may question him. He regrets very much his non-attendance this morning. However, as I say, he had to attend this cabinet meeting at Harrington lake.

Mr. CHURCHILL: Mr. Chairman, these other commitments are understandable; however, I have a very serious problem to raise, which I would like to raise in the presence of the minister. If, however, he does not appear within half an hour before the committee is adjourned this morning I will undertake to raise the problem in any event. I will give you the information right now; it has to do with information supplied to this committee which in my judgment, is incomplete inaccurate and misleading. I shall raise this matter later this morning, if the minister is present, but even if he is not here I intend to raise it this morning, so perhaps word might be sent to the minister to return rather quickly from his cabinet meeting.

Mr. WINCH: Mr. Chairman, before you call on the Chairman of the Chiefs of Staff, may I ask if there is any report you wish to make on behalf of the steering committee?

The CHAIRMAN: Yes, it is my intention to make a report.

Mr. LAMBERT: Mr. Chairman, there is another question I would like to raise this morning. In connection with the roster of questions, I think it should have been made clear that even though the minister may give an answer to an honourable member the fact a question is not immediately asked by another member to challenge the statement does not mean the statement is being let go by default. We understand the Chairman has to recognize honourable members in the order they have asked to be recognized. For instance, the other day there were certain statements which were made in reply to questions I asked and, unfortunately, other members were being recognized. It is my opinion that these should have been stored for reference.

The CHAIRMAN: I understand all this.

We will have some information later on as to what time the minister will be here this morning. I will report later to the members of the committee.

Now, following a number of meetings and consultations the Sub-committee on Agenda and Procedure recommends as follows:

> (1) That, following the meeting on Thursday, July 4, 1963, the committee defer until a later date, the questioning of the minister, respecting the contents of his statement of June 27, 1963.
>
> (2) That, on Tuesday, July 9, 1963, the committee proceed with its schedule of hearings as set forth in paragraphs 7, 8 and 9 of this sub-committee's first report dated June 27, 1963.

Also it was discussed at this sub-committee meeting that we should go to NORAD in Colorado Springs. In this connection we have no final report to make because arrangements have to be concluded with the NORAD people for our visit to their headquarters. In any case, the visit will last only one full day, 24 hours. If we left one evening we would be back the following evening. It will be arranged in such a way that members of this committee will not miss too many of the sittings of the house.

I would like a motion for concurrence in the said report.

Mr. LAMBERT: Did you say item number 9 of the steering committee's initial report?

The CHAIRMAN: Yes, 7, 8 and 9.

Mr. LAMBERT: But not 9.

The CHAIRMAN: I am sorry, 7 and 8.

Mr. WINCH: I would like to ask one question at this stage of the proceedings, and if I am out of order I know the Chairman will tell me quickly. I understood that the decision of our steering committee was that you as Chairman should give consideration to an orderly conduct of business, which would include the breakdown of questions to the minister under certain categories so that we do not go jumping from one place to another.

The CHAIRMAN: Before I answer your question may I ask someone to move and second the adoption of this report so that we will be in a position to discuss it?

Mr. WINCH: I will move the adoption of the report.

Mr. SMITH: I will second the motion.

Mr. CHURCHILL: Does that include the proposed visit to Colorado Springs or is it in connection with paragraphs 7, 8 and 9?

The CHAIRMAN: No, paragraphs 7 and 8.

It has been moved by Mr. Winch and seconded by Mr. Smith that the report be adopted.

The CHAIRMAN: Now, in answer to your question, Mr. Winch, this matter to which you referred was discussed during our steering committee meeting and it was left to me to decide how we should proceed with the statement of the minister. After consideration of this, I felt that the proper way to proceed is as we have done for the first two meetings.

Is the report of the committee, with the amendment that number 9 be deleted, agreed to?

Some hon. MEMBERS: Agreed.

Motion agreed to.

The CHAIRMAN: At this time I will call upon Air Chief Marshal Frank Miller to make a statement to the members of this committee.

Air Chief Marshal FRANK R. MILLER (*Chairman of the Chiefs of Staff*): Mr. Chairman and honourable members of the committee. I have not a prepared statement for you. However, I have the answer to a question in connection with contributions to NATO which might very well lead into a short discussion and a statement which I could make about NATO. This could be followed by any exploratory questions into any area which you would like connected with NATO, as it is of the utmost importance in Canadian defence matters.

The question concerned the percentages or what contributions the various members of NATO make. Of course, there are various ways of measuring contributions; the usual one and probably the most nearly representative one is the percentage of gross national product that is devoted to defence by the various countries. The figures I am about to give now represent the percentages and this conforms more to a standard formula adopted by NATO. You may

see different figures quoted at different times because of the variations in methods of computing gross national product. The figures I am giving are for 1962. The figures for 1961, which are somewhat at variance with these, were given in the house last October 15. The following is the percentages of gross national product of the various contributing members of NATO: Belgium 3.4 per cent; Canada, 5.1 per cent; Denmark, 3.5 per cent; France, 7.6 per cent; the Federal Republic of Germany, 5.9 per cent; Greece, 5.1 per cent; Italy, 4 per cent; Luxembourg, 1.5 per cent; the Netherlands, 5.1 per cent; Norway, 4.1 per cent; Portugal, 8.5 per cent; Turkey, 6.1 per cent; the United Kingdom, 7.4 per cent and the United States, 10.8 per cent.

I should urge you to treat those figures again with the same caution. There is really no standard way of comparing the amount of sacrifices the citizens of one country make with those of another. It is hard to say, for example, whether the United States, devoting 10.8 per cent of its gross national product, is making a greater sacrifice than say Turkey, with a very considerably smaller percentage. I would urge you to use this as a guide to what the members of NATO are doing in the interests of the coalition.

I think that it would be useful if I say just a few words in respect of NATO and Canada's position in NATO. Perhaps then we could explore those areas in which you may be especially interested.

Canada has been a charter member of NATO, and that membership in NATO is the cornerstone of our defence policy. The forces that Canada has raised and maintained have been in direct support of NATO, either in the North American area, in Europe or in the ocean areas. Our obligations to NATO have in large measure defined what our forces are today and, therefore, our military estimates.

The essence of NATO is that it is a coalition of like minded nations, and each member is prepared to do a fair share toward maintaining the common defence of that coalition. I touched on that fair share in the answer to the question which I have just read out.

The original idea of NATO was that it was a military defensive alliance. There have been efforts made since then, and it is provided in the charter, toward activities other than military, but the heart of the operation is a military defensive alliance.

I think that in order to understand some of the problems of NATO, it would be useful to go back to the beginning and state that when it was decided to form the North Atlantic Treaty Organization, planning staffs were set up to make military plans for the various regions of NATO. There were three planning groups created in Europe; one in the centre, one in the north and one in the south.

There was an ocean planning group for the North Atlantic, and a North American regional planning group.

The planning groups were to determine what military organization of forces was required to provide for the defence of those specialized areas.

In all the areas except North America the plans called for the formation or creation of a military headquarters and a military commander. As a result of that we have a formation of a Supreme Allied Commander, Europe with headquarters in Paris, and under him the southern command, the central command and the northern command.

We have a Supreme Allied Commander, Atlantic, responsible for the naval defence of the Atlantic common area with headquarters at Norfolk, Virginia.

We have still on the NATO charge the North American regional planning group. The North American defence was never formalized into an organized defence command. There is no single headquarters or commander responsible for the North American defence. That does not mean, however, that the North American defence is not an essential part of NATO, because it is.

The North American regional planning group is shown as consisting of the chiefs of staff of the United States and Canada.

I think that you will recall, when NATO was first formed, they agreed to appoint General Eisenhower as the first Supreme Commander. He visited all the NATO countries and asked them to supply all forces they could, as soon as they possibly could. The urgency of the situation in western Europe at that time was such that he was prepared to sacrifice the possibility of a build-up in the future in the interests of getting forces on the ground as soon as possible.

He made a very strong plea to Canada, among other nations, to get forces into western Europe as soon as possible so there was a NATO presence there where before only a military vacuum existed.

Canada at that time made the commitment of a brigade in Europe backed up by the two brigades to complete the division in Canada; the air division in Europe and all the ships that we could raise for the Nort Atlantic area. That has been the basis of our military structure ever since. It has been changed from time to time as the tactical and technological situation changed, but it is basically the same agreement and same contribution with which we started.

I should like to finish by just saying one thing about NATO.

NATO is a coalition and working within a coalition is not an easy task. You have to be prepared to give and take; you have to be prepared to give up some national prerogatives in the interests of going along with the consensus of the coalition. This is not always easy and it sometimes tends to lower the coalition to the level of the least common denominator.

There is really only one struggle against this trend, and it is one that the member nations have to take very seriously.

Mr. Chairman, I think that is a very short outline of NATO and its relationship to the Canadian military posture. If members have any other areas that they would like to explore with me, I should be very glad to do so.

The CHAIRMAN: Thank you, Mr. Miller. Are there any questions?

Mr. SMITH: Mr. Miller, you gave the percentage of contributions of each of the participating countries to NATO. I think you referred to them as "a sacrifice"; perhaps I might quibble with the word and would think "contribution" might be a better word. Is there any breakdown as to how much of each country's contribution is spent in its own country and in payments to its own nationals? You sometimes see criticism of the fact that Canada contributes only 5 per cent odd and that the Americans contribute something like 10.8 per cent, but has there ever been any attempt to break down the contributions to determine what percentage of a country's contribution is spent (a) in its own country and (b) in payment of its own nationals, whether they are service or civilan personnel?

A.C.M. MILLER: I am not aware of any approach that has been made along that line. It could be made by the international staff. These figures have been compiled by the international staff in Paris from information supplied by individual member countries.

Mr. SMITH: It could be possible that a very substantial amount of contributions of those countries with a high percentage of contribution may be paid back into the economy of that country. Is that not possible?

A.C.M. MILLER: Completely possible, yes.

Mr. WINCH: Mr. Chairman, I would like to ask Mr. Miller if he, being in the position of chairman of the Canadian chiefs of staff and being an air force

man, could tell us, in view of the French policy, what is the value of our air squadrons in NATO which are located in France?

A.C.M. MILLER: Mr. Chairman, that is a question which involves a fair amount of opinion, but I think the telling point about it is that these forces have been provided to SACEUR in accordance with his planning requirements. He is reluctant to have any difficulty about the French basing problem there, but he is very firm in wanting to have squadrons there even with this disability of their being based in France.

Mr. WINCH: Will the chairman of the chiefs of staff now tell us, in the event of an offence by some enemy—which I imagine will be sudden—what is the advantage of having Canadian air force personnel in France if, under French policy, they can in no way be armed?

A.C.M. MILLER: The advantage of having them there is that the commander believes that, given a set of certain circumstances, he can use them. If you ask him whether he wants them there, he will certainly tell you that he needs them and wants them there. The situation of the French not agreeing to having stockpiles of American weapons on French territory is one that developed after infrastructure programs that provided for the location of squadrons in France—both Canadian and American—had been carried out at great expense. It was certainly an embarrassment that atomic weapons could not be based in France, as far as the NATO commander is concerned.

Mr. WINCH: May I then ask the third logical question? In the event of an offensive undertaking do you, as a professional airman, believe that warheads could be delivered to our squadrons in France to enable them to take part? Do you actually believe that?

A.C.M. MILLER: Under certain conditions, yes. You can predict the worst possible conditions under which it would not be possible; you can predict less stringent conditions in which it can be done.

Mr. MATHESON: May I ask the Air Chief Marshal a question relating to this contribution which was based, as I understand, on a percentage of the gross national product? I think he has told us that Canada's contribution is equal, on that basis, to that of Greece and the Netherlands, and is under that of the United States, Portugal, France, the United Kingdom, and West Germany. Am I correct in understanding that our contribution in numbers of people or numbers of machines is very substantially less, on the basis of cost, than that of almost all these other contributing allies, with the exception perhaps of the United States? Is it true that we actually field a brigade group of 6,000 men, or approximately this number, but at a greater substantial cost to us than to any other nation in the NATO alliance, and that therefore in fact our contribution is substantially less?

A.C.M. MILLER: You do not want to confuse this with absolute dollars. This is a percentage of gross national product. It is true that Canada's cost of maintaining a Canadian soldier, airman or sailor overseas is higher than that of most of our NATO partners. I do not think, however, that you can necessarily deduce it from this sort of figure because this is a percentage figure rather than a total. I have a table here I can give to the clerk so that it can be incorporated in the minutes which shows the absolute amounts spent on defences by each country over a period of years. This gives you a better figure for your type of question rather than the percentage I have used.

The CHAIRMAN: With the permission of the committee, this will be incorporated at this point in the committee's report.

(The table is as follows:)

TOTAL DEFENCE EXPENDITURE OF NATO COUNTRIES—1949-1962

The figures given in the attached table are based on the NATO definition of defence expenditures and represent payments actually made or to be made in the course of the calendar year. There may be considerable divergencies between these figures and those given in national budgets, because of differences between the national and NATO definition of defence expenditures.

The figures relating to the United States and Canada include expenditures for military aid programmes. The figures shown for European NATO countries do not include the value of end-items received under military aid programmes from the United States and Canada.

Country	Currency Unit	Actual													Forecast
		1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Belgium	Million B. Frs.	7,653	8,256	13,387	19,965	19,815	19,925	17,067	17,065	18,356	18,312	18,686	19,161	19,561	20,821
Canada	Million Can. $	372	495	1,220	1,875	1,970	1,771	1,819	1,888	1,829	1,740	1,642	1,654	1,711	1,780
Denmark	Million D. Kroner	360	359	475	676	889	885	920	936	1,012	988	986	1,113	1,180	1,537
France	Million New Frs.	4,787	5,591	8,811	12,531	13,865	11,710	11,020	14,690	15,600	16,569	17,926	18,940	19,932	21,920
Germany (*a*)	Million DM	—	—	—	—	6,195	6,287	7,383	7,211	8,962	6,853	11,087	12,115	13,175	16,378
Greece	Million Drachmae	1,630	1,971	2,615	2,655	2,767	3,428	3,688	4,939	4,477	4,469	4,735	5,110	5,034	5,055
Italy	Milliard Lire	301	353	457	521	480	543	551	584	611	647	667	710	749	844
Luxembourg	Million L. Frs.	112	170	264	436	488	566	614	395	439	429	402	263	290	365
Netherlands	Million Guilders	680	901	1,060	1,253	1,330	1,583	1,699	1,854	1,845	1,656	1,505	1,728	2,013	2,158
Norway	Million N. Kroner	370	357	572	831	1,067	1,141	953	967	1,049	1,024	1,107	1,058	1,179	1,364
Portugal	Million Excudos	1,419	1,516	1,553	1,691	1,975	2,100	2,224	2,297	2,391	2,485	2,820	3,023	4,922	6,155
Turkey	Million Liras	556	599	652	725	827	936	1,077	1,159	1,266	1,470	2,153	2,405	2,614	2,868
U.K.	Million £s Strlg.	779	849	1,149	1,561	1,681	1,571	1,567	1,615	1,574	1,591	1,589	1,655	1,709	1,786
U.S.A.	Million US $	13,580	14,559	33,398	47,852	49,621	42,900	40,518	41,773	44,548	45,503	46,614	46,545	49,417	54,452
AREA															
Total Europe (*b*)	Million US $	4,825	5,445	7,627	10,231	12,403	11,746	11,828	13,137	13,814	12,925	13,335	14,215	15,264	17,054
Total N. America	Million US $	13,952	15,054	34,618	49,727	51,591	44,671	42,337	43,661	46,377	47,243	48,256	48,199	51,128	56,098
Total NATO (*b*)	Million US $	18,777	20,499	42,245	59,958	63,994	56,417	54,165	56,798	60,191	60,168	61,641	62,414	66,392	73,152

(*a*) Before it acceded to the North Atlantic Treaty Organization (May 1955), the Federal Republic of Germany contributed to the defence budgets of certain NATO countries by the payment of occupation costs; moreover, it bore certain other costs which also fall within the NATO definition of defence expenditures. The total given in the column for 1953 represents the expenditures made under these various heads of the fiscal year 1953-54 (1 April-31 March). The figures for the year prior to fiscal year 1953-54 have not yet been communicated to the Secretariat.

(*b*) The totals for Europe and for NATO do not include defence expenditures of the Federal Republic of Germany for the period prior to 1953, and for this reason they are not directly comparable to the totals for the following year.

Extract from NATO LETTER, January 1963.

Mr. McMILLAN: I am interested in Canada's cost. I wonder about the cost of any soldier or any personnel serving under the United Nations Canadian forces. Is it included in the 5.1 per cent?

A.C.M. MILLER: Yes.

Mr. McMILLAN: Because that is complementary to the purpose of NATO.

A.C.M. MILLER: This is the total military expenditure of the countries concerned. For example, the Portuguese figure, you will notice, is high, not that they are necessarily making an unduly high contribution to NATO but that they have a large military establishment for their national purpose.

Mr. MacLEAN: In that connection could Air Chief Marshal Miller give figures as to what percentage of the gross national product of each of these countries is contributed to NATO. I understand that these are the total figures for the respective defence forces.

A.C.M. MILLER: I have not got these for NATO and it would be quite a problem to extract them because you get into things such as the mutual aid programs which are in here both from the recipient and the donor point of view. It would be a pretty difficult problem to extract it. I can have a look and see whether there are any figures in existence.

Mr. MacLEAN: I have two other brief questions based on what Air Chief Marshal Miller has already said. Are there plans, or would it be feasible, in time of threat, to transfer the Canadian squadrons in France and other NATO squadrons to places in some country that has accepted nuclear stockpiles—Germany, for example?

A.C.M. MILLER: We have operating methods now that we use for that.

Mr. MacLEAN: My third question is: can we be told what percentage of the strike force of NATO is based in France?

A.C.M. MILLER: I do not have those figures. First of all you would have to define what a strike force is and it would be pretty difficult to do that.

Mr. MacLEAN: In simple terms, perhaps, how many squadrons are stationed in France that it had been the intention to arm with nuclear weapons?

A.C.M. MILLER: So far as Canada is concerned?

Mr. MacLEAN: No; the total.

A.C.M. MILLER: This involves United States' figures and you get into security difficulty there I am afraid.

Mr. TEMPLE: Mr. Chairman, through you, may I ask Mr. Miller a question arising out of the question asked by Mr. Matheson regarding the army brigade which, of course, is one-third of the whole division. With respect to shipping, do I take it that more emphasis is being made on air transport as such?

A.C.M. MILLER: Mr. Chairman, I hope that this committee will have an opportunity to hear the army story on this. I could say briefly, in answer to this question, that air transport can move men, but it cannot move equipment. The movement of equipment is a big problem.

Mr. WINCH: What is the use of the men without the equipment?

A.C.M. MILLER: I think you have answered your question there.

Mr. LAMBERT: As to the answer that the chief of staff gave to Mr. McMillan about the operational procedures for the Canadian squadrons based in France to obtain nuclear arms, is the witness satisfied with the efficiency or efficacy of these operational procedures?

A.C.M. MILLER: I think that you have to accept that these are forced measures because of the difficulty of the French position. They are not what any of us would like, but I think it is the best that can be done under the circumstances.

Mr. LAMBERT: In other words, they are not ideal but they are workable.

A.C.M. MILLER: I think that would be a good description of it.

The CHAIRMAN: Mr. Groos.

Mr. GROOS: My question has already been answered, Mr. Chairman.

Mr. LANIEL: Mr. Miller, if we assume that our forces in Europe, or some of them, are equipped with atomic warheads and the equipment to go with them, what would it represent in cost or in personnel if the same or an equivalent force were replaced by ordinary armament, equipment and personnel? Would that cost more? Would we need more personnel there to have the same striking force or defensive force; would that amount to a larger expenditure on the part of the government?

A.C.M. MILLER: I take it your question is, if we changed the equipment and personnel that are there now?

Mr. LANIEL: Yes; in order to have the equivalent striking or defensive force.

A.C.M. MILLER: I would attempt to answer that not as an equivalent, but to have the same number of airplanes or the same number of troops there.

Mr. LANIEL: Yes.

A.C.M. MILLER: It would cost more, because we would have to modify the equipment that was there for a different role. We might get by with fewer people because the role might be changed to the extent that you would not need the security people that you need in respect of the atomic weapons.

Mr. LANIEL: What I am attempting to find out is this: if we undertook a commitment with NATO, that would have to be evaluated in respect of the strike force or defence and our participation in the case of attack or war. To have the same force or same striking power, or defensive force, there with ordinary equipment, would that represent a larger expenditure on the part of the government? Would we need more regiments there or more squadrons and artillery, if the weapons were not equipped with atomic warheads, to do the same job.

A.C.M. MILLER: I think that point was covered by the Minister in his initial statement where he said that NATO decided to adopt a nuclear strategy in western Europe because of the failure of the NATO partners to produce enough conventional arms and men to meet the threat and to give a chance of holding western Europe if the NATO coalition had to go from nuclear strategy and adopt conventional weapons.

Mr. SMITH: To go back to the percentage of contribution by the various countries to NATO, would it be reasonable to assume that some of the countries which have a relatively high percentage of contribution also have a dual purpose for the troops committed to NATO? For example, Canada's troops as situated are for the sole purpose of the NATO force. In the instance of France and the United Kingdom, is it not possible that some of their troops which are charged to NATO also have a secondary use or purpose in relation to the defence policy of the country involved.

A.C.M. MILLER: Again I would like to stress that this is the total military expenditure of the country and is not broken down as to what is necessarily

in support of NATO or not in support of NATO. The United Kingdom has defence obligations in various parts of the world that are not related to NATO at all, but the whole cost is in there.

Mr. MARTINEAU: My question relates to the effectiveness of the four air squadrons based in France. Because of the refusal of the French to permit the stockpiling of atomic weapons for NATO member countries, are any other squadrons withdrawn from France besides the United States?

A.C.M. MILLER: No.

Mr. CHURCHILL: I have a series of questions based solely on the air force in Europe. It might be helpful if we had some facts put before us with regard to the composition of the force at the present time. That is question number one.

A.C.M. MILLER: Mr. Chairman, I do not have the order of battle here with me. I was hopeful that we could deal with the generalities today, and that any particulars would be left for the air force when they are here with all the details. If you feel that I can answer any of your questions in a general way, I would be quite prepared to try; but in my view it would be better to wait until the air force representatives are here with the details.

Mr. CHURCHILL: When can we expect to have the representatives of the air force, Mr. Chairman?

The CHAIRMAN: Normally they would be here next Thursday.

Mr. CHURCHILL: I have perhaps a dozen questions and I might better wait until the air force representatives appear.

The CHAIRMAN: Are there any further questions, Mr. Churchill? Mr. Brewin?

Mr. BREWIN: Mr. Chairman, I am sorry that I did not hear the opening remarks of the Air Chief Marshal, but I did hear him say at the end of his statement that if one were in an alliance, he naturally would have to fit in with certain plans. Now I propose to ask him if the fact that we are in an alliance does not enable a division of labour so that each country may pick out that function which is most suited to it? Does he agree with that.

A.C.M. MILLER: Completely; there are great advantages to being in an alliance. I was also attempting to establish that you pay a price.

Mr. BREWIN: Quite so; and one of the advantages is selected labour.

A.C.M. MILLER: You have some option there, but your effort has to be within the commander's over-all plan.

Mr. BREWIN: Precisely, and in that connection I wondered whether we might have your comment on the evidence in the section in the final communique of NATO council, when it is stated in paragraph nine that the:

> Ministers recognized the need to achieve a satisfactory balance between nuclear and conventional arms. They directed the council in permanent session to undertake, with the advice of the NATO military authorities, further studies of the inter-related questions of strategy, force requirements and the resources available to meet them.

Is it recognized that there is not at the moment a satisfactory balance between nuclear and conventional arms in NATO?

A.C.M. MILLER: You probably have heard Mr. McNamara's point of view, in which he wants a large range of options; that is, he does not want to be faced with making a decision to use or not to use atomic weapons on the faintest provocation. He wants to have enough conventional arms so that he can respond to smaller provocations with conventional arms and troops, and not have to go to nuclear arms.

Mr. BREWIN: I take it that that view is very widely shared; and that it is not altogether Mr. McNamara's view.

A.C.M. MILLER: He is the protagonist of it.

Mr. BREWIN: Even if that is so, there is in his view, shared widely by others, a lack of satisfactory balance of that kind.

A.C.M. MILLER: He advocates more conventional troops in NATO.

Mr. BREWIN: Well, I do not know if the witness is in a position to tell us or not, but is the review within NATO—is the council concerned with rectifying this imbalance?

A.C.M. MILLER: That is exactly what it has set out to do—to review the whole military structure of NATO and the countries' contribution to it.

Mr. BREWIN: I do not know how far we can be acquainted here in this committee from time to time with the results of this review. It seems to me that we have to fit, as the witness has said, in the past with the general plans of the alliance, and that the alliance is reviewing its, perhaps, knowledge of the lack of balance, and that it is very difficult for us to make up our minds as to the role without knowledge of the result of that review. Are we in a position to be acquainted with it from time to time?

A.C.M. MILLER: I can say this: that the review is nothing new in NATO; each year they have had what they call an annual review which looks at the commander's plans, at the first contributions to meet them, and to make certain recommendations to member countries about what they might do in increasing or changing their contribution. This is doing an annual review in a somewhat larger or more impressive way, and it is not a short period affair. It will take some months to do this.

Mr. BREWIN: Perhaps I might ask another question: I have been given to understand that part of the review or uneasiness about the lack of balance consists of the fear that if we rely upon tactical nuclear weapons in the front line, we may have to use them on occasion if any conflict arises.

A.C.M. MILLER: This of course lies at the basis for requiring more conventional troops and capability, so that you can postpone the use of any nuclear weapons as long as possible.

Mr. BREWIN: I wonder if the witness could tell us whether that problem is being considered in the light of whether tactical weapons should be under the control of smaller units in the front line, or should be withdrawn under separate control.

A.C.M. MILLER: That is a matter of very great debate, as to how tightly the control of nuclear weapons should be held. Strategic weapons are fairly easily controlled; but as you distribute the weapons to the frontline soldier, it becomes more and more difficult for them. But as far as I am aware there is a workable and effective control of their use, and they can only be used under very stringent control by the highest formation.

Mr. BREWIN: If that is so, and if we come to a brigade equipped with tactical nuclear weapons, and if some conflict arose, there would be permission immediately given for them to use practical nuclear weapons, and it might be made almost immediately?

A.C.M. MILLER: There would have to be a request and judgment made at the highest level.

Mr. BREWIN: What would be the highest level?

A.C.M. MILLER: Certainly the Americans hold it away above the brigade level. I do not think I can say exactly where it is, but I can assure you that it is not made by the man who is being shot at at the moment.

Mr. BREWIN: Can you say who would make the final decision whether tactical nuclear weapons should be used in the event of some outbreak, let us say, or perhaps a minor conflict in Germany?

A.C.M. MILLER: The arrangement that the Americans have made for their command structure on the nuclear side consists of a national network, and I am afraid that I cannot say at what level the decision is made.

The CHAIRMAN: Mr. Temple.

Mr. TEMPLE: Mr. Chairman, arising out of the question concerning air transport, and the fact that men can be moved but not their equipment, I take it that the equipment will be stockpiled and that the men will be flown to it?

A.C.M. MILLER: That is one of the possibilities that has to be considered; it is a very extensive one, and it is not a fire-proof one; that is one of the basic military axioms, to keep your men and equipment together if possible. You would not want to have your brigade arrive over there only to find that the equipment had been hit by a bomb or something. So it is not an open and shut case.

Mr. TEMPLE: But it is being considered.

The CHAIRMAN: Mr. Winch.

Mr. WINCH: My question is basically a follow-up of that just asked by Mr. Temple. About 35 minutes ago, according to the clock, I heard what I considered an amazing statement made by our witness, the chief of staff.

May I say I am very happy that the minister is back; if the chairman of the chiefs of staff is unable to answer my question perhaps the minister can.

The statement, as I understood it—and I think I got it correctly—was that Canada is equipped now so that in an emergency it can move its forces—that is, members of the forces—but not the equipment. Now, I am certain all members of this committee are most anxious that we shall not only be able to move our men but that they should be equipped. My question to the chairman—and if he cannot answer it I hope the minister will—is this: what are the requirements as they see it now to ensure not only that we can transport the members of our armed forces but to make sure they receive the equipment coincidentally? What are the requirements as seen now to accomplish that dual purpose?

A.C.M. MILLER: I have to revert to your statement about what you heard me say or somebody else say. I do not recognize that as a statement that I had made, Mr. Winch.

Mr. WINCH: Mr. Chairman, am I not correct that the chairman of the chiefs of staff said they were able and equipped to move the members, and then on a question that I asked in connection with equipment he said: you have answered your own question.

An hon. MEMBER: "by air" he said.

Mr. WINCH: I am talking about by air. Does that mean you are not able to move the equipment by air along with the men?

A.C.M. MILLER: We have no such air lift at all to move equipment.

Mr. WINCH: You can move men?

A.C.M. MILLER: We can move a considerable number of men.

Mr. WINCH: That is what I am coming to—and it is of major importance; you are equipped to move men but you are not able to move the men's equipment.

A.C.M. MILLER: By air.

Mr. WINCH: I think this is a mighty important question. If there is a lag what, in your estimation, or the minister's estimation, is required now

so you can airlift men and all the required equipment? What is the lag and what is required. I think this committee would be very interested in having an answer to that question; I know I would.

Mr. HELLYER: In my opening statement, Mr. Chairman, I referred to this problem in respect of the army reserve components in Canada and that is the reason I said, in effect, that there would be problems in getting them to the battlefield under such conditions as quickly as might be required. I intimated some steps would have to be taken in order to improve the reality of this reserve force or else to change the commitment. Now, this presents a number of options, one of which you were talking about a few moments ago, namely, the stockpiling of equipment in advance areas and then flying the men in. Another option is to acquire sufficient air lift to take the men and materials; and the third option, which I mentioned in my opening statement, was to change the commitment. Each of these options is being carefully considered and will be in our general review. I do not think I am prepared at the moment to say which one of these options will be recommended. However, by the time we have completed our review we will have the proper solution to this problem.

Mr. WINCH: Are you prepared to submit the details of the three options before this committee so we can consider them?

Mr. HELLYER: I think you can consider them now on the basis of information available to you. They are pretty involved and I think I would be more inclined to discuss these in detail after we have come to some conclusion, which may not be perhaps until the general review is complete, which may take some months.

Mr. MACLEAN: Mr. Chairman, I have a question for the minister based on his opening statement at page 12 of the printed report. The minister said:

> To redress the balance of power a family of tactical nuclear weapons have been employed. The existence of these tends to neutralize any advantage a potential enemy might have through greater manpower.

And later on, at page 15 he quoted Mr. McNamara somewhat to the same effect, which I need not repeat to the committee at this time. Are you seriously contending that you can equate nuclear weapons and conventional weapons? I base my question on the fact that this would put the western powers on the horns of a dilemma in a situation where there was provocation by conventional arms. I feel the situation would have to become desperate before any nation could justify precipitating a nuclear war. A comparable situation held in world war two; although poison gas had been used in world war one the British especially had vast stockpiles of poison gas and the means to deliver it but did not do so, even with the desperate situation which existed in world war two on occasion. As I say, this type of warfare was never resorted to. Is it not at best wishful thinking to assume you can even partially equate nuclear strength and conventional weapons?

Mr. HELLYER: I think it is still recognized and has even been stated that certainly during much of the 10 year period since the NATO build-up began, it was in fact the existence of nuclear weapons in reserve and the threat that they might be used under certain circumstances which did effectively deter any inclination on the part of a potential enemy to use their superior land forces.

Mr. MACLEAN: I would concede that statement as far as a full-out war was concerned, but there could be relatively minor occasions with the use of conventional weapons in respect of which we would be powerless to cope except by the use of conventional weapons.

Mr. HELLYER: I think the Chairman has already stated that, in respect of this type of provocation, there has been and is being built up a considerable capacity with which to handle such a situation.

Mr. MACLEAN: The minister would then agree that there is a very vital need for increasing our conventional weapons strength in the alliance?

Mr. HELLYER: I think the military commanders in the field in Europe would like an increase in both their tactical nuclear capacity and conventional weapons capacity.

Mr. BREWIN: Mr. Chairman, I should like to direct a supplementary question to the minister in respect of the question of the build-up of conventional and tactical nuclear weapons. Is there any question as to who should have control of tactical and nuclear weapons, and has this been considered by the minister? In other words, should they not be under the control of perhaps the United States, as they are now, rather than having tactical nuclear weapons under the control of smaller units?

Mr. WINCH: Mr. Chairman, I should like to ask a supplementary question.

The CHAIRMAN: Just one moment, please.

Mr. BREWIN: I do not know whether I have made my question clear to the minister. Perhaps I should repeat it.

He has stated, as I understand it, that we have to strengthen and modernize our tactical nuclear capacity in NATO and strengthen our conventional forces. My question is, has the question of the control of tactical nuclear weapons been considered in this connection, and whether that consideration gives rise to the question whether a national unit such as Canada might well make a better contribution in conventional weapons rather than tactical nuclear weapons?

Mr. HELLYER: The matter of control has been considered and, as you are aware Mr. Brewin, the weapons that we would have stockpiled and at our use in an emergency would in fact be under the ultimate control of the United States, at least to the extent that the weapons could not be used without having been released for use by the United States.

Mr. WINCH: I have a supplementary question, Mr. Chairman. I should like to ask the minister whether he is aware that there has been any change in the NATO policy of 1960 and 1961, that in the event of any spearhead or attack on NATO countries, whether by conventional arms or otherwise, NATO would reply with tactical nuclear weapons? As you realize, sir, I was at the NATO conference at the time that statement was made. Has there been any change in that policy?

Mr. HELLYER: I do not know whether I can comment specifically on your question, Mr. Winch, but I am sure that the whole object of the present NATO strategy is to have a flexible response so that there is the widest possible choice of response gauged to the provocation.

Mr. WINCH: You are not aware at this time that in the event of any invasion, or spearhead manoeuvre against a NATO force, even though it be a conventional weapons manoeuvre, the policy is that it would be met with tactical nuclear weapons by the NATO forces?

Mr. HELLYER: My problem in answering your question is that I am not certain that the policy ever was exactly as you are stating it.

Mr. WINCH: Would you look into that question, sir?

Mr. HELLYER: Yes. I think I must say that I am more interested in present and future policy than I am in policy which was in existence some time ago.

Mr. WINCH: I am extremely interested in that situation, sir. Are you in a position at this time to inform us as to NATO policy in the event of a conventional attack?

Mr. HELLYER: I think I have already stated that policy at least by inference.

Mr. WINCH: Will you state it in some other way than by inference?

Mr. HELLYER: There would be a judgment made at the time of any such attack in respect of the extent of the provocation and the response would be based on that judgment.

Mr. LAMBERT: In that same subject area, Mr. Chairman, is it not a fact that at the present time, and evidently for some time in the future, the ultimate decision as to the use of conventional weapons as against the use of tactical nuclear weapons rests directly with the President of the United States, because under United States law nuclear weapons can only be released to SACEUR on the express authority of the United States president?

Mr. HELLYER: That is the case under American law, yes.

Mr. LAMBERT: Is it correct that United States law governs the use of tactical nuclear weapons in western Europe at the present time?

Mr. HELLYER: United States law governs the use of a large proportion of tactical nuclear weapons, those which they produce, and of which they retain custody and ownership.

Mr. LAMBERT: Do I understand correctly that if Britain has any tactical nuclear weapons they would still be under the control of the United States but that if France has any, and none have been disclosed, they would be outside United States control?

Mr. HELLYER: Control would depend upon the source of the weapons; whether they were made by Britain or the United States.

Mr. MACLEAN: Mr. Chairman, I have one further supplementary question which I intended to ask for clarification a few moments ago.

In the event of a conventional weapons attack of such a nature that it was decided to attempt to meet it by conventional means, and if our air division was armed with nuclear weapons, what would be the air support available to NATO as far as conventional weapons are concerned, and do we have any contribution to make to such a defence?

A.C.M. MILLER: Mr. Chairman, I may take a shot at answering that question.

There are certain dual capable weapons systems available to SACEUR, and he has these despite the fact that our forces over there, if they are armed in the manner in which he has requested, would only have the atomic capability. There are other forces and this is one of the defences.

Mr. MACLEAN: Under those circumstances, as far as NATO is concerned, Canada would not be in a position to make a contribution in respect of air defence?

A.C.M. MILLER: Are ou referring to air defence only?

Mr. MACLEAN: I am referring to air support.

A.C.M. MILLER: That is right.

Mr. LAMBERT: Mr. Chairman, I should like to ask a supplementary question. Does the strike reconnaissance role of SACEUR envisage the use of conventional weapons as against nuclear weapons, or is it exclusively a nuclear weapons role?

A.C.M. MILLER: At the moment this is an exclusively atomic role as far as our forces are concerned.

Mr. LAMBERT: As far as our forces are concerned this is an exclusively atomic role?

A.C.M. MILLER: Yes, as far as Canadian forces are concerned that is the role.

Mr. LAMBERT: Are any conventional weapons to be used under the strike reconnaissance role?

A.C.M. MILLER: The aircraft that we now have are fitted, in accordance with the requirements of SACEUR, to carry atomic weapons.

Mr. LAMBERT: Is there a dual capacity envisaged?

A.C.M. MILLER: There are aeroplanes with a dual capacity but ours do not have that capacity.

Mr. MATHESON: Mr. Chairman, I should like to put a question to the Air Chief Marshal regarding the economics or generalities of which he spoke. Am I correct, sir, in understanding that our contribution in dollars has been approximately one and a half billion per year in the post Korean era, and that this then represents a comparative decline each year as our gross national product increases, while at the same time other members of our NATO alliance have actually substantially stepped up their contributions so that their contributions have been increasing relatively in respect of Canada's contributions? That is the first question I wanted to ask.

The second question is, am I correct in assuming that the percentage of our defence dollar that is going to equipment, as against personnel, establishment and supplies, is decreasing so that we are tending to become a less well equipped force?

A.C.M. MILLER: In answer to your first question with reference to the defence expenditure of Canada, it has been approximately constant and of the order of $1,600 million. It has been at or about that level since the Korean era. Of course, during that ten or twelve year period the gross national product has increased very considerably, so that the percentage at the commencement of the period was something of the order of 40 per cent and is now down to around 25 per cent. You must understand that I am speaking from memory in this regard.

In respect of the second question regarding the relative amount spent on equipment as compared to personnel and operating costs, it is a fact that there has been very marked reductions in the percentage of defence estimates which have been devoted to equipment.

However, you have to look into the background of this because we started with few people and no equipment and it is no use having people until you have the equipment. We have, therefore, had large equipment programs right at the beginning when we had few people, so that, as the equipment became available, we could recruit and train the personnel. Once they were equipped the process of re-equipping them was not as expensive as the initial equipment program because any equipment can be kept in service once you obtain it.

Mr. MATHESON: Would there not be validity in the criticism that one has heard that our services have tended to build up very costly establishments and have tended to continue to be serviced with what is becoming obsolete or obsolescent equipment while our actual costs for personnel have tended to increase?

Mr. HELLYER: That is not a fair question for Air Chief Marshal Miller to answer. He has stated the case that we have built up an inventory of equipment and we will have a chance to discuss the continuing needs and requirements as we go through the service briefings.

Mr. MACINNIS: Mr. Chairman, could you rule as to whether or not the question is proper?

The CHAIRMAN: I think it was mentioned earlier that members of the services would answer direct questions.

Mr. MACINNIS: You are chairman at this meeting and it is your responsibility to rule as to the propriety of any question.

The CHAIRMAN: Yes, but we admitted that both the Air Chief Marshal and the minister will be answering questions. We have not made a distinction.

Mr. MACINNIS: But you should give a ruling on the propriety of the question.

Mr. MATHESON: My question tends in effect to become one of policy and I withdraw it.

The CHAIRMAN: I was interested in a point to which you referred earlier about the balance between conventional and nuclear warheads used by the NATO air force in Europe. I was wondering if most planes, unlike ours, would have a dual capability. I understand ours only have the capability of carrying one type of warhead. Is that correct?

A.C.M. MILLER: That is right. What the other forces in Europe have is a pretty wide range of capability, but I do not know offhand what percentage of them have dual-capability aircraft or carriers.

Mr. MCMILLAN: In other words, in case of a conventional armed attack we would only use part of our air force?

A.C.M. MILLER: Yes.

Mr. WINCH: Could the answer be given to us by the air chief when he appears as a witness?

A.C.M. MILLER: No, he might not have a complete inventory of the NATO forces. This is security information.

Mr. WINCH: But he will give us the information on the adaptability of aircraft for conventional or nuclear weapons?

The CHAIRMAN: I want to make a correction in a statement I made a minute ago in answering a question on when would representatives of the R.C.A.F. appear before the committee. I said they would appear on Thursday, July 11. I am now informed they will be here on Tuesday, July 16.

Mr. CHURCHILL: Mr. Chairman, I welcome the return of the minister because I wanted to raise a question of privilege with regard to the work of this committee which is becoming an exercise in futility. This committee was introduced with great trumpeting and it was publicly stated by the Prime Minister and the minister that it would be a committee to discuss defence policy. The impression was given abroad that it would have some influence on the policies that would be determined by the government. Prior to the committee assembling, the government made a decision to provide nuclear weapons for the Canadian armed forces here and abroad, which prevents the committee from doing anything except commenting on that decision. In his opening statement the minister indicated that he was, within his department, conducting a review and that certain decisions would be made. Again, the committee will have no part in those decisions. One of them appears to be the sabotaging of the Royal Canadian Navy in so far as its future role is concerned. As I say, this is becoming an exercise in futility.

My second point is this—I did not want to state it in the absence of the minister—the evidence given to us just the other day, on Tuesday, was incomplete and, in my opinion, some of it was inaccurate and therefore it was misleading. One of the purposes to be served by this committee, as I understood it, was to get the facts for the information of the House of Commons and of parliament itself and for the public generally. Now, if the facts are not presented to us, confusion will continue. Press reports that I have seen very

properly drew the inference—and I am not objecting to these press reports—from the statement made by the minister on Tuesday that the acquisition of Voodoo aircraft in Canada lessened the defensive capability of the United States.

I will now refer to the record of the committee on page 40, following certain questions asked by Mr. Matheson.

> Mr. MATHESON: ...If we had not taken these five squadrons of Voodoos and two squadrons of Bomarc's, would the American forces have been stronger to that extent, and would they have been nuclear armed, or does the minister know?

And further down:

> Mr. HELLYER: ...Anf if the second part of your question was: would they then have armed them with nuclear type of missiles, warheads, I think the answer categorically is that they would have, because they have other equipment of the same class armed with nuclear warheads.

And then further down:

> Mr. LAMBERT: Is it true that the American air components or air defence are all nuclear armed, or only a portion thereof?

And Mr. Hellyer said he did not know.

You cannot have it both ways, Mr. Chairman. On page 47 Mr. Deachman asked:

> Our policy has been to reduce the defensive fire power of the North American continent by accepting the Voodoo and the Bomarc. Is that correct?

And Mr. Hellyer said:

> That is a fair conclusion.

Now, on page 40 he did not know and on page 47 he says that that is correct. I say, sir, that this is misleading to this committee and is misleading to the public generally. Mr. Norman Campbell in his column in the Ottawa *Citizen,* when referring to Voodoos, said that if they had been left to the United States, both the Bomarc and the Voodoo would have been armed with nuclear weapons.

Mr. Drury sait on the same subject that the defence minister Mr. Hellyer confirmed that Canada's acquisition of five Voodoo squadrons was made by removing five squadrons from the United States defensive posts where aircraft had carried nuclear rockets.

Now, what are the facts? The minister says at one instance that he does not know whether or not they would be armed with nuclear warheads had they been left there, and later on he said that they would have been, or words to that effect. This, I say, is incomplete and inaccurate information and it is misleading. The facts should be presented to this committee. We should be given the information as to the air defence of the North American continent, the number of planes under United States control, the number of Voodoos in Canada and the equipment for those planes. If it is a fact that a large portion of the American planes are armed only with the Falcon missile, which is a conventional missile—and I am now speaking of Voodoos—then it is inaccurate to say that five squadrons of Voodoos in Canada, armed with a similar Falcon missile, have detracted from the air defence of the North American continent.

I would like the minister to let us have the facts with regard to these circumstances rather than have him give this type of information to the committee and through the press, radio and television to the public of Canada. My own opinion is that there has been no reduction of the defensive capability of

the North American continent by the fact that there are five Voodoo squadrons in Canada armed with the Falcon missile which correspond to a number of Voodoo squadrons in the United States armed with the Falcon missile. This, sir, is the point that I raise for complete and accurate clarification.

Mr. HELLYER: Mr. Chairman, there was nothing inaccurate in what I said. The only inaccuracy, unfortunately, is in the hon. gentleman's reading of it. The question that was asked of me when I said "I do not know" was one put by Mr. Lambert:

> Is it true that the American air components or air defence are all nuclear armed, or only a portion thereof?

I replied:

> I do not know.

That was correct. It is correct that I do not know whether all their aircraft are nuclear armed or not.

The other statement referred to by the hon. gentleman was in respect of the Voodoo. I do know all Voodoo aircraft are equipped to carry either the Falcon or Genie and they have a panel whereby they can as a matter of fact carry both, as the hon. gentleman probably knows. I also stated earlier in my testimony that R.C.A.F. aircraft would not be flying around in normal reconnaissance flights with the Genie missile. I am sure the same would be the case with the aircraft in the United States air force inventory; they are only used under emergency circumstances. The rules probably would be the same in the United States as in Canada. But the fact is as I stated it, that the Voodoo aircraft are equipped to carry the Genie rocket which is a nuclear rocket, and those in the United States inventory are so equipped, and because the United States air force has the weapons available they would have that defensive capacity. Because the same planes in Canada do not have the weapons available they do not have the similar capacity.

Mr. CHURCHILL: The minister cannot get out of it that easily. In answer to the question:

> Our policy has been to reduce the defensive fire power of the North American continent by accepting the Voodoo and the Bomarc.

he said that is a fair conclusion. I suggest it is not a fair conclusion and it is an inaccurate statement, unless all the American Voodoos are armed with nuclear weapons which I consider not to be the case from the information I have in my possession.

Mr. HELLYER: As I stated, they all have nuclear weapons available and would all use them in the case of emergency; that is, those under United States control.

In respect of the further statement that you would like additional information as to the types of aircraft available to North American Air Defence Command, I am sure you will be given that when this committee visits NORAD.

Mr. CHURCHILL: Why do we have to go to NORAD or somewhere else to get the information; why can we not get the information right here?

Mr. HELLYER: You could, if it was considered essential; but it would be so much more complete and educational for some members of the committee who have not visited NORAD to go out there and see the North Amrican Air Defence Command in action. I highly recommend that that course be followed.

Mr. CHURCHILL: This is a red herring, Mr. Chairman. The information should be available right here. A great part of it has already been published by NORAD press releases and from time to time in various United States

magazines. Why do we have to visit NORAD or the bases in France, or anywhere else, in order to obtain information in respect of planes or anything? The information should be here and in the hands of the minister.

Mr. HELLYER: If the hon. gentleman has this information from these other sources, then I am surprised that he is asking to have it produced again in this committee.

Mr. SMITH: I have a question which leads directly out of the minister's answers in respect of the Voodoo. At the last hearing he answered a question of mine concerning production of Voodoo fighters. This is on page 52 of the Minutes of Proceedings and Evidence:

> I am not familiar with that evidence; I would presume the reason he would not be considering them at the present time is that they are no longer in production.

Is it not a fact, or would it not be a fact, that the reason they are no longer in production is that the United States air force decided they do not need any more of them? Is that not more the answer than the answer the minister gave?

Mr. HELLYER: I do not think that is a proper and complete answer any more than to say that—

Mr. SMITH: Would you like to give a proper and complete answer?

Mr. HELLYER: I think the answer is the reason they would not consider more of them now is that there are no more available to them.

Mr. SMITH: Would they not be available if they kept on manufacturing them? If we need more rifles, do we not keep on making them?

Mr. HELLYER: That would be like saying if we need more aircraft, why do we not acquire more Avro Arrows.

Mr. SMITH: But these were planes which were in production for many years; many hundreds of them were manufactured.

Mr. HELLYER: That is so.

Mr. SMITH: And they stopped manufacturing them.

Mr. HELLYER: That is correct.

Mr. SMITH: Because the air force did not indicate they needed any more of them.

Mr. HELLYER: They had fulfilled their requirements for the air force at that time.

Mr. WINCH: The Voodoo is no longer in production in the United States. Is that not because they were declared obsolete by the air force of the United States? Is it correct that the Voodoos supplied to Canada were second hand machines which came from the United States squadrons to Canada because they were being replaced by more modern aircraft in the same squadrons in the United States?

Mr. HELLYER: I will give what I believe to be the facts and if I am wrong Air Chief Marshal Miller may correct me. There had been a two-way deal arranged by the government of Canada and the government of the United States involving a number of aircraft for Canada and they were manufactured—for Canada's requirements as part of the intergovernmental deal. When Canada was slow in working out the details relating to the project, the planes were temporarily put in service in the United States and then withdrawn when the transaction was completed.

Mr. WINCH: Then my information is correct; they did come from a United States squadron.

Mr. HELLYER: I think it is correct that they had been put in service in the United States because the United States authorities were not sure if and when the Canadian government would complete the transaction.

Mr. WINCH: So we now have aircraft, the Voodoos, which are second hand and declared obsolete in the United States.

Mr. HELLYER: I do not think that is a fair statement.

Mr. DEACHMAN: On another line of questioning, I would like to ask the Air Chief Marshal and the minister if it is correct that when NATO was first formed the NATO force was conceived in 1949 as a wholly conventional armed force. Is that correct? That is to say, by being conventionally armed it did not include any nuclear weapons in 1949 and was a defensive army for the defence of the free world.

A.C.M. MILLER: That is so; but I must say at that time that the technology of weaponry was very much less developed than it is now; they did not have a tactical atomic weapon.

Mr. DEACHMAN: In the roundest terms, can you tell us what they estimated their first goal should be for the NATO forces, conceived as they would ultimately see it in the technology of that day? Can you give it in respect of divisions and the number of planes they expected to see in the air.

A.C.M. MILLER: I think the minister quoted 90 to a 100 divisions as being a target figure of the original requirements.

Mr. DEACHMAN: And how many planes are in the air?

A.C.M. MILLER: I do not have that figure.

Mr. DEACHMAN: Let us move to 1959; it was in 1959 that NATO decided to accept tactical nuclear weapons. I think that was the year, and at the meeting of that year.

A.C.M. MILLER: No, it was much before that.

Mr. DEACHMAN: At what year then?

A.C.M. MILLER: I think it was 1954, but I am not sure.

Mr. DEACHMAN: Could you tell us what the original force was in 1954, or in the years immediately prior to that time? I am not talking about goals, I am talking about the actual force in divisions.

A.C.M. MILLER: I would like to make one point before I answer your question. There are two figures used; one is the NATO-wide figure, the 90 to 100 divisions; but when you narrow it down to central Europe, the figure required is considerably smaller than that. I would say, therefore, there were probably about 20 divisions in western Europe at that time, that is, 18 to 20.

Mr. DEACHMAN: They had originally conceived of a conventional force of 90 to 100 which would be located in Europe.

A.C.M. MILLER: You are comparing the 20 with about 50 odd, I would think.

Mr. DEACHMAN: Now, when you come to 1959 and 1960, and more modern times, how many divisions were there, and what was the actual number of divisions on the ground in Europe?

A.C.M. MILLER: As of now?

Mr. DEACHMAN: Let us say as of now or within the last year or so.

A.C.M. MILLER: The 28 figure was used by the minister.

Mr. DEACHMAN: So in reality we never really came any closer than 12 divisions of the 50 divisions that NATO would have required as conventional forces on the ground?

A.C.M. MILLER: Where did the figure 12 come from?

Mr. DEACHMAN: Excuse me, 22; we never were closer than 22 to this goal that was originally conceived as 50 for Europe. But is it fair to say that it had to be made up by the acceptance of tactical nuclear fire power, if we were to defend Europe adequately?

A.C.M. MILLER: That was a decision that was made in 1954 or 1955 in general Gruenther's time.

Mr. DEACHMAN: So it was really this reluctance or inability of the NATO allies to put men on the ground that forced them into the acceptance of tactical nuclear weapons as time went on in order to fill the gap in fire power which they could not put up with conventional weapons in the hands of men on the ground. Is that correct?

A.C.M. MILLER: That is an over-simplification.

Mr. DEACHMAN: Perhaps over-simplified, but generally this is correct. Is it also correct to say that you could triple NATO'S fire power, with nuclear weapons far cheaper than you could triple NATO'S fire power with conventional weapons?

A.C.M. MILLER: I would hesitate to comment on that, because I do not know the economics of American weapon production.

Mr. DEACHMAN: Have tactical nuclear weapons been reduced to the point where you have tactical nuclear weapons within the battalion today in Europe?

A.C.M. MILLER: May I put it this way: there is a weapons available for battalion use. It is a very controversial weapon and I am not sure whether there are any in Europe at the moment.

Mr. WINCH: I saw them in Europe.

A.C.M. MILLER: Then Mr. Winch is sure while I am not.

Mr. BREWIN: The implication of the question is that the doctrine of 1959 was that you had to make up for deficiencies in conventional forces by the use of tactical nuclear weapons. That was the view in 1959 that you referred to.

A.C.M. MILLER: It was much earlier than that.

Mr. BREWIN: It started earlier than that, but is it not true that since that time there has been grave disquiet in having to rely on tactical nuclear weapons, and that a far more up-to-date doctrine is that it is extremely dangerous to Europe as well as enhancing the danger of escalation to a full scale nuclear war with these tactical nuclear weapons? Is that not the reason for the present emphasis upon conventional weapons?

A.C.M. MILLER: I think that if you look carefully at any of the communiques that have been issued by the council, you will find they have put equal emphasis on the two weapons; that is, they do not say that we do away with tactical nuclear weapons, if you give us more conventional forces. They would like—that is, the commanders would like—very much to have very considerable conventional forces in order to delay the use, or the decision to use atomic weapons; but they are facing this fact: you must always remember that the Russians have a complete arsenal of these weapons as well, and it is a question of response to an attack. It is very hard to determine ahead of time what you are going to do in response to a hypothetical attack.

Mr. DEACHMAN: Have you a ready comparison of the number of divisions in the field, let us say, between 1959 and 1963?

A.C.M. MILLER: You say 1959 to 1963?

Mr. DEACHMAN: Or take any two years around that time if you can; take four or five years back; how many divisions were in the field as compared to now, in order to simplify it?

A.C.M. MILLER: The change that has taken place since 1959 is the re-arming of Germany and the accretion to SACEUR of 12 German division—they are not all on the line yet; but at the same time he lost French divisions when they were diverted to North Africa and never returned to him—means that over this period, since about 1957 until now, there has been an accretion to him of about 8 divisions. To use figures rather loosely, it is of that order.

Mr. DEACHMAN: From the United Kingdom, Canada, and the United States what increase has there been over that period? Could you give us round figures on that?

A.C.M. MILLER: I would want to check on it.

Mr. DEACHMAN: Do you think it is appreciable at all, or is it about the same?

A.C.M. MILLER: It has increased.

Mr. DEACHMAN: Is this in response to the desire of these countries to maintain conventional forces which are necessary in Europe, as we have heard them described here?

A.C.M. MILLER: You will recall that at the time of the Berlin crisis a year and a half ago there was considerable emphasis by the commanders to get some more conventional forces into Europe. That was the result of one incident which is reflected in this German build-up.

Mr. DEACHMAN: To what extent is Canada responsible for the number of additional men that have been put into Europe over the past few years?

A.C.M. MILLER: We raised the brigade to full war strength at the time of Berlin and it has remained as such since then.

Mr. MACINNIS: Mr. Brewin brought up the question originally about the imbalance between tactical nuclear weapons and conventional weapons, and the air marshal stated that an attempt was made to bring about greater balance. His original statement was about the imbalance between conventional and nuclear weapons. Now then, this would mean of course that conventional weaponry would be built up.

A few minutes later the minister came in and said it was desirable that tactical nuclear weapons should be built up along with the conventional weapons. May I ask just where is the emphasis going to be placed?

In regard to a further statement of the minister, he used the word "superior" which, I take it, he meant to apply to the potential enemy. As I recall it he said "superior land forces". This does not appear to me to be the type of statement any minister of defence should be making to indicate to this committee that our own NATO forces are inferior in any way, shape or form.

Mr. HELLYER: I used the word "superior" there in terms of magnitude—firepower, not in connection with the competency of our troops. I would not want any misunderstanding about that.

Mr. MACINNIS: Are you speaking then of tactical nuclear weapons or conventional?

Mr. HELLYER: I was speaking of their conventional land army.

Mr. MACINNIS: Then is it not proper that we should follow the course set forth by the Air Chief Marshal, which NATO countries decided, that the conventional weapons should be built up?

Mr. HELLYER: The NATO council has urged that force goals be met which include the building up of both conventional and nuclear strength. I think, as the Air Chief Marshal indicated earlier, that certainly one of the considerations of the review now taking place is a reassessment of the balance.

Mr. MACINNIS: Yes, but he also indicated it was desirable that the conventional weapons be brought more in balance with the tactical nuclear weapons.

Having in mind the statements which have emanated from Washington on many occasions, that at no time did the Americans intend to be the first to push the button to start a nuclear war, is it not desirable, as indicated by the Air Chief Marshal, that conventional weapons get much more consideration than they have been getting, and not, as you stated, a further build-up of both tactical nuclear weapons and conventional?

Mr. HELLYER: I think this will become clearer once the present NATO review is complete, which goes into strategy first, and once it has been fully defined or redefined for NATO as an alliance, then the forces necessary to meet that strategy and the best utilization of resources will become more clearly defined.

Mr. MACINNIS: It already has been indicated to this committee that the NATO countries had decided, after investigation into this matter, to build up the conventional weapons to bring them more in balance with the nuclear weapons.

Mr. HELLYER: No; I think it has been made clear there is in the present force goals requirement for a build up in both the nuclear tactical weapons and conventional strength.

Mr. MACINNIS: This is what I am trying to bring to your attention. In reply to Mr. Brewin's original question I understood the answer to the committee was to the effect that they are making an attempt to build up the conventional weapons in order to bring them into balance, but you are telling us this is not the case; that they are going to concentrate on building both, and the imbalance is going to remain.

Mr. HELLYER: I do not know if the word "balance" is the right word—

Mr. MACINNIS: That is the word that was used in the committee.

Mr. HELLYER: —in connection with supplementing the capacity they have in both areas.

Mr. MACINNIS: So much for that suggestion, Mr. Chairman, but I should like for a moment to discuss a subject introduced to this committee by Mr. Lloyd in regard to the frigate program and statements made by the minister.

As one member of this committee I shall not forget statements made, certainly in respect of the frigate program, which involve changes very detrimental to the city of Halifax and the maritime provinces in general. I am not in favour of decisions being made, such as has been suggested by the minister, without regard to representations by his own member for Halifax and other members from the maritime provinces.

Mr. HELLYER: That is not the situation at all. I am sure I will receive representations from yourself as well as many other members.

Mr. MACINNIS: I am referring to those decisions which the minister has indicated he is going to make.

Mr. HELLYER: I did not indicate what decision was to be made. I said it was a program to be reviewed, and unlike some of my friends I believe the review should be completed before a judgment is given.

Mr. MACINNIS: I have reference to a statement made by the minister last week, and I should like to remind him that my memory is not and will not be as short as he suggests. Statements were made on the west coast in regard to cutting back this program. I think the members of this committee should have ample opportunity to examine any move in that direction, and I feel I have the support of Mr. Lloyd in this respect.

Mr. LLOYD: Mr. Chairman, in view of the fact that my name has been brought into this discussion and some allusions made regarding a comment I have made, I should like to make a statement which I trust will make my position abundantly clear, albeit it will reveal my lack of understanding of the procedures

of the House of Commons and my lack of understanding and experience regarding the operations of committees of this House of Commons.

As events are taking place in this committee at this time, Mr. Chairman, I think the time has arrived for the steering committee to review that trend of events.

I have considerable difficulty in reconciling the democratic processes of appraising the effectiveness, scope and necessity of our role in collective policy of security with our allies and with the need for security in our defensive policy. It seems to me on the one hand we have a job to do as a committee in appraising the performance of those charged by the Canadian government with the responsibility in this field, and on the other hand, in pursuing our inquiries, we must be certain that we always recognize that we are dealing with a potential enemy which has a one party system but does not have defence committees such as this committee.

It would seem to me, Mr. Chairman, there is great urgency for the steering committee to reconcile our position so as to more properly define the functions of this committee, and to reconcile the need for security with democratic processes, with which I am gravely concerned.

One has only to pick up a copy of the *Financial Post*, a newspaper which has nothing to do with defence, in order to read a statement made by Mr. McNamara which may lead those of us with perhaps some inclination toward economics to believe that Mr. McNamara was under some pressure to have the European countries adopt an increasing share of the cost of these collective defences because of the improvement in their economies derived from the establishment of the NATO shield against aggression in these countries.

It may be that we are going backwards, but it would seem to me that we should examine the facts and receive some guidance regarding the basic collective policy of NATO countries.

Mr. WINCH: That is the reason I suggested we should go to Colorado Springs.

Mr. LLOYD: I am not disagreeing with that suggestion, but I do think we should examine the basic collective policy and then make a proper appraisal, give guidance and make constructive recommendations to the minister in respect of the frigate program. When policies of defence become a matter of chief concern to us in regard to policies of government economics, those two things have to be reconciled.

I have no preconceived notions, Mr. Chairman, as to what the defensive policy ought to be. I do know that one of the greatest evils of our time is the destruction of confidence, and this is the thing which we must be very careful not to do in this committee. What we need to do is to have these briefings first so as to inspire confidence in the men to whom we have delegated responsibility, and then come back with more knowledgeable questions on the problems which confront us. I do not want to see this committee become a committee fighting old political battles. I would like to see it performing a useful role in Canada's defence policy.

The CHAIRMAN: May I interrupt you, Mr. Lloyd? At the beginning of this committee meeting we adopted precisely the proposals you are speaking about.

Mr. LLOYD: I am sorry, Mr. Chairman. I was at the organization meeting of the Banking and Commerce Committee and I came here as quickly as possible.

The CHAIRMAN: The committee has already adopted this line of policy.

Mr. LANIEL: Mr. Chairman, I am wondering what would happen in the case of an emergency; would the NATO force undertake complete military control of the areas involved, or are these countries prepared, or planning to undertake, some of their own defence? Is there any coordination here, and

is it considered as supplementary to the conventional forces available which are counted on in case of an attack, or are they only concerned with their civilian defence?

A.C.M. MILLER: I think, as a general rule, the whole of the military forces in western Europe are NATO forces.

Mr. LANIEL: All of them?

A.C.M. MILLER: Either assigned as Canadian forces or earmarked to be turned over to the NATO command in a certain state of emergency?

Mr. LANIEL: As reserve?

A.C.M. MILLER: No, as front line forces available to the NATO commander to defend his area.

Mr. LANIEL: Which means that these countries do not have forces outside those committed to NATO, besides administration?

A.C.M. MILLER: The forces that are in western Europe will be under the command of the NATO commander in an emergency.

Mr. GROOS: I would like to apologize, Mr. Chairman, for skipping in and out of this meeting, but I was trying to attend two meetings at once.

I have a question for the minister. I notice that the minister's statement the other day set forth very clearly what Canada's commitments are to NATO, NORAD and the United Nations, but in it there was no mention of the purely Canadian or national responsibility. I am sure you will agree, Mr. Hellyer, that Canada's interests are not always those of other allies, and one example I am thinking of now particularly is Canada's position in the Arctic where, over the past few years, our nuclear engined submarine has made it possible for nations which have these craft to operate there all year round under and through the ice. Canada cannot do so, and our sovereignty in that area may very well be suffering. I understand that in the past few years both the United States and the U.S.S.R. have been using our Arctic waters as an all year round thoroughfare. It would be helpful for the work of this committee, Mr. Hellyer, if you could give us your views on the purely national responsibilities on defence.

Mr. HELLYER: Yes, Mr. Groos. The reason it was not included in the preliminary statement was the magnitude of the different tasks we have had to undertake in relation to our own country, and I wanted to deal with our international obligations which are of primary importance to us but which are, by no means, the whole of our responsibility and of our capacity.

In the service briefs that you will be getting they deal quite extensively with both the problems and capability that our forces have available for various national tasks, and they will explain quite exhaustively what they do and how they do it. I think the forces will give you most of the information you require, although it may pose some questions, such as the one you have in mind, in respect to a particular policy.

Mr. MATHESON: When we are given some assistance from the army, would it be possible, in light of the fact that there was no information in the minister's statement, to have some comment with regard to the role of the militia. I think this is of great interest.

Mr. HELLYER: If you do not mind, I think it might be best if you hear what the army has to say about the militia and its accepted role, and after that if there is a question in your mind whether or not this is the best use of militia and whether any changes in policy should be discussed, we would then be in a position to discuss them.

The CHAIRMAN: Gentlemen, it is now after half past twelve, and this meeting stands adjourned until Tuesday morning at 10.30.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

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SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 4

TUESDAY, JULY 9, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Vice-Admiral H. S. Rayner, D.S.C. and Bar, C.D., R.C.N., Chief of Naval Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29149-2—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, July 9, 1963
(5)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch,—(22).

In attendance: Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; and Vice-Admiral H. S. Rayner, D.S.C. and Bar, Chief of Naval Staff.

The Chairman of the Committee stated that Mr. Hellyer, the Minister of National Defence, would be in attendance later in the sitting.

Admiral Rayner was introduced and he presented a prepared statement to the Committee. During that presentation a number of slides were shown; some of those slides are included in the evidence at the point of initial reference.

Mr. Hellyer and Admiral Rayner answered questions relating to Naval equipment and Defence.

Mr. Brewin, a member of the Committee, raised a question respecting certain published statements; he asked that the Steering Committee inquire into these statements.

The Chairman announced that these and other matters would be considered by the Subcommittee on Agenda and Procedure at 2:00 p.m., today.

At 12:35 p.m. the Committee adjourned until 10:30 a.m. on Thursday, July 11, 1963.

E. W. Innes,
Clerk of the Committee.

29149-2—1½

EVIDENCE

TUESDAY, July 9, 1963

Mr. WINCH: Mr. Chairman, I see a quorum.

The CHAIRMAN: This morning, as was agreed last week, we have as a witness Vice-Admiral H. S. Rayner, chief of the naval staff. There will be a presentation with the use of slides.

The Minister will be here at 11:30 to answer questions relative to the field of policy and the vice-admiral will answer technical questions.

We will now proceed with the showing of the slides and the presentation by the Admiral.

Vice-Admiral H. S. RAYNER, (*D.S.C. and Bar, C.D., R.C.N., Chief of the Naval Staff*): Mr. Chairman, members of the committee, it is a great privilege for me to appear before you and discuss with you some matters of particular interest underlying the purpose and tasks of the navy, the R.C.N. as it is today, including current ship construction programmes, the strength of the navy, and naval expenditure in recent years.

THREAT

To view the R.C.N. requirements in perspective, it is essential to have a good understanding of the maritime threat which has to be countered.

I will review this briefly for you under three main aspects any of which could affect possible R.C.N. operations and, therefore, the forces we should have. These are:

1. Soviet submarine force—the dominant maritime threat,
2. Soviet long range aviation as a maritime threat; and
3. Soviet fishing fleet activities in the western Atlantic.

SOVIET SUBMARINE FORCE

Russia has and is continuing to build and modernize the largest submarine fleet the world has ever seen.

It has a capability of: (*a*) missile attack; (*b*) torpedo attack; (*c*) mine laying.

This fleet is estimated to include over 400 submarines of which over 20 are nuclear powered. It is anticipated that as the numbers of nuclear boats increase, the numbers of conventional submarines will decrease over the next few years. Also it follows that increased numbers of nuclear submarines will greatly increase the power of the Russian submarine force.

SOVIET LONG RANGE AIR THREAT

On Tuesday, June 4, 1963, six Russian jet bombers flew a reconnaissance mission over a U.S.N. task force northeast of Japan. This is an example of Russian long range aircraft being employed on distant overseas reconnaissance. These forays have taken place far out into the Atlantic as well as in the Pacific, thus demonstrating that these aircraft have the range and capability of operating over the greater part of these oceans. Such aircraft are equipped with stand-off weapons which could be used against any maritime forces.

Soviet Fishing Fleet

Russia operates a very large and well-disciplined fishing fleet off the east coast of Canada. In 1962 there were about 550 trawlers and supply vessels at the peak of the fishing season. The numbers have varied from year to year and during the course of the year. The presence of a force of this size, in modern well found ships must be considered a potential menace in time of crisis or hostilities.

Furthermore, some of these vessels are well-equipped for the support or cover of a number of activities of a military nature. Their very physical presence would greatly hinder anti-submarine operations.

Those then are the main aspects of the maritime threat against which the Canadian naval plans and programmes should be viewed.

In recent years there has been much evidence that the Soviet Union has become keenly aware of the maritime nature of global geography. Historically content, to think and act, primarily as a land power, within the confines of Europe and Asia, Russia today is reaching out over the oceans. It is abundantly clear that the U.S.S.R. has recognized the economic and political importance of the oceans.

You will recall that last year the Soviet Union attempted to establish a missile base in Cuba. However, before her preparations could be completed, a naval quarantine was imposed by the United States. Russian ships, laden with strategic weapons and materials, were forced to alter course and not proceed to their destination. Once again it was clearly shown that prior to establishing a military base overseas, it is essential to be assured of the unrestricted use of the seas.

The Soviets, have also been concentrating on their merchant marine which in the last decade has doubled in tonnage and now totals 4,000,000 tons. There are indications that they plan to triple this tonnage by 1967. Their efforts in oceanographic research have accelerated in an ever widening geographic coverage. Three of their ships were in Halifax in late April to replenish prior to returning to their work in the Gulf Stream a few hundred miles south of Nova Scotia.

To give you a general idea of the comparison between the water and land masses which cover the earth, it is of interest to note that the high seas cover approximately 140 million square miles in contrast to about 52 million square miles occupied by land areas and inland waters. In other words, 70 per cent of the earth's surface is water.

This picture of the earth was taken from a range of 25,000 miles in space, with Tahiti being the island in the centre. The distance from Tahiti to Vancouver is 5,000 miles and to Sydney, Australia, 4,000 miles.

Plying the trade routes of the world over this vast ocean area on any given day, there are about 18,000 ships of over 1,000 tons at sea, while another 11,000 are in harbours around the world. During 1962, 141,183 vessels engaged in international or coastwise shipping arrived at Canadian ports and loaded or unloaded approximately 102 million tons of international cargo.

Another statistic which is of interest in illustrating our dependence on the sea is that 96 per cent of the world's principal cities and over 50 per cent of the world's population are located within 250 miles of the sea or on less than 5 per cent of the land mass.

We live close to the sea because the sea is important to us—for food, for commerce and transportation.

The Purpose of the R.C.N.

How important is the sea to Canada?

Our shores are washed by three oceans and our coast lines total 19,100 miles. This, together with our large overseas trade, makes the sea tremendously important to us.

In this connection I would like to quote from a pre-Confederation speech given by Thomas D'Arcy McGee in a New Brunswick town, in 1864—

He said:

> I rejoice, moreover, that we men of insular origin are about to recover one of our lost senses—the sense that comprehends the sea—that we are not about to subside into a character so foreign to all our antecedents, that of a mere inland people. The union of the provinces restores us to the ocean, takes us back to the Atlantic, and launches us once more on the modern Mediterranean, the true central sea of the western world.

Our geographical and political situation has inspired and encouraged a reasonably steady growth of the navy over the years since it was first established in 1910, more or less keeping step with the expansion of the country.

I have been asked by all sorts of people from members of parliament to boy scouts, what is the purpose of the navy?

We define the purpose of the R.C.N.:

> To ensure that Canada in cooperation with allied and friendly nations will have unrestricted use of the seas in peace and war. Please note the words "in cooperation with allied and friendly nations".

The Role of the R.C.N.

Some form of collective security is essential for Canada. In thinking of the part or role that the navy has to play we assume that, in time of emergency, in addition to operating with the air force and the army, the R.C.N. will also operate in conjunction with allied navies. In principle and in practice, this has already been well established by the setting up of integrated R.C.N.-R.C.A.F. maritime commands at Halifax and Esquimalt and by frequent exercises with NATO maritime forces. It has been agreed, that the role of the R.C.N. is to support Canada's external policy and defence policy through the provision of versatile naval forces.

These forces must have the capability to act as shown on the slide:

(*a*) defend Canada's interests against attack from the sea;

(*b*) meet Canada's commitments to collective security arrangements; for example, to NATO and to Canada-US defence arrangements. We have agreed to provide to the Supreme Allied Commander, Atlantic, known as SACLANT, on an alert, 1 A/S carrier and 29 A/S escorts, and to the CAN-US region of NATO—14 A/S escorts and 10 minesweepers, for a total NATO commitment of 1 A/S carrier, 43 A/S escorts and 10 minesweepers. In view of the magnitude of the submarine threat it is clear that a strong integrated NATO A/S force is very definitely part of the over-all deterrent.

(c) contribute to other external undertakings, e.g. to UN operations, (Korea and Suez).

(d) support the Canadian Army in actions arising out of (b) and (c); and

(e) contribute to the maintenance of Canadian sovereignty in the Arctic.

OPERATIONAL TASKS OF THE R.C.N.

Arising from the role, the tasks of the R.C.N. have been listed as shown:—

(a) to defend sea lines of communication through control, escort and convoy of shipping;

(b) to detect, locate and destroy enemy submarines;

(c) to contribute to early warning of attack launched from over, on or under the sea;

(d) to patrol the coastal areas and approaches to Canadian waters;

(e) to keep Canadian ports, anchorages and approaches free of mines;

(f) to provide logistic support for the fleet both afloat and ashore;

(g) to transport, land and support Canadian army contingents as required;

(h) to provide mobile command and base facilities for external undertakings;

(i) to carry out and support operations in the Arctic.

In addition, the R.C.N. must be ready to:

(a) assist in survival operations—this is an additional task of the 21 naval divisions which are established across Canada;

(b) assistant in maritime search and rescue operations.

As regards the first task (a):

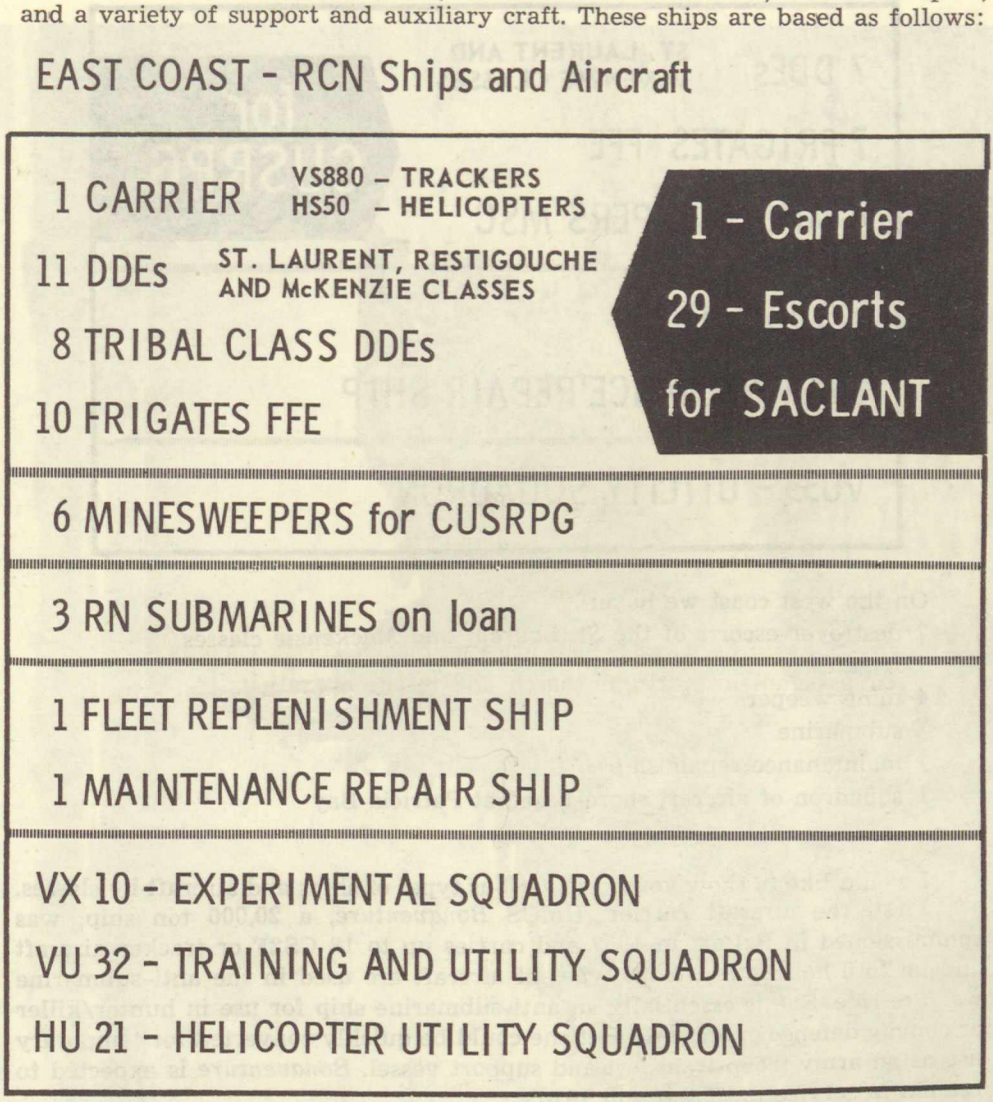
The principal threat to sea communications is the submarine and as you know the R.C.N. has specialized in anti-submarine warfare ever since the advent of NATO.

Most of the foregoing tasks are wartime tasks. The principal employment of the fleet in peacetime is to prepare to carry out its mission in war or in an emergency. In line with Canada's increasing interests on virtually all continents, there arises the necessity for the navy to be familiar with differing conditions around the world. This is mandatory if our ships are to be ready to undertake operational tasks, in any part of the world, including army support operations. It is also clearly desirable that, in conjunction with sea training, the ships should be available, during visits to foreign ports, to assist the Department of External Affairs and the Department of Trade and Commerce in projecting abroad a sincere and well-rounded image of Canada. In this connection, the following are some of the visits carried out by Canadian ships from the east coast during 1962; Kingston, Jamaica and Trinidad for independence day celebrations; Accra (Ghana) and Lagos (Nigeria) for Canadian trade fairs; Amsterdam, Rotterdam, Wilhelmshaven and Dublin. In the same year ships from the west coast visited Singapore, Rangoon, Colombo, Trincomalee (Ceylon), Port Swettenham (Malaya), Bangkok (Siam), Hong Kong and Yokosuka (Japan) in conjunction with a commonwealth naval exercise in the Indian ocean.

Opportunities are welcomed to visit foreign countries to fit in with training cruises and exercises. We carry out most of our international exercises with NATO forces, but we also exercise with the United States navy and the royal navy and also with other commonwealth forces. Advantage was taken during the recent visit of French fleet units to exercise with the French ships off Nova Scotia in the middle of June.

THE R.C.N. TODAY

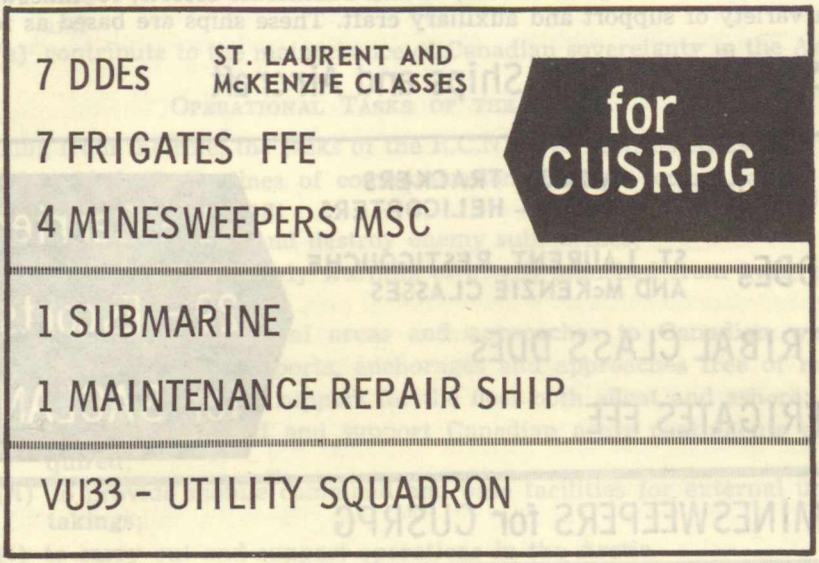
To meet the role and to carry out the tasks that I have listed, the R.C.N. consists of one A/S aircraft carrier, 43 anti-submarine escorts, 10 minesweepers, and a variety of support and auxiliary craft. These ships are based as follows:



On the east coast we have:

1 Aircraft carrier with a squadron of tracker aircraft and a squadron of helicopters embarked
11 Destroyer escorts of the *St. Laurent, Restigouche* and *Mackenzie* classes
8 Tribal class destroyer escorts
10 frigates
6 minesweepers
3 royal naval submarines on loan
1 fleet replenishment ship
1 maintenance repair ship
3 squadrons of aircraft shore-based at naval air station Dartmouth

WEST COAST - RCN Ships and Aircraft



On the west coast we have:
7 destroyer escorts of the *St. Laurent* and *Mackenzie* classes
7 frigates
4 minesweepers
1 submarine
1 maintenance repair ship
1 squadron of aircraft shore-based at Patricia Bay

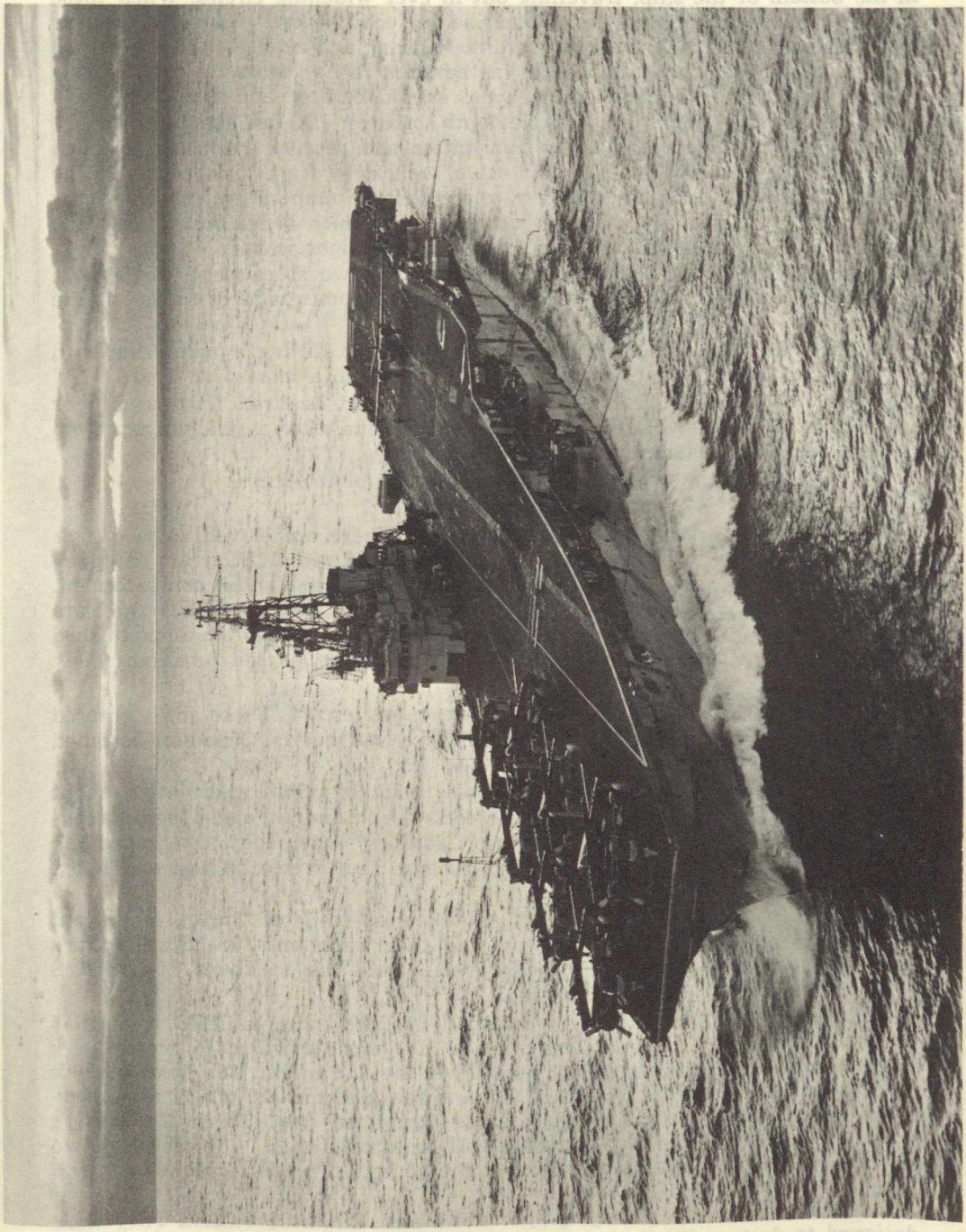
I would like to show you these various types of ships and aircraft by classes.

First, the aircraft carrier, HMCS *Bonaventure*, a 20,000 ton ship, was commissioned in Belfast in 1957 and carries up to 18 CS2F or tracker aircraft and up to 6 helicopters. Both types of aircraft are used in the anti-submarine warfare role. She is essentially an anti-submarine ship for use in hunter/killer or convoy defence operations. But she could be quickly converted for temporary use as an army troop transport and support vessel. *Bonaventure* is expected to remain in service until the mid 1970's.

You will recall that last September while *Bonaventure* was on passage to European waters for a NATO exercise she played an important part in an air-sea rescue incident, when an American plane loaded with U.S. servicemen, and their dependents went down in the Atlantic off Ireland.

Next we turn to the escorts. These can be divided into three main categories; the older type destroyers of world war II vintage, such as the Tribal Class; then the new types, the *St Laurent, Restigouche* and *Mackenzie* Class destroyer escorts and lastly the frigates, smaller and slower, which, once again, are older wartime built ships.

But first, before showing you photographs of the escorts I would like to give you a brief explanation of the anti-submarine equipment and weapons used by ships.



The device used by ships for detecting, and tracking submarines up to the moment of attack is sonar which is an abbreviation of the phrase "sound navigation and ranging". This slide shows the sound waves from a transmitter in the bottom of the ship, travelling out in ever widening circles. When these waves strike an object such as a submarine an "echo" travels back to a receiver in the ship. Electronic devices compute the bearing and range of the object and display and record this information in the ship. A fire control computer calculates when the anti-submarine weapons should be fired and fires them.

The next slide shows the variable depth sonar or VDS, a Canadian development. With this device the sonar transmitter and receiver can be suspended hundreds of feet below the ship on a cable, well away from surface noises. The depth selected is that below the area where sudden temperature changes occur in the water and produce a "temperature layer", which bends and distorts the sound waves in the same way that a mirror bends light waves.

The submarine can be attacked with one of two ship borne weapons; a pattern of depth bombs, or with a torpedo which homes onto or seeks out the submarine.

This slide shows an artist's conception of a ship hitting a submarine with a pattern of three depth bombs which are fired from a mortar on board.

This next slide depicts a torpedo, which could be fired from a ship or dropped by an aircraft, searching for the submarine after a straight run from the ship, and finally homing onto the submarine.

In both cases the artist is clearly on the side of the ship.

To return to the escorts.

This slide shows a Tribal class destroyer. There are eleven ships of this type which were built during and shortly after world war II. They are equipped with guns for use against surface and air targets and also shore bombardment. They also have good antisubmarine equipment and weapons. Thus they are versatile ships with a good general purpose capability. But, after distinguished service, they are rapidly wearing out and should be phased out completely by 1970.

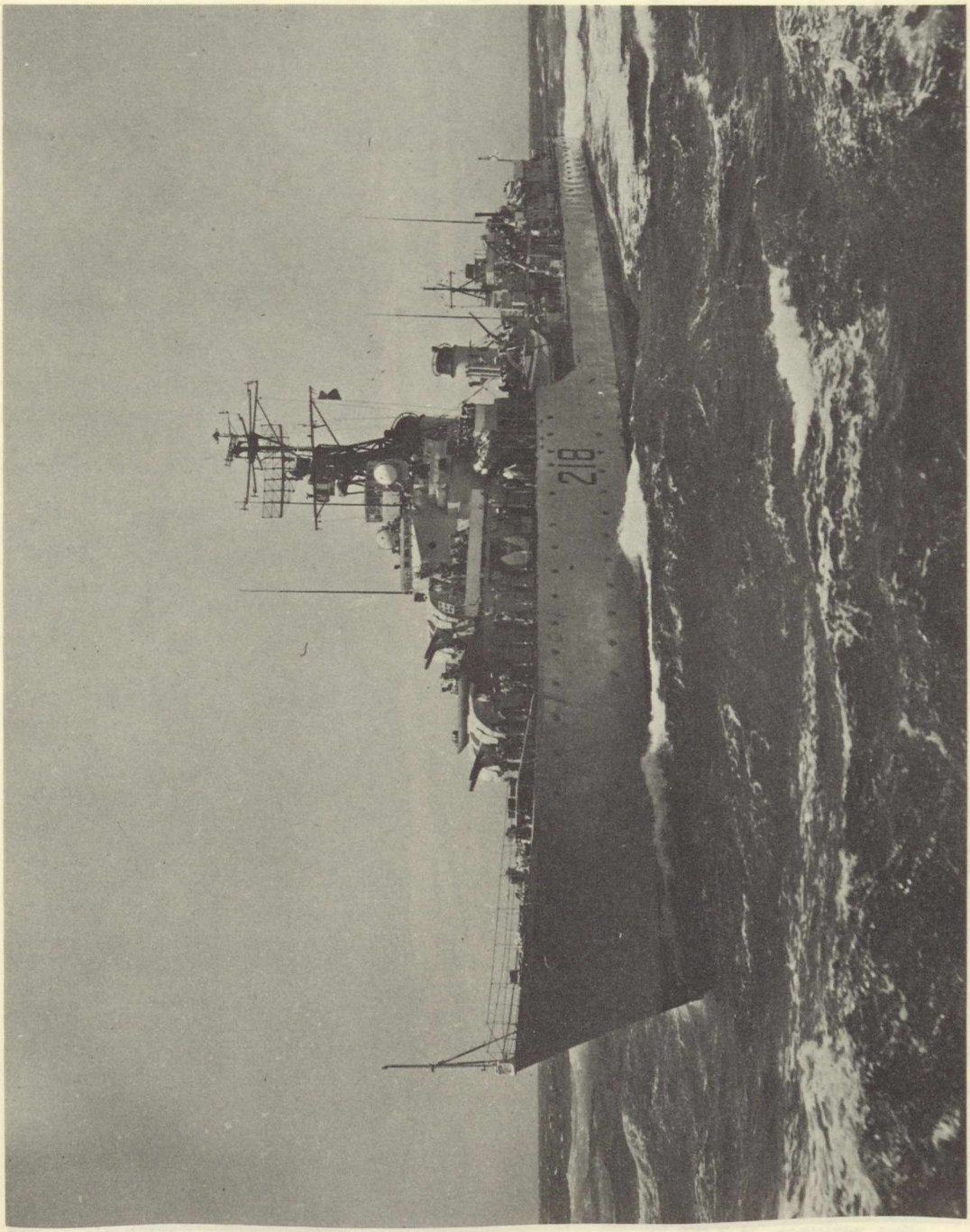
Next we have the *St Laurent* class destroyer escort. These ships entered service in 1955 and there are seven of them. This was the first Canadian-designed A/S ship.

In recent months there has been quite a lot of public speculation about the capability of our modern destroyer escorts the *St Laurent's* and their successors. The sailors nicknamed these ships "Cadillacs" when they first joined the fleet, not only because of their cost but because they were the best and latest of their kind.

What is their potential to-day? Are they up-to-date? This is important because these ships, the *St Laurent*'s, and their successors the *Restigouche*'s and the *Mackenzie*'s, a total of twenty, will form the backbone of our A/S surface forces for several years ahead.

The seven *St Laurent*'s were designed in 1949 and completed from 1955 onwards. The seven *Restigouche*'s and six *Mackenzie*'s, which followed, were both designed in 1956 but the basic design was the *St Laurent*. The *Restigouche*'s were completed between 1958 and 1960 and the *Mackenzie*'s, which are essentially repeat *Restigouche*'s, are just being completed now. Three *Mackenzie*'s have been commissioned and the class will be completed in 1964. The last two *Mackenzie*'s will be a great advance on the 18 earlier ships for reasons which I will come to.

These 20 ships are all highly specialized antisubmarine vessels. They were designed to destroy the modern conventional submarine. As you might expect they are a great advance on anything we had in world war II, but so is the modern conventional submarine.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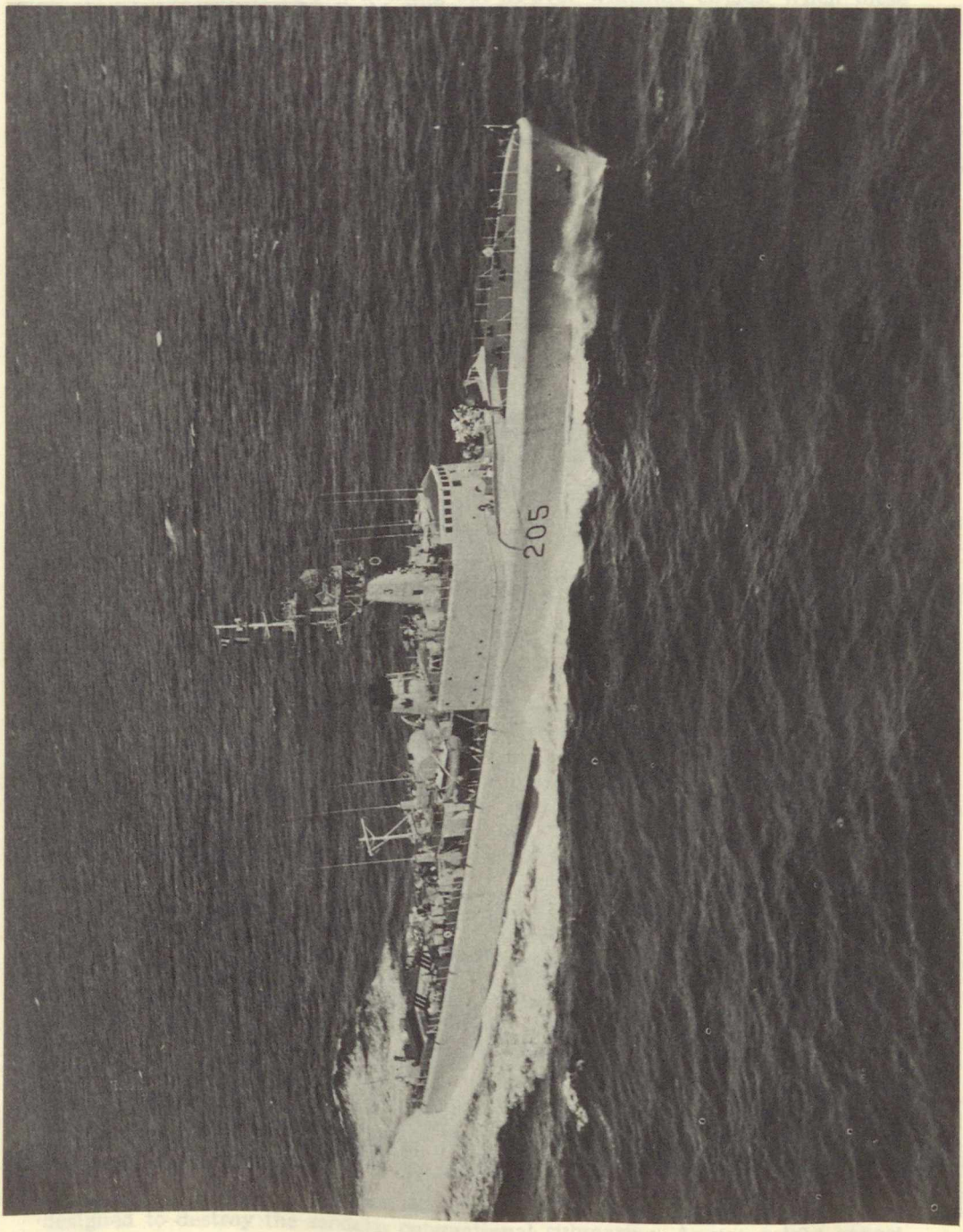

205

But the really significant advance in naval warfare was the advent of the nuclear submarine *Nautilus* in 1957, to be followed by the Polaris submarines in 1960. These events changed matters almost overnight. Instead of having to deal with submarines with fairly high submerged speeds, but very limited endurance underwater, navies are now faced with the problem of hunting submarines, with very high submerged speeds, greater diving depth and sustained underwater endurance. In fact, so far as the nuclear submarine herself is concerned, she can stay under the water for months on end. Fortunately for us, at the present time there are comparatively few of these boats at sea, but many more will undoubtedly come.

One of the most urgent military problems confronting the west—and for that matter the east also—is the problem of defence against the nuclear submarine armed with long range missiles—or indeed against any nuclear submarine.

Our present destroyer escorts have a very limited capability against nuclear submarines, but they are first class against conventional submarines which as you have heard constitute the vast majority of submarines in the Russian fleet today.

However, what are we doing about defence against the nuclear submarine?

Much research and development has been done and continues. Although the problem is a long way from being solved, there are promising developments and some good hardware has been produced. In Canada we have developed variable depth sonar which provides more reliable detection at increased ranges. This device is being fitted in the last two *Mackenzie*'s, which I mentioned earlier. The 7 *St Laurent* escorts are also being converted to carry variable depth sonar.

At the same time as they are being equipped with variable depth sonar, our destroyer escorts are being given landing platforms and the facilities for operating helicopters, which will carry both sonar and weapons. This is an important Canadian concept, the idea of operating a large, all-weather, A/S helicopter, equipped with both sonar weapons from a destroyer escort. The Sikorsky HSS-2's are on order and the first was accepted for trials in May. These helicopters will be much faster than nuclear submarines. This destroyer escort helicopter combination will normally work as a unit.

Here is an artist's impression of a converted *St Laurent*. The first ship of this class to be converted is the *Assiniboine* who will complete her conversion this month and will commence helicopter trials in October on the east coast. These will be extensive trials lasting at least six months. She will be joined by the converted *St Laurent* herself in early 1964. It is planned to complete the conversion of 7 *St Laurent*'s by the end of 1965.

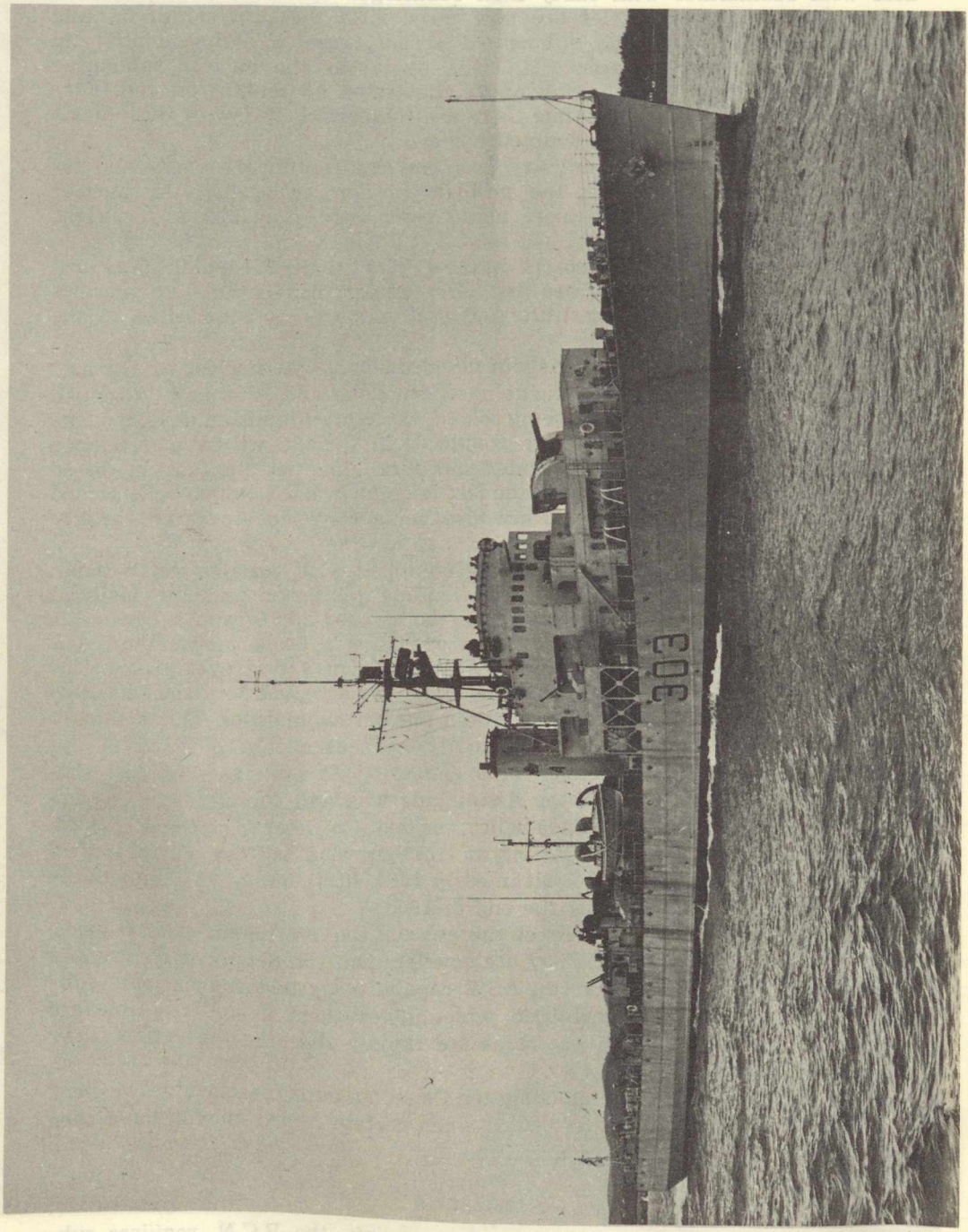
Finally, we have the slowest of the escorts, the Prestonian class frigates. There are seventeen of them. They are smaller than the destroyer escorts and much less complex. They have an ASW capability against conventional submarines and a twin four-inch gun which gives them a surface-to-surface capability. Like the tribals these ships are rapidly reaching the end of their economical lives.

The R.C.N. also has in commission ten Canadian built coastal minesweepers.

The life expectancy of these ships when certain improvements have been made is estimated to be in the mid 70's.

SUBMARINES

Turning from surface ships to undersea craft, the R.C.N. requires submarines for training R.C.N. and R.C.A.F. antisubmarine forces and also for use in antisubmarine operations.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Experience in other navies has shown that submarines themselves are very effective in the detection and destruction of other submarines. The submarines required for this antisubmarine role are specially fitted for the task and carry long range detection devices. Carrying these devices deep into the ocean and away from the surface noise and weather, the antisubmarine can hover silently and listen out for an enemy. It has the capability of detecting other submarines many miles away and it is thus an important member of the antisubmarine team.

Antisubmarine warfare must be a team effort. This, together with the conditions of wind, weather, ice, and the vastness of the sea which surrounds Canada, dictates that ideally our antisubmarine force should be a comprehensive antisubmarine team consisting of ships, submarines, aircraft and fixed installations. The addition of submarines to our present maritime forces would improve and diversify our antisubmarine capability. It would also greatly increase the overall operational effectiveness of our forces and improve the operational training of the crews. Our surface and air A/S forces require constant practice with submarines to achieve a high state of training.

At present this training requirement is partially met on the east coast by the loan of three submarines from the R.N. two of which are normally on station while the other is undergoing refit; and on the west coast by the loan of one submarine from the U.S.N.

The loan agreement between the British Admiralty and the R.C.N. requires that we pay operational and maintenance costs and provide some of the personnel to man the three east coast submarines. The agreement has been in effect since 1955 and has provided much of the live submarine practice on the east coast. These R.N. submarines which are coming to the end of their operational lives, are unlikely to be available after 1966 or 1967, and the Admiralty is not planning to replace them.

In the case of the submarine *Grilse* on the west coast, she is on loan for five years from the U.S.N. and is completely manned by R.C.N. personnel.

Aircraft in the R.C.N.

To complete the picture of R.C.N. A/S vehicles we should now look at carrier aircraft, and here is a CS2F or tracker.

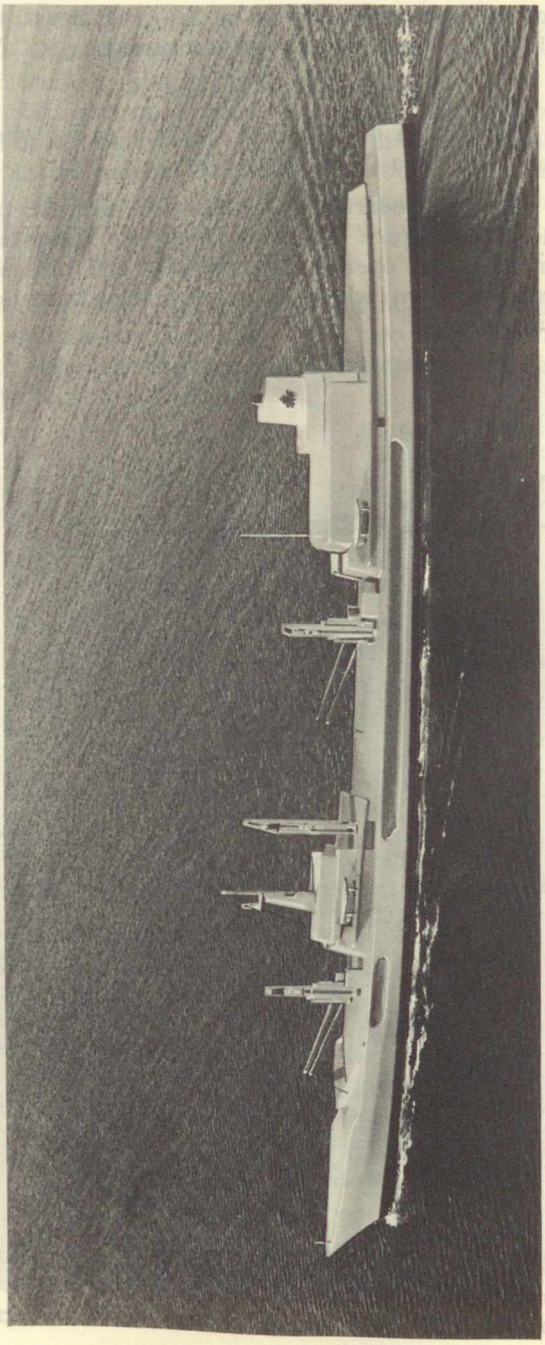
We have 72 of these modern fixed-wing A/S aircraft, up to 18 of which are carried in the *Bonaventure*. The remainder are shore-based, where some are employed for advanced operational training, and others are available as back up for the carrier. The trackers carry submarine detection equipment and anti-submarine torpedoes.

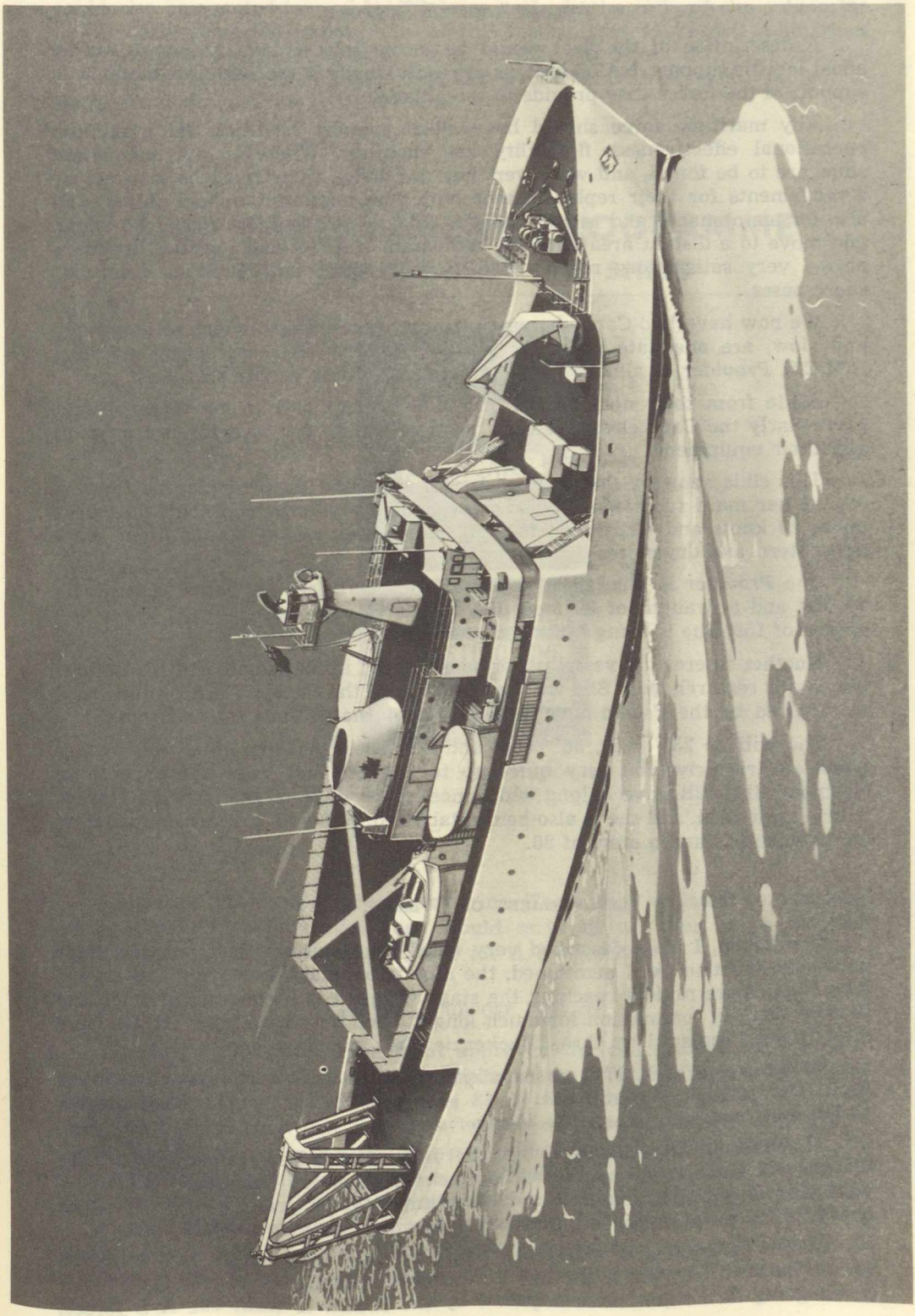
HSS-2 Helicopter

This is the HSS-2 helicopter using its dunking sonar. Dunking or dipping sonar is the name given to the helicoper's submarine detection device. It is similar in principle to the variable depth sonar which I described earlier.

The HSS-2 is the latest A/S helicopter, and was designed in the United States specifically for A/S operations. It is an all-weather helicopter and in addition to its dunking sonar for the detection of submarines it carries anti-submarine torpedoes for the attack.

Six of these helicopters will be carried in *Bonaventure* and one will be carried on each of the converted *St. Laurent* class destroyer escorts. Three CHSS-2s have recently been supplied to the R.C.N.





Afloat Logistic Support

A description of the fleet would be incomplete without a few words on afloat logistic support. NATO nations are individually responsible for the logistic support of the forces they provide to the alliance.

Any maritime force should have afloat support facilities, for maximum operational effectiveness, flexibility and mobility. Wherever our combatant ships are to be found, and whatever they are doing, there must be satisfactory arrangements for their replenishment with fuel, ammunition and stores, and also for maintenance and repair facilities. Ideally this support should be afloat, and move to a distant area with the combatant ships. Afloat logistic support is also a very satisfactory means of dispersing stores and facilities from our shore bases.

We now have two Cape class maintenance repair ships, which although old and slow, are adequate for their purpose. A new fleet replenishment ship, H.M.C.S. *Provider*, is almost completed and will enter service this year.

Aside from their normal role of replenishment and repair these vessels, particularly the Cape class, possess a good capability for carrying army troops and their equipment.

This slide shows a fleet replenishment ship like the *Provider* performing one of her main functions. The *Provider* will be able to replenish at speeds up to 20 knots and will carry fuel oil, diesel fuel, avgas, ammunition, spare helicopters, and dry stores.

The *Provider* is a large ship, 22,000 tons, 551 feet in length, a beam of 76 feet and a draught of 30 feet. She will have a top speed of 20 knots and a crew of 159. She is being built in Lauzon, Quebec.

Another interesting vessel under construction in Esquimalt, British Columbia, is this research ship. She will be operated on the Pacific Coast by the navy, as required by the Pacific naval laboratory for the defence research board.

She will be 235′ long, 38′ beam and displace 1,600 tons. She will have a diesel-electric drive, be very quiet up to 6 knots and have a top speed of 16 knots. She will have a long endurance, so 60 days of refrigerated storage is being provided, and she is also being stabilized. She will have accommodation for 12 scientists and a crew of 26.

Replacement of Overage Ships

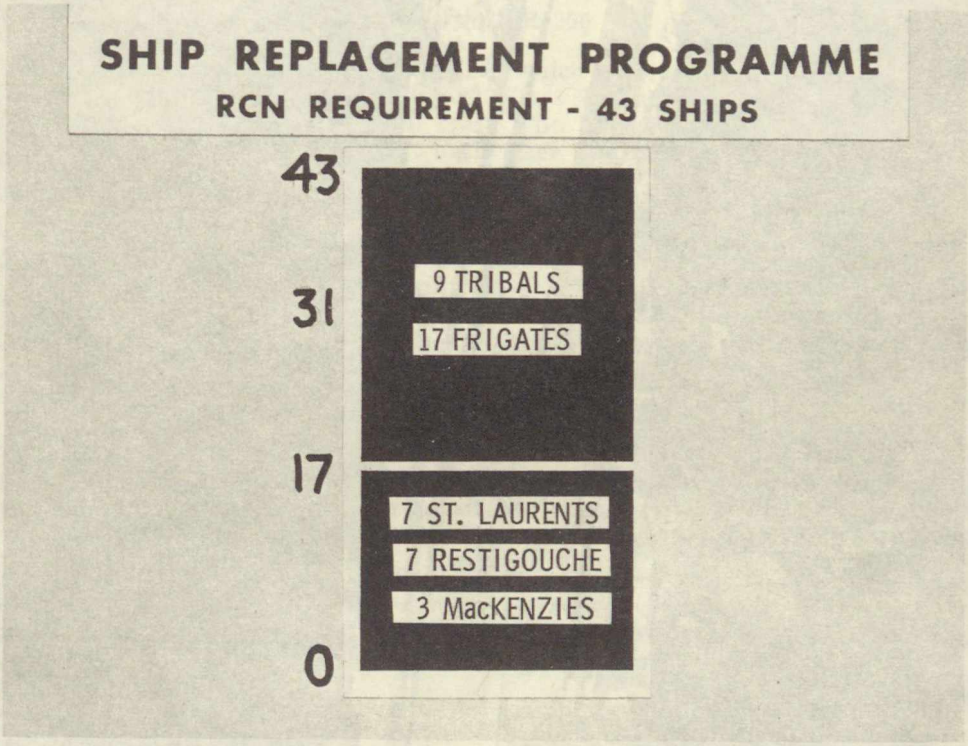
Gentlemen, I have described very briefly the existing fleet and the ships under construction. As I mentioned, the nine tribal class destroyers and seventeen frigates are rapidly reaching the stage where it is becoming uneconomical to keep them in commission for much longer. Two tribals and one frigate have already been replaced by three *Mackenzie* class escorts.

Between now and 1970, the remaining 26 ships will reach their normal age limit. Our present commitment of 43 escorts is being met by 17 post-war *St Laurent* type escorts and the 26 older ships.

In addition to the 3 overage ships that have already been replaced, a further 3 ships will be replaced by the last 3 *Mackenzie's* which will be completed by next year. In order to maintain our commitment at its present level it will be necessary to continue the replacement program to provide modern units.

In this connection, I would like again to refer to the need in the R.C.N. for submarines to train A/S ships and aircraft. SACLANT has indicated that ocean-going A/S submarines acquired by the R.C.N. to train our A/S forces,

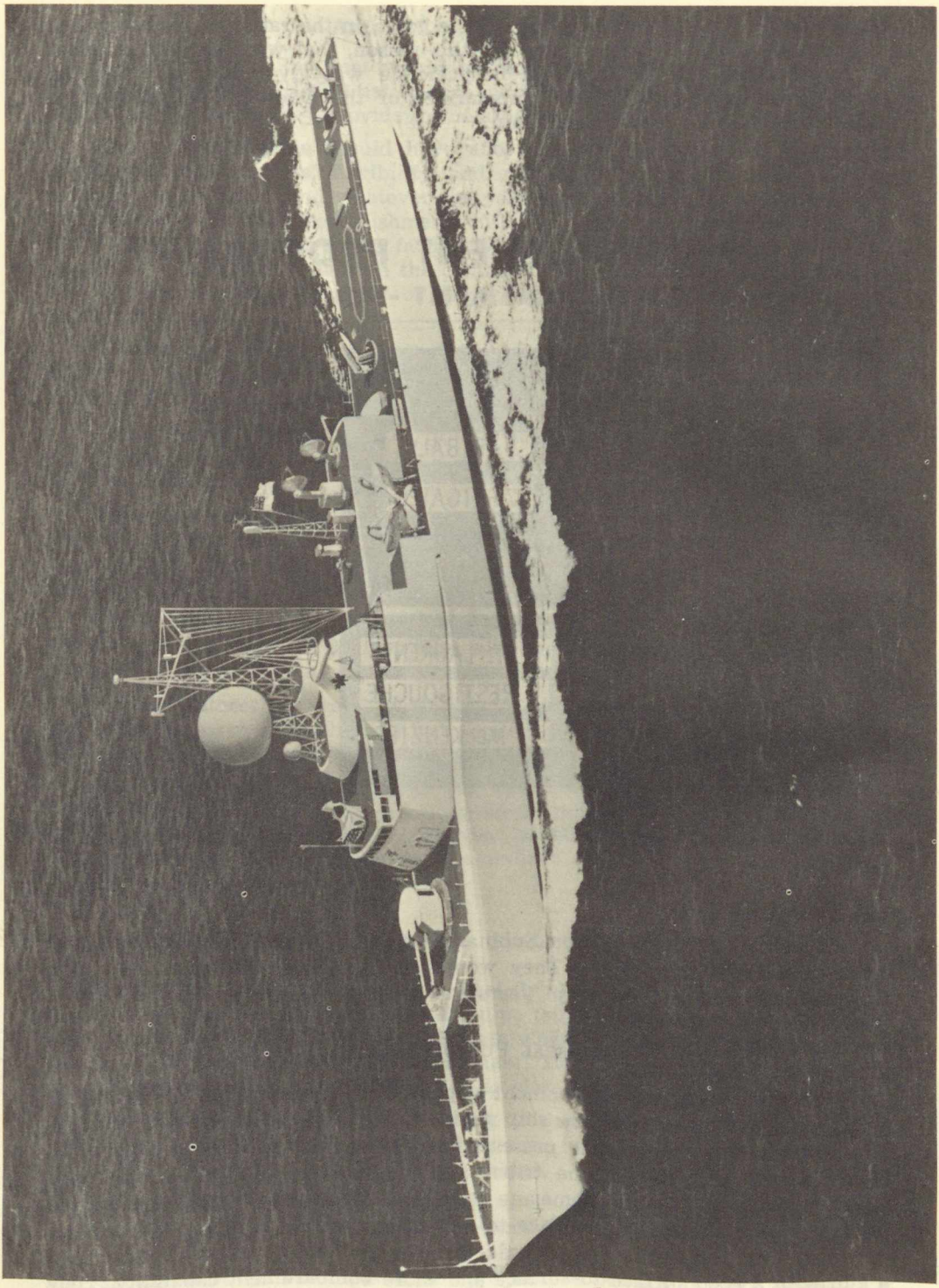
could also be counted toward NATO force goals, in the ratio of one submarine to one anti-submarine escort. It is for this reason, that we regard submarines as replacement vessels. Approval in principle was given last year for the purchase of three conventional submarines of the *Oberon* class, subject to satisfactory negotiations with Britain.



This slide shows an *Oberon* Submarine. These are the latest conventional ocean-going A/S submarines. They would serve us well for up to 20 years for training and also for several years for A/S operations.

General Purpose Frigate

In March 1962, the government approved the construction of 8 general purpose frigates as part of the ship replacement program. These ships would be somewhat larger than the present destroyer escorts, and would give the fleet the versatility which the tribal destroyers have provided in the past. They would have an anti-submarine capability. They would introduce for the first time into the R.C.N., surface-to-air guided missile systems for anti-air defence. In addition, the ships would carry a general purpose helicopter and a gun with a good surface-to-surface and shore bombardment capability. They would also be able to carry 200 troops with light equipment and would be capable of landing and supporting those troops in practically any part of the world.



These ships would replace the overage tribal class destroyers.

You will appreciate that the men from the older ships would have to receive a good deal of re-training in order to provide them with the skills

necessary to maintain and operate the much more complex and modern equipments which would be fitted in this new class of ship. Plans to achieve this are in hand. This is a long term project for, as you know, it takes longer to develop highly skilled and experienced personnel than it does to build a ship.

As the minister indicated in his opening statement this program is presently under review.

HYDROFOIL-R-200

Another very interesting vessel, for which a contract was recently let to DeHavilland is the ASW hydrofoil R-200. This slide shows an artist's conception of an ocean-going A/S hydrofoil craft. The hydrofoil first appeared at the turn of the century, but it wasn't until after World War II that development started in earnest. Development of this principle has been conducted in various countries including the United States, Italy and the Soviet Union as well as in Canada. No country has yet produced an ocean-going hydrofoil. We hope Canada will be the first to do so. Our effort is complementary to that of the United States[1] which is also working on a hydrofoil program. We look upon this project as a development program and are working on the design for a weapons system for the craft, should it prove to be a useful ocean-going addition to the fleet.

The hydrofoil will be 151½ feet in length, have a beam of 21½ feet and a draught of 23 feet in the displacement mode and 7½ feet when foil borne.[2]

As you see here in the picture, in the displacement mode the ship will displace 180 tons and cruise at about 16 knots. She will do over 50 knots when foil borne. Her crew will be something over 20 personnel.

This Canadian development program, if successful, should place our industry in the forefront of hydrofoil design and construction. It would provide industry with the knowledge, advanced techniques and skills required to meet future national defence requirements and also to compete favourably with other foreign countries.

That completes a survey of the ships and aircraft we have and expect to have in the immediate future.

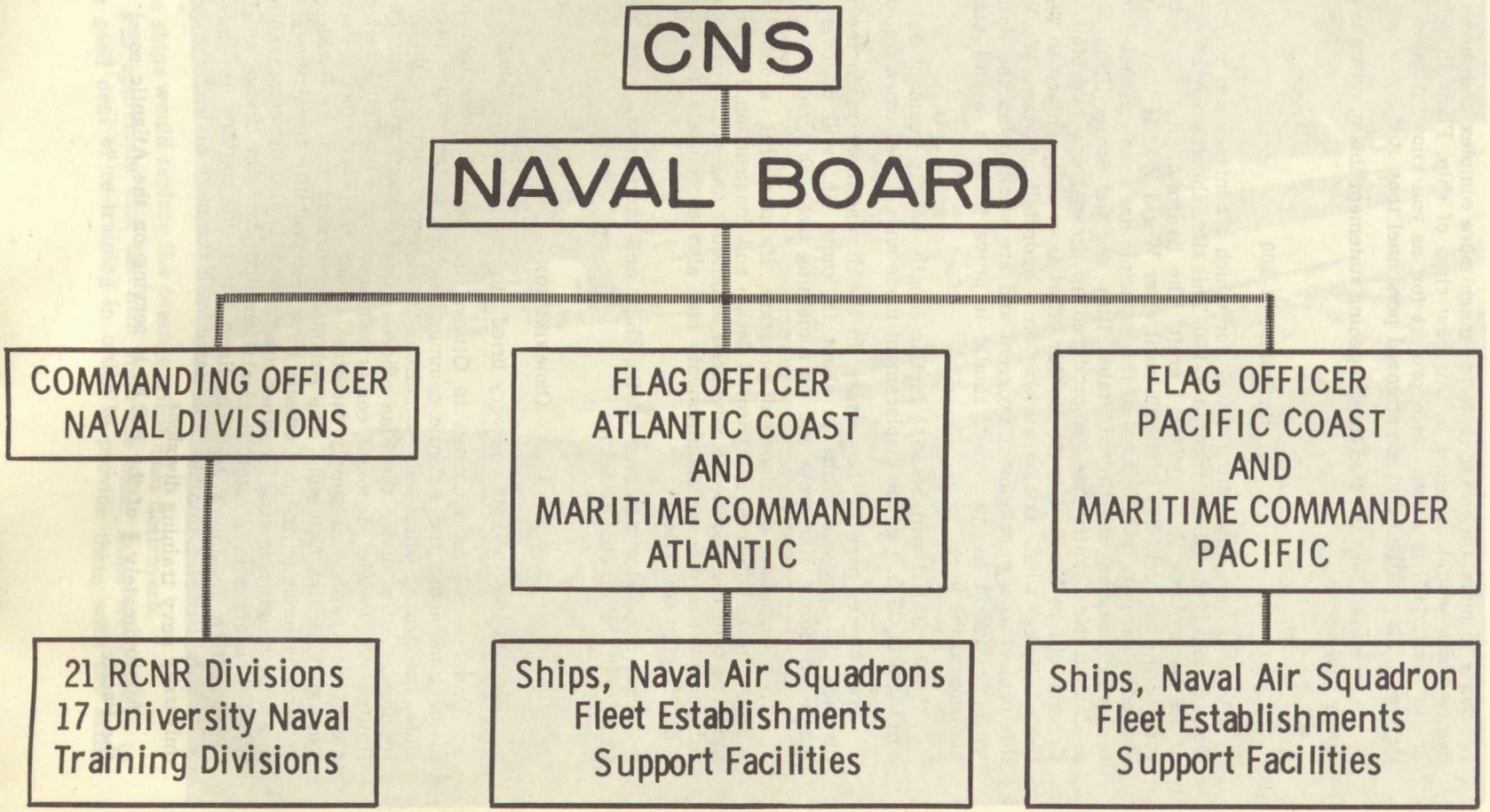
ORGANIZATION

I would like to show you very briefly the basic organization of the R.C.N.

Under naval headquarters in Ottawa the navy is organized into three major commands: the Atlantic command, which is the centre group in the slide, comprising ships, air squadrons, fleet establishments, dockyards and supply facilities, under the Flag officer, Atlantic coast, with headquarters at Halifax; the Pacific command, comprising ships, air squadrons, fleet establishments, dockyards and supply facilities, under the Flag officer, Pacific coast, Esquimalt, British Columbia. The Atlantic command and the Pacific command are area commands; the flag officers have responsibility for all naval activities in a wide geographic area on either coast. There is also the commanding officer, naval division, who is established at Hamilton; he is in charge of all reserve divisions from St. John's, Newfoundland, across the country in principal cities to Victoria, British Columbia. Associated with the navy divisions are seventeen university navy training divisions.

Approximately ⅔ of the R.C.N. is serving on the Atlantic coast and ⅓ in the Pacific.

ORGANIZATION OF RCN



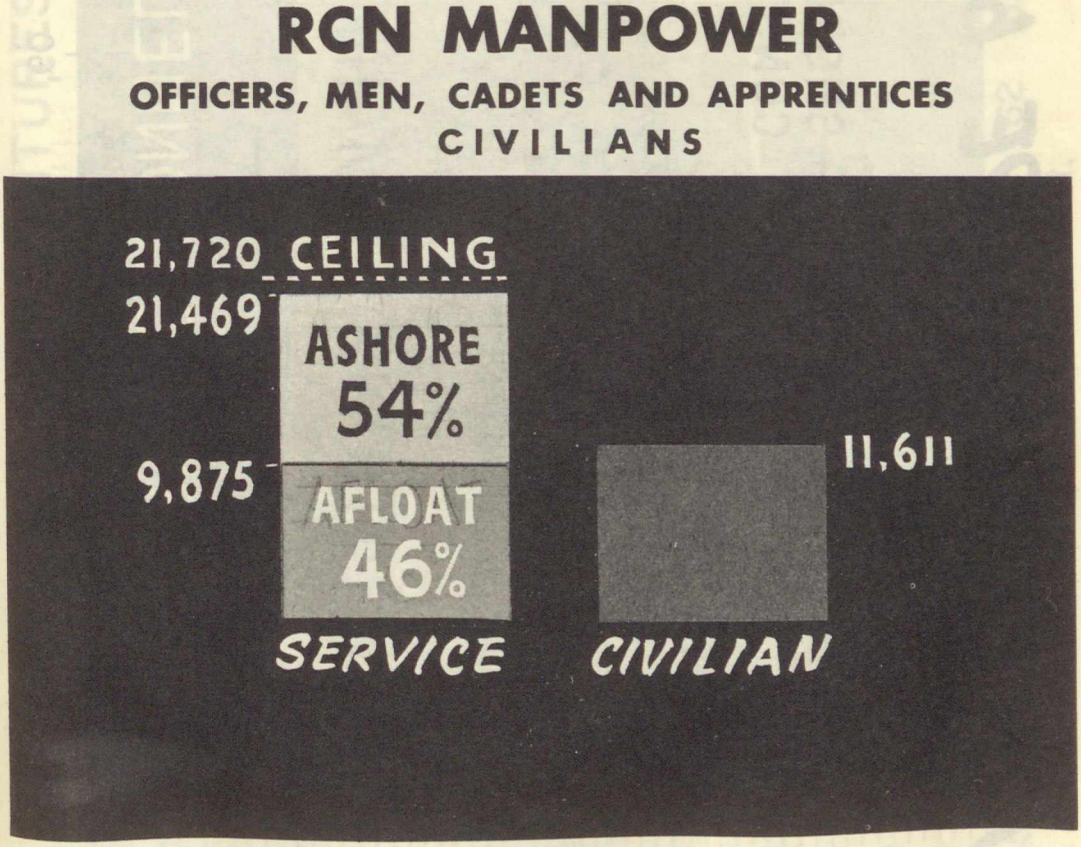
The two most important parts of the navy are the ships including aircraft and the personnel of the navy.

R.C.N. Manpower

Today, the authorized strength of the navy is 21,720. Against this were borne at the end of May 21,469 officers and men. Of these some 46 per cent are serving at sea and the balance ashore. The great majority of those who are employed ashore are either instructors or are under instruction in the fleet schools. The remainder are employed in billets suitable to ther trades, thus permitting a necessary measure of rotation between sea and shore duty.

I would like to emphasize again the importance of the training task facing a modern-day navy. As equipments become more sophisticated, the need for higher degrees of maintenance and operating skills increases. These needs must be met by continuous and progressive effort by ships and schools. This challenge is being met in a most heartening manner by all concerned.

It has long been the policy of the navy to employ civilians to the greatest possible extent in shore establishments and support activities. At the present time 11,611 civilians are so employed, and provide most useful and loyal service to the navy in a great many fields.

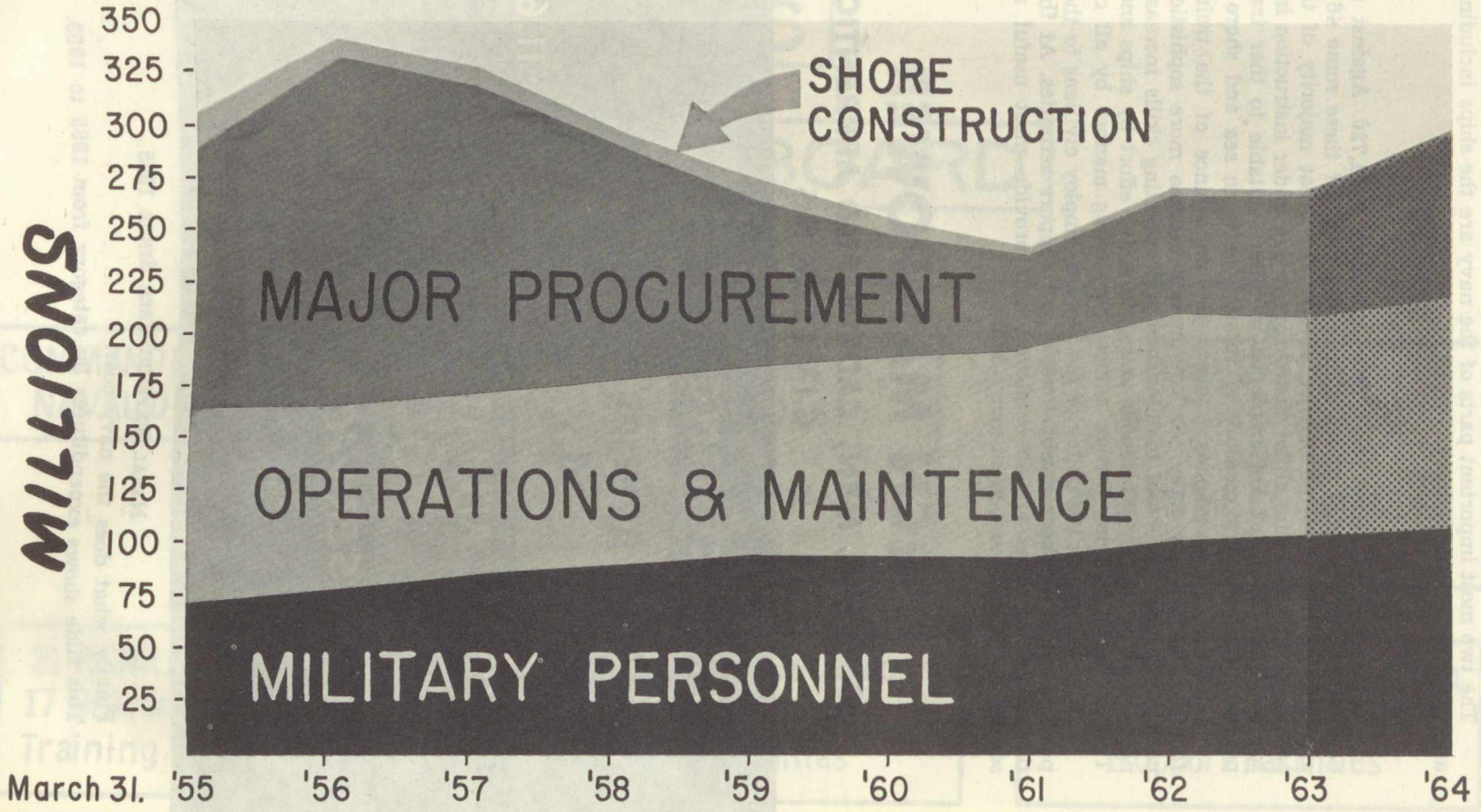


Naval Expenditures Since 1955

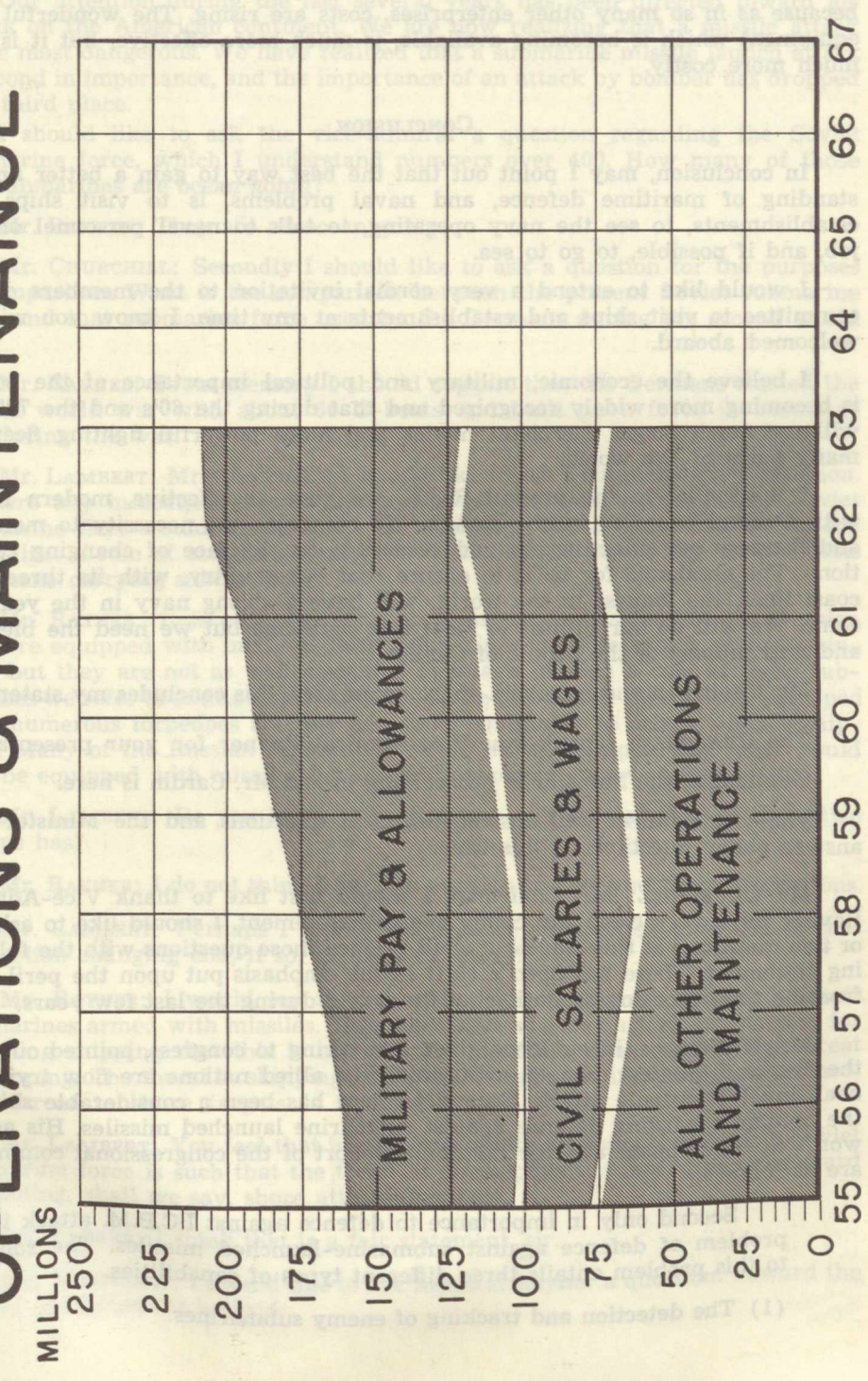
Finally what does the navy cost?

This slide shows expenditures by category from 1955 to 1963.

NAVAL EXPENDITURE by CATEGORY



Naval expenditures were reduced progressively from 1956 to 1961 and you can see how procurement of equipment was squeezed out between a lower total vote and slowly rising operational costs. The hatched portion at the extreme right of the slide represents the naval estimates for 1963-64; the remainder of the slide shows expenditures.



On the next slide we see expenditures on operations and maintenance, broken down further. You will note that maintenance costs since 1955 have remained much the same, despite increased wages and material costs. Also, the number of ships in commission has increased during this period.

The navy is constantly looking for extra yardage from defence dollars, because as in so many other enterprises, costs are rising. The wonderful new equipment which is becoming available, is much more effective, but it is also much more costly.

CONCLUSION

In conclusion, may I point out that the best way to gain a better understanding of maritime defence, and naval problems, is to visit ships and establishments, to see the navy operating, to talk to naval personnel on the job, and if possible, to go to sea.

I would like to extend a very cordial invitation to the members of the committee to visit ships and establishments at any time. I know you will be welcomed aboard.

I believe the economic, military and political importance of the oceans is becoming more widely recognized and that during the 60's and the 70's we will see much larger merchant navies and more powerful fighting fleets in many parts of the world.

I think that in the present R.C.N. we have an effective, modern Navy, with a sound base for future growth. We recognize the necessity to maintain and increase our effectiveness and versatility in the face of changing conditions. The challenge for us is to ensure that our country, with its three long coast lines, the longest in the world, will have a strong navy in the years to come. We will do our utmost to meet this challenge but we need the blessing and firm support of the people of Canada.

Mr. Chairman and members of the committee, this concludes my statement.

The CHAIRMAN: Thank you Vice-Admiral Rayner for your presentation.

Gentlemen, the Minister is just coming in and Mr. Cardin is here.

The vice-admiral will answer technical questions and the Minister will answer policy questions at this time.

Mr. CHURCHILL: Mr. Chairman, I should first like to thank Vice-Admiral Rayner for a very clear and comprehensive statement. I should like to ask one or two questions at this stage but shall preface those questions with the following statement. There has been a shift in the emphasis put upon the peril confronting the peace-loving nations of the world during the last few years.

Mr. McNamara, in evidence given last spring to congress, pointed out that the first and greatest menace with which the allied nations are now trying to deal, involves missile attack. Secondly, there has been a considerable shift in the opinion regarding defence against submarine launched missiles. His actual words as they appear at page 126 of the report of the congressional committee are as follows:

> Second only in importance to defence against I.C.B.M. attack is the problem of defence against submarine-launched missiles. The solution to this problem entails three different types of capabilities.
>
> (1) The detection and tracking of enemy submarines.

(2) The destruction of these submarines before they have an opportunity to launch their missiles.

(3) The detection, tracking, and destruction of the missiles once they have been launched.

Our attention during the last several years has been directed toward air attack on the American continent. We are now realizing that a missile attack is the most dangerous. We have realized that a submarine missile launch attack is second in importance, and the importance of an attack by bomber has dropped into third place.

I should like to ask the vice-admiral a question regarding the Soviet submarine force, which I understand numbers over 400. How many of those 400 submarines are ocean going?

Mr. RAYNER: They are all ocean going.

Mr. CHURCHILL: Secondly I should like to ask a question for the purposes of comparison. What is the comparison between the present Soviet submarine force and that submarine force used by the Germans during the second world war?

Mr. RAYNER: From memory I should suggest that the Germans started the second world war with about 60 U-boats and built up a force in excess of 300 during the war.

Mr. LAMBERT: Mr. Chairman, I should like to ask a supplementary question. Is there any indication of what proportion of the composition of the Soviet submarine fleet would be designed for anti-shipping or anti-communications as against a role of attacking shore base installations, let us say on the basis of missile carrying submarines?

Mr. RAYNER: It is estimated that some of the submarines of the Russian fleet are equipped with missiles. Such submarines can also attack surface shipping but they are not as well equipped to attack in such a role as those submarines we refer to as attack submarines. There are attack submarines equipped with numerous torpedoes and the necessary equipment to attack surface shipping. Many of the Russian submarines would be so equipped, and some would also be equipped with missiles for attacking shore targets.

Mr. LAMBERT: Do you know the proportion of the total each of these two groups has?

Mr. RAYNER: I do not think I am in a position to give you those proportions.

Mr. LAMBERT: Perhaps I should ask a more generalized question. Is that proportion changing and, if so, in what direction?

Mr. RAYNER: I would say that the Russians are increasing their nuclear submarines armed with missiles. They now have so many attack submarines for attacking shipping that this is not of great significance as regards the threat to shipping. The threat to shipping exists at this time and it is being maintained. The threat to shore targets is increasing.

Mr. LAMBERT: You feel that in connection with shipping the existing Soviet submarine force is such that the trend of development is now directed toward expanding, shall we say, shore attacking subs?

Mr. RAYNER: I think that is a fair statement, sir.

Mr. MATHESON: I should like to ask Admiral Rayner a question. Toward the end of his statement he said:

The challenge for us is to ensure that our country, with its three long coast lines, the longest in the world, will have a strong navy in the years to come.

It is my feeling from the admiral's statement that nearly all the concentration is directed toward forces on the Atlantic and the Pacific.

I gained the impression some years ago that there was wide disappointment among naval personnel that the H.M.C.S. *Labrador,* which I understand had some special research function in the north, was used in some other capacity, perhaps for icebreaking. Could the admiral give us some information regarding research being carried out, particularly in regard to those areas of development in the Arctic, by submarines which can travel under the ice?

Mr. RAYNER: The *Labrador,* which is an Arctic patrol vessel was completed in 1955. She is an icebreaker, of course, but was fitted for research. She was used in the role of research from 1955 until 1957, at which time there were changes made, largely for budgetary reasons, in the naval force, at which time we were forced to concentrate exclusively on anti-submarine vessels and the *Labrador* was transferred to the Department of Transport. Since that time we have been hindered in carrying out fleet operations in the open water in the north because of the lack of an icebreaker and a tanker. We have done something and will be able to do more in this regard from now on as a result of the acquisition by the Department of Transport of more icebreakers. I am sure that arrangements can be made for the navy to borrow icebreakers when required.

We are acquiring our own ocean going tanker, the *Provider,* which I described, and which is a replenishment ship. When we have her in operation, with icebreaker support, we will be able to carry out more exercises in the north. In addition, research is being carried out regarding sonar conditions in the Arctic ocean both under the ice, through the ice and in the open water.

Mr. MATHESON: Mr. Chairman, before we leave the question of penny pinching raised by Mr. Groos, it is my impression that the navy spends only 17 cents of each dollar provided in the defence budget and as a result the north has suffered.

We are not able to contribute a tremendous amount directed toward the Atlantic and Pacific forces in comparison with that contributed by the United States and Britain, but could we not make a very much larger contribution, in your view, directed toward research in Canada's northern waters if funds were available?

The CHAIRMAN: Is this a question for the Vice-Admiral or for Mr. Hellyer?

Mr. MATHESON: Perhaps for the minister.

The CHAIRMAN: I should think so.

Mr. HELLYER: Yes, I think this is a question of priorities. The Canadian navy does make a major contribution in the North Atlantic and a sizeable one in the Pacific, and it is a question of how we can best spend the funds available over a rather wide spectrum of possible uses.

Mr. WINCH: Mr. Chairman, I would like to ask two questions and I hope they will not be considered as classified. I would like to ask those questions of the Vice-Admiral. In view of the fact that Siberia is part of the U.S.S.R. and that there are ports on the Siberian coast, and in view of the fact that Siberia is a lot closer to North America than is the part of the U.S.S.R. on the Atlantic coast, why is two-thirds of our naval force on the Atlantic side and not on the Pacific?

Mr. RAYNER: Because the main threat to the naval forces is considered to be in the Atlantic.

Mr. WINCH: May I ask you then, if you were—and of course you are not and never will be—on strategic command in the U.S.S.R. and if you were going to attack the North American continent, would you not come on the Pacific? Would you not do so, knowing that we have most of our forces on the Atlantic?

Mr. RAYNER: Of course this is a hypothetical question.

Mr. WINCH: It is the kind of question which I think we should ask.

Mr. RAYNER: I can answer it best by saying that if I were a Russian I would attack the Atlantic communications because the Atlantic countries are the heart of the western world.

Mr. WINCH: I am talking about an attack on North America now. Would you attack where you know the North American continent is strongest or weakest and from your closest point? If I am asking an unfair question, please say so, but it is one of the things which as a layman I would like to know. Can you not say anything more on it?

Mr. RAYNER: Well, this gets us to the question of what kind of an attack it is going to be. Nations are working towards trying to prevent a nuclear holocaust. If that is successful—and there are indications that it may be; certainly that is the effort on both sides—and if war occurs we are going to be in a war something like the last ones but with modern conventional weapons. However, essentially it will be a question of North America having to supply Europe, and the enemy trying to stop Europe being supplied from North America.

Mr. WINCH: That leads into my second question. In the event of any attack on the North American continent, I presume that any potential enemy is not going to give a warning. We have in Canada three radar lines, which are supposedly efficient, to give warning on manned bombers. We have now a BMEWS establishment in Alaska, and at Thule and we will have at the end of this year an establishment in England to give warning of the firing of an I.C.B.M. Could I then ask, if that is correct, and I understand it is, is there not a major threat from submarines that carry nuclear warheads, and if so, is it the contention of the Vice Admiral, as indicated in his submission, that, with Canada having the longest coastline in the world, three new submarine anti-submarine vessels are sufficient? Is it the plan of the navy to equip the foregoing floating vessels so that they can function in the northern section of Canada as well as on the coast? I think this fits in with the question asked by Mr. Matheson. Is not the major threat then—as we have the radar lines for the manned bombers and BMEWS for the I.C.B.M.—missiles from submarines?

Mr. RAYNER: As I mentioned before, we are doing research and development in the Arctic ocean. The vessels proposed, the general purpose frigates, while strengthened against ice, do not have the capacity for operating in the Arctic ocean. The only vessels which could operate continuously in the Arctic ocean would be nuclear submarines. This is one of the great advantages of a nuclear submarine. As I stated in my brief, the problem of defence against a nuclear submarine is far from being solved. Again it is a question of priority until we can defeat the enemy nuclear submarines and conventional submarines, defeat them decisively in the Atlantic and the Pacific. If I were a Russian I would deploy my submarines in the Atlantic and the Pacific rather than in the Arctic. In other words, the threat is very much greater on both those oceans than in the Arctic at the present time. In the years to come,

when there are many more nuclear submarines, the threat in the Arctic may increase, particularly if we succeed in solving the anti-submarine problem in the Atlantic.

Mr. WINCH: I have one more question and I will be quiet for a while, but it is a follow-up question. If I am correct—and I presume it is axiomatic—any attack will come without much notice. Can the admiral tell us what is the cooperation now in the actual defence of the coastline of Canada between our present naval forces and others other than our own forces? It is quite obvious that we have not the ships necessary for such defence. What is the cooperation for immediate protection in the event of an attack?

Mr. RAYNER: Our forces are assigned to the Supreme Allied Commander Atlantic on an alert, and frequent exercises are carried out with his other forces in the western Atlantic, which are principally United States forces, and similarly in the Pacific we exercise and cooperate with units of the United States pacific fleet.

Mr. WINCH: That was not my question. I was not speaking of exercises. What I am asking is whether there is a 24-hour day coverage of our Canadian coastline which is the longest in the world, by other forces outside of Canada in protection of the coast of Canada.

Mr. RAYNER: May I get this quite clear—is there protection by other than Canadian forces?

Mr. WINCH: Going on at all times on the offshores of Canada?

Mr. RAYNER: No, this is done by Canadian forces.

Mr. WINCH: Only Canadian forces?

Mr. RAYNER: In conjunction with others. It is difficult. Certainly in the inshore areas—and by inshore areas I am speaking of areas within 50 or 100 miles of the coast—is carried out by Canadian forces. When you move further out then there may be Canadian forces or United States forces, and great deal of this is done by aircraft.

Mr. WINCH: Are they there now?

Mr. RAYNER: There is daily surveillance of the Canadian coastal areas.

Mr. GRANGER: I have a supplementary question. If there is a specified area off the Canadian coast which is under Canadian observation, say, by long range land based aircraft operating on antisubmarine patrol, how would it compare with the area, say, under United States operations?

Mr. RAYNER: There are agreements for responsibility for the conduct of operations—agreed areas—in both the Atlantic and the Pacific. These areas are agreed between Canada and the United States. If an operation has to be carried out—as indeed they are—against an intruding submarine or in surveillance of the fishing fleets and United States forces move into our area, then they come under the control of the Canadian maritime commander in Halifax; similarly on the Pacific. On the other hand, if our forces move into the United States area, then, as a rule, the Canadian commander would, as we say, 'chop' operational control of those forces to the United States commander responsible for that area.

Mr. MACLEAN: My questions have in most part been answered, but I have two remaining questions. Can the vice-admiral give any figure which would

give us an estimate of the number of Russian submarines armed with I.R.B.M.'s or nuclear armed missiles of some sort and their capability of firing them while submerged?

Mr. RAYNER: I cannot give you the figures, but they have the capability to fire I.R.B.M.'s, and it is believed they can fire them while submerged.

Mr. MACLEAN: My next question may not be fair, but perhaps it is a matter of opinion. As a result of the technical advances in the last few years, is it your opinion, sir, that the advantage of the attacking forces—submarines—has increased at a more rapid rate than the ability to cope with such an attack? In other words, has the balance of advantage passed to undersea ships as against surface defending ships?

Mr. RAYNER: Briefly the answer is yes. With the advent of the nuclear submarine the advantage lies very heavily in favour of the submarine against antisubmarine forces; but this applies both to east and west. This makes it important that we should go on and redress this balance.

Mr. MACLEAN: Is there not the added factor that, since submarines are now armed with nuclear weapons, the efficiency of controlling them and containing them must reach a much higher level, in order to be effective, than would be the case against conventionally armed submarines? In other words, if only a very small percentage of an attacking force gets through, it might be sufficient to deliver a crippling blow against some of our coastal cities.

Mr. RAYNER: That is so.

Mr. GROOS: First of all, Mr. Chairman, I wonder if I could ask the admiral a rather facetious question: How did the naval board happen to arrive at the figure of 60 days for the endurance of that ship that was going to be produced for the west coast naval laboratories? My real question is: On page 8 the role of the navy is stated to be to carry out support operations in the Arctic. How does the navy plan to discharge this responsibility? You have said that the general purpose frigate does not fit into these plans, and perhaps the requirements of the Atlantic and the Pacific place the Arctic in a very secondary role. Does this mean we have no plans for the Arctic?

Mr. RAYNER: This means that for the present we must carry out our task in the Arctic in the ice-free waters only. Also, of course, there are plans for fixed installations in the Arctic against submarines. This is one of the principal reasons for the research and development up north.

Mr. GROOS: The times during which the Arctic is ice free are comparatively limited, so this really is a very minor effort we are able to put into the Arctic under present conditions. To move on to the *Oberon* class submarine, will the acquisition of the British-built submarines introduce a supply problem in the navy owing to the fact that the submarines are built in Britain and the specifications, spare parts and so on will have to come from Great Britain.

Mr. RAYNER: It will certainly be a little more difficult to provide the logistics with British built submarines than in the case of submarines built in North America; but the attraction of the *Oberons* is the fact that they are so much cheaper and are in production now. They are available much faster, and we need submarines as quickly as we can obtain them. The technical officers in the service are satisfied that these *Oberons* can be satisfactorily maintained in Canada. After all, we are operating now from Halifax three R.N. submarines. A great number of these *Oberons* are being built. I believe 13 are being built for the Royal Navy. Australia is ordering at least two, and with our three there will be 15 or 16 of these in commission, and there will be a good supply of spares. We, of course, order spares with the boats.

Mr. GROOS: In a few years we will need to have replacements for these submarines on the east coast; I think 1967 is the year that was given. Is there any reason why these conventional submarines could not be built in Canada?

Mr. RAYNER: There is no reason why they cannot be built. They would cost a great deal more.

Mr. GROOS: I have one last question. In respect of the general purpose frigate, you say it will be capable of lifting 200 soldiers with their light equipment to almost any part of the world. Did the army ask the navy to incorporate this in the design of the ship?

Mr. RAYNER: This was worked out in consultation with the army staff. This is really a dividend. What determines the size of these ships is the amount of space needed for the antisubmarine equipment, but principally for the anti-air equipment.

We need a ship of about the size that has been proposed in order to meet the staff requirements. In building a ship of this size it is possible to build into her at very little extra cost the capability of transporting additional troops.

Mr. SMITH: There has been a great deal written about the under-ice capability of the *Polaris*. Can you comment as to whether or not it is believed that the Russian atomic submarine has similar capability?

Mr. RAYNER: I have no knowledge of Russian submarines operating under the ice.

Mr. SMITH: Well, as to their general capability then; for I merely used under-ice operations as an example, since there has been a great deal of publicity given to it; but is there any reason to suspect or to believe that Russian submarines are less capable than the *Polaris*?

Mr. RAYNER: I think we have to assume that they are capable of operating in the north. There is a navigation problem.

Mr. SMITH: I used the north only as an example; but generally, are they believed to be as capable as the *Polaris*?

Mr. RAYNER: I can only give you what I have read in the press on this. The United States states that their *Polaris* submarines are more capable and that they have a lead. They started to build them before the Russians, and they have put tremendous effort into it. There is reason to believe that the Russian missile submarines are not as good as the American *Polaris*.

Mr. SMITH: I notice that the Americans had five *Polaris* in 1961 and that they will have 18 in 1964, going to an ultimate total of 41. Is it reasonable to assume that the Russians are building at something like that same rate?

Mr. RAYNER: I think that is a reasonable assumption.

Mr. SMITH: My final question is this: there is considerable emphasis in the United States appropriations in 1964 toward a program of destroyer escort and similar vessels. Mr. McNamara when presenting his estimates, at page 142 of volume one said that with respect to the number of destroyer escorts the program would increase over the next several years, with 10 ships recommended in the 1964 budget and that more are planned for future years. That is an accurate statement of the intention of the United States, and of the importance which they put on anti-submarine warfare, is it not?

Mr. RAYNER: Yes.

Mr. TEMPLE: On page 24 I notice that the admiral in his brief dealt with hydrofoils. That has caught my imagination. It seems to me from what I have read, and from the testimony developed today, that nuclear submarines have a great capacity for speed, and that our normal surface craft do not have the same capacity. Therefore it seems to me that we require surface craft which could be capable of overtaking these nuclear submarines. Now, if this program were set up in Canada, how long would it be in the experimental stage, and how long would it be before these hydrofoils could be produced on an operational basis?

Mr. RAYNER: A prototype hydrofoil has been ordered and is planned to be ready for ship trials beginning in 1966; and it is estimated to take from 8 to 9 months to test the craft thoroughly as an ocean-going hydrofoil. If these trials are successful, then we will have to instal fighting equipment in them, such as sonar and weapons, so that it would probably be the middle or end of 1967 before we were in a position to make a decision whether to go ahead with the hydrofoil.

Mr. TEMPLE: Thank you. I have some other questions along this line. Is it expected that there will be a fairly extensive range for these vessels?

Mr. RAYNER: It is expected to be sufficient to enable them to operate for 7 or 8 days at sea. During that time they would be operating mainly in the displacement mode, and they would have good endurance in that mode. They have very short endurance in the foil borne mode and they will only become foil borne when they have to go somewhere in a great hurry or are in contact with a submarine.

Mr. TEMPLE: If it is expected that they can be built, at how fast a rate, or how long would it take to build one, once they are placed in production, if they proved themselves to be satisfactory? I realize that it is impossible to say exactly within several months or years, as one can in the case of conventional craft?

Mr. RAYNER: I would think it would certainly be less than a destroyer escort or a GP frigate. The production of an hydrofoil is estimated to be about two-thirds of that development time.

Mr. TEMPLE: Does that include after it is in production?

Mr. RAYNER: After it is in production.

Mr. TEMPLE: What are the estimates of the cost of such a program?

Mr. RAYNER: Well, the cost of the prototype is estimated to be $13 million. This does not include some money for developing fighting equipment to put into it. The estimate for a production model is somewhere between $6 and $8 million.

Mr. TEMPLE: I notice you say in your brief at the bottom of page 24:

> "This Canadian development program, if successful, should place our industry in the forefront of hydrofoil design and construction."

I take it then, from your information, that no other countries are really as well advanced in this line, or particularly along this line of having put a great deal of energy and outlay into it.

Mr. RAYNER: That is so, and the fact is that other nations, and we have built a couple of prototypes too, of hydrofoils for use in coastal waters. No country has produced a hydrofoil capable of operating in the Atlantic in the broad ocean. The Americans are working on this, but they are working on a different kind of foil system, a more complicated system of foils, than the

Canadian method. If this hydrofoil is successful, then I would expect that it would be adopted, because it would be cheaper to produce than the system which the Americans are working on.

Mr. TEMPLE: Thank you.

The CHAIRMAN: Now, Mr. Brewin.

Mr. BREWIN: Mr. Chairman, I want to follow up some questions which were put, I think, by Mr. MacLean. I think the most convenient way to do it is to ask the vice-admiral if he would care to comment upon a statement I have by Bruce MacDonald in the *Globe and Mail* for June 13, 1963, reading as follows:

> In fact it is so difficult that naval strategists concede that about the only defense against a missile attack from submarines is the same as that against attack from land-based ballistic missiles, the threat of retaliation in kind.

Would the vice-admiral care to comment on that? I appreciate that research is going on, but is that a fair statement and do the naval strategists concede it?

Mr. RAYNER: Yes, I think it is a fair statement that we have yet to produce a defense against nuclear missile submarines. I might go back and remind you that there are very few of these boats at sea in the Russian navy, and that some progress is being made. There is tremendous effort going into this and it has a very high priority in the U.S.N. and in the R.N., and we are giving it a very high priority.

All three navies exchange information on this and endeavour to keep the development projects in such a way that there is no duplication. We spend a small amount compared to what the rest do; however, the priority is recognized and we have produced some very good ideas. This development of variable depth sonar is a Canadian development. The fact we developed it here and placed it in our ships has been a great help toward the United States navy accepting and putting it in their ships. There are developments going on at this moment and it is very important that they be continued until such time as better means are found to take on a nuclear submarine. The only way we can do this is to stay with the problem and to keep ships at sea working on the problem and trying out new tactics. This is where the ideas come from. We are not discouraged about this.

Mr. BREWIN: Mr. Chairman, I have a somewhat similar question along the same lines. From the same article to which I referred the writer says:

> What then is Canada building ships and maintaining a navy for? Increasingly the answer seems to be becoming more and more aligned with a new concept that has grown out of the nuclear stalemate between East and West, that of having in being police forces capable of waging limited war.

Is that statement in connection with a new concept developing a correct one? Perhaps I should have put my question to the minister.

Mr. HELLYER: I think your question is a very difficult one to answer. I think probably the most difficult question is what type of warfare we might be called upon to fight, and certainly different capabilities are more suitable to some kinds of war than others. Just how extensive a conventional war might be under modern situations is a question which I cannot answer categorically; I think you would get very many different opinions from people who have studied the subject.

Mr. LLOYD: I have a supplementary question, Mr. Chairman. Are the police going to use their guns or their billies?

Mr. LAMBERT: I believe the witness indicated that the advantage lay with the nuclear submarine. But, surely, there is some form of defence; it is not impervious to defence at the present time. For instance, you use aircraft which clearly have some advantage in tracking or controlling nuclear submarines. What are your views as to where the best possibility of defence against a nuclear submarine will lie? Is it developing the naval or ship side, be it a surface ship or submarine, or is it toward an aerial defence against a submarine?

Mr. RAYNER: I am sorry but—

Mr. LAMBERT: Or, to complete my question, would it be a combination of the two?

Mr. RAYNER: I am sorry if I have given the wrong impression, that the case against the nuclear submarine is hopeless because it is not. What I mean is this: it is possible to locate a nuclear submarine and it is possible to attack it. In our own case, when we get the ships with the helicopters and variable depth sonar, we will be in very much better shape than we are at the present time. As I said before, defence against the nuclear submarine is a team effort. In some situations we need nuclear submarines for defence—and the sort of situation I am thinking of as one way of defence against a nuclear submarine is to attack it when it comes out from its base; in other words, to send submarines to patrol off an enemy coast. But, clearly, this is a role for the nuclear submarine because it will be subject to very heavy enemy air and submarine attack, and the ideal boat to operate under those conditions is a nuclear submarine. Then, coming a little closer, one could set up anti-submarine barriers and, again, if there is a fairly heavy enemy air threat one would set up a barrier using aircraft and submarines. If you were farther away from the enemy coast you probably would use conventional submarines, but if you had nuclear submarines they would be more effective. However, nuclear submarines cost two or three times as much as the conventional submarines and they are much more expensive to operate. As NATO has conventional submarines you would set up an air anti-submarine barrier. Then, when it comes to protecting shipping, say, for instance, if Europe has to be supplied in a war involving conventional weapons, the surface ship is still the ideal vehicle for doing this because before an action the shipping has to be controlled. The NATO submarine forces have to be controlled. The battle can be fought better from a ship owing to its better communication and plotting facilities—that is, plotting the course of the battle—than in the case of an aircraft or submarine; and, again, by team effort.

Mr. LAMBERT: I realize this is the theoretical way to approach it if one has almost unlimited naval resources at one's command—in so far as Canada is concerned, we know we do not possess them—but would the advantage lie in the development of surface craft, concentration on the aerial component of antisubmarine defence, or on a combination of the two, and in what proportion? This is the problem we are facing right now.

Mr. RAYNER: The answer is we need both. We have maritime patrol R.C.A.F. aircraft, shore based, which are essential for surveillance, and we have surface ships which would be integrated with United States forces. When we are faced with an antisubmarine operation the commander would place his forces where the weight of the attack or threat of attack was heaviest.

Mr. LAMBERT: I am referring to the development and provisioning of equipment in so far as Canada's navy is concerned. In this regard does the navy feel that the greater advantage will lie in the development of surface ships, or the development of the aerial component of its antisubmarine defence, or a combination of the two, and in what proportions?

Mr. RAYNER: We believe in a combined effort directed toward the two mentioned developments.

Mr. LAMBERT: What would you suggest the proportions should be in this regard?

Mr. RAYNER: We have given considerable thought to this question.

The two other factors which may be involved in this question have regard to the possibility of limited war and service provided to the United Nations.

We think that an antisubmarine force should be composed of approximately three-fifths antisubmarine surface vessels, about one-fifth submarines, and one-fifth general purpose vessels with a first class anti-air capability. This proportion is arrived at, presupposing that the R.C.A.F. will continue to provide large fixed wing aircraft, because large fixed wing aircraft play a very important role in this service.

Mr. LAMBERT: How does the general purpose frigate fit into this three-fifth pattern?

Mr. RAYNER: The general purpose frigate fits in as an anti-air frigate.

On the understanding that we are going to maintain a fleet of approximately 40 ships, we feel that about one-fifth should supply a good anti-air capability.

Mr. LAMBERT: Keeping in mind the present review in regard to general purpose frigates, what are the alternatives?

Mr. RAYNER: We feel that the alternatives to general purpose frigates would be more antisubmarine vessels, more antisubmarine submarines and, looking into the future, perhaps some hydrofoils, if they are successful. We are looking for a cheap antisubmarine vehicle and we feel we need them in greater numbers.

Mr. LAMBERT: You feel that the purpose of your present search involves the development and acquisition of the equipment to which you have just made reference?

Mr. RAYNER: We have not found what we are looking for as yet, but there are only two possibilities of which I am aware. One possibility involves the hydrofoil and the other involves the hovercraft which has been developed in Britain. We are looking for great numbers of economical anti-submarine vehicles for purposes of anti-submarine service.

Mr. MARTINEAU: Mr. Chairman, I should like to ask a supplementary question. In view of the capabilities that the admiral has ascribed to the general purpose frigates, does he believe that the general purpose frigates, eight of which have now been approved for construction, are the best and most adequate replacement at this time for the Tribal class destroyers which are now becoming overaged and unserviceable?

Mr. HELLYER: I think your question involves a matter of opinion.

Mr. MARTINEAU: I think my question involves fact.

Mr. HELLYER: The admiral has just enunciated several alternatives in the anti-submarine field. I do not think members of this committee would wish to expose the admiral to questions involving the nature of the advice which he would give the government.

Mr. CHURCHILL: Perhaps we can acquire this information from the minister. Mr. Chairman, I should like to ask a supplementary question.

Mr. DEACHMAN: Mr. Chairman, on a point of order regarding these supplementary questions, it was agreed earlier during this meeting that questions would be asked by members as they raised their hands, but that there would be no restriction placed upon a member in respect to reverting back to a specific line of questioning. I suggest that if we are going to allow supplementary questions, any member may ask questions out of the general order of the roster by merely stating that his question is supplementary. A number of members have been waiting for some time to ask questions, yet several interventions have been made by members stating that they had supplementary questions. I suggest that we return to the original order of questioning without the intervention of supplementary questions.

The CHAIRMAN: I allowed the present procedure of questioning this morning in order to determine the direction which the questioning would take, and I have now decided to discuss this question of procedure with the steering subcommittee at a proposed meeting at 2 o'clock this afternoon.

Mr. LLOYD: Before you close the meeting I should like to remind you, Mr. Chairman, that I am on your roster and that I have several questions to ask. Could I ask the steering committee to give us some priority at the next meeting?

The CHAIRMAN: I will bring this up this afternoon at the steering subcommittee meeting because it is evident by the number of members who want to ask questions of the witness that this morning's meeting is not sufficient. However, we are due to have a presentation from the Army this coming Thursday, and we will have to decide what is the best procedure in this case; are we to have the army or do we continue with this witness next Thursday? I cannot make a final decision on this. This will be decided by the steering subcommittee.

Mr. BREWIN: Mr. Chairman, I do have a matter that I want to raise as I think it is reasonably urgent. I can raise this in a minute or two. In the minister's statement the problem of the cooking of bombs is mentioned. We also have evidence from Dr. Field in respect of that. However, I have received, and perhaps other members also have received, a statement or a brief which was apparently issued by eight nuclear physicists at the University of Alberta, of whom Professor D. B. Scott was one, in which he in effect takes issue with this conclusion. I want to ask you whether the steering subcommittee can consider the possibility of calling Dr. Scott and other witnesses to clear up this point. It seems to me an urgent one because, as I understand it, the government is now negotiating for the acquisition of the defensive weapons on the basis of the Minister's statement that these bombs carried by attacking bombers can be rendered harmless by cooking. If that is a scientifically questionable proposition—I am not a scientist, therefore I do not know—should this committee not seek to get information on that as soon as possible? I will be glad to turn over to the steering subcommittee the name of these gentlemen who, as Canadian scientists, have given a contrary view, whether right or wrong.

The CHAIRMAN: You can give these names to Mr. Winch.

Mr. BREWIN: I have one other small point which I would like to refer to the steering subcommittee. I have here a press clipping from the Toronto Telegram of July 4 which refers to recent statements made by associate defence secretary Paul H. Nitze in which a revised view of the conventional forces available to the Soviets and to NATO is put forward with a statement that their intelligence has revised their previous estimates and that there was indeed an overestimate. I was wondering if the steering subcommittee would look into

how we could get those statements which seem to be made up to date and made available by the associate secretary of defence, Paul Nitze. Perhaps the minister could tell us how to get these statements.

Mr. FAIRWEATHER: Mr. Chairman, could we have the navy back before we start on the army?

The CHAIRMAN: We will have the steering subcommittee meeting at 2 o'clock. The meeting is adjourned.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

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SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

Public edition of the Minutes of Proceedings and Evidence
contains the text of the evidence in the language in which it
was given, and a translation in English of the French texts
printed in the Evidence.

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 5

THURSDAY, JULY 11, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Lieutenant-General G. Walsh, CBE, DSO, CD, Chief of the General Staff.

EDMOND CLOUTIER, O.A., D.S.P., F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

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ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29151-8—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

CLARIFICATION—(English Copy Only)

PROCEEDINGS No. 4—TUESDAY, July 9, 1963

As it was impossible to insert some of the photographs in the printed Evidence at the point of initial reference, the following is submitted in an effort to identify the various types of ships and aircraft:

On Page No.	*Type of Ship or Aircraft*
93	Aircraft Carrier (HMCS *Bonaventure*)
95	Tribal Class Destroyer
96	St. Laurent Class Destroyer Escort
98	Prestonian Class Frigate
99	Coastal Minesweeper
100	Tracker Aircraft
101	HSS-2 Helicopter
102	HMCS *Provider*
103	Research Ship
106	General Purpose Frigate

MINUTES OF PROCEEDINGS

THURSDAY, July 11, 1963.
(6)

The Special Committee on Defence met at 10:35 a.m. this day. The Chairman Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch.—(21).

In attendance: Honourable Paul Hellyer, Minister of National Defence; and Lieutenant-General G. Walsh, CBE, DSO, CD, Chief of the General Staff.

There being a quorum, Mr. Lambert, on a question of personal privilege, commented on certain statements which appeared in an article in the Ottawa *Journal* on July 10, 1963.

The Chairman presented the Third report of the Subcommittee on Agenda and Procedure as follows:

1. That the Special Committee on Defence meet in Colorado Springs, U.S.A., on Wednesday, July 17, 1963.
2. That there be a briefing of the Committee at Colorado Springs, at which time classified information may be supplied; but that no *verbatim* record be taken.
3. That the Clerk of the Committee accompany the Members of the Committee to the NORAD Headquarters at Colorado Springs.
4. That, when the Committee adjourns from place to place, the actual living and travelling expenses of Committee members be paid.
5. That the Clerk of the Committee attempt to secure a copy of the statement made by Assistant Secretary of Defence of the United States of America, as requested by Mr. Brewin on July 9, 1963.
6. That statements be received from the Army on July 11, from the Air Force on July 16 and from the Defence Research Board on July 18, 1963.
7. That, in those instances where the questioning of the witnesses is not completed in the time allotted, the said witnesses be recalled on or after July 23, 1963, as the Committee may order.

Mr. Smith moved, seconded by Mr. Asselin (*Notre-Dame-de-Grâce*),—That the Third Report of the Subcommittee on Agenda and Procedure, presented this day, be now concurred in.

Mr. Brewin again requested that representatives of a group of physicists from the University of Alberta be called before the Committee. The Chairman stated that this matter would be further considered by the Steering Subcommittee.

Following further discussions, the third report of the Steering Subcommittee was adopted, *unanimously*.

29151-8—1½

Lieutenant-General Walsh was called and he presented a prepared statement to the Committee. During his presentation a number of slides were shown; reproductions of some of those slides are included in the evidence at the points of initial reference.

The Minister and the Chief of the General Staff were questioned briefly.

In reply to a question the Minister indicated that it might be desirable for the Committee to call the Director of the Tri-Service Colleges. This matter was referred to the Steering Subcommittee.

At 12:30 p.m. the Committee adjourned until 10:30 a.m. on Tuesday, July 16, 1963.

E. W. Innes
Clerk of the Committee.

EVIDENCE

THURSDAY, July 11, 1963.

The CHAIRMAN: Gentlemen, we have now a quorum.

Mr. LAMBERT: Mr. Chairman, before the committee proceeds with its deliberations, I would like to raise a question of personal privilege concerning an article which appeared in the *Ottawa Journal* of July 10, which commented on some of the activities of this committee. In this article the following statement appeared:

> Mr. Lambert avers that the chairman and Liberal members of the committee are deliberately disrupting questioning in order to keep opposition members from pressing home on matters which might embarrass the government.

I simply wish to state, Mr. Chairman, that there was no foundation to it in fact; that never has this statement been made and never have I questioned, either publicly or privately, your methods of conducting these meetings, nor have I ascribed motives to any members asking questions. I regret very much that this should have appeared.

Mr. DEACHMAN: Mr. Chairman, on a point of order, we had before us a point of order at the close of the last meeting concerning the methods which would be used for circulating questions in the committee. I wonder if this could be discussed as a point of order at the beginning of this meeting.

The CHAIRMAN: This was discussed at the steering committee meeting, and after we have heard Mr. Walsh this morning and before we start questioning him, I will deal with your point of order.

The steering committee met on July 9, and this is the report which I offer for your approval:

Your subcommittee recommends as follows:

1. That the special committee on Defence meet in Colorado Springs, U.S.A., on Wednesday, July 17, 1963.
2. That there be a briefing of the committee at Colorado Springs, at which time classified information may be supplied; but that no verbatim record be taken.
3. That the clerk of the committee accompany the members of the committee to the NORAD headquarters at Colorado Springs.
4. That, when the committee adjourns from place to place, the actual living and travelling expenses of committee members be paid.

Some HON. MEMBER: By whom?

The CHAIRMAN: It has not yet been decided, it is in the process of discussion.

5. That the clerk of the committee attempt to secure a copy of the statement made by assistant secretary of defence of the United States of America, as requested by Mr. Brewin on July 9, 1963.
6. That statements be received from the army on July 11, from the air force on July 16 and from the defence research board on July 18, 1963.
7. That, in those instances where the questioning of the witnesses is not completed in the time allotted, the said witnesses be recalled on or after July 23, 1963, as the committee may order.

May I have a motion for the adoption of the report?

Mr. SMITH: I so move.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I second the motion.

Motion agreed to.

Mr. BREWIN: I was listening carefully but I do not think anything was said in this report about the suggestion I made that there was some urgency in calling Dr. Scott. I appreciate the fact that the steering committee has arranged for a number of witnesses to be called, and I am not suggesting that that be disturbed at all, but I am rather anxious—and I think this committee should be anxious—to hear something from Dr. Scott on the subject I raised. This should be done before the recess; otherwise maybe the final decisions will be made before this committee has had a chance to make recommendations on the subject. Also, I was wondering if the committee could give consideration to assuring that we hear Dr. Scott and the other witnesses on this one point, namely, the scientific approach in regard to this subject of cooking of the bombs. I still think that this should be done before we recess.

The CHAIRMAN: That question was discussed by members of the steering committee and it was allowed to stand for the time being. We are discussing the procedure for having as witnesses members of groups like the one you mentioned yourself, or other groups, which might be interested in appearing before the committee. This will be brought up again soon at another steering committee meeting.

Mr. BREWIN: May I just finish by saying I do urge that it be given consideration before the recess? We do not know when the recess will take place, but the whole point is that this subject should not be overlooked and forgotten.

Mr. FAIRWEATHER: I would like to support Mr. Brewin. I do not see how we can be expected to arrive at a judgment, or try to arrive at a judgment, unless we know both sides of a conflicting scientific problem.

Also, I would like to make the following point, and I think that perhaps this is the place to suggest it. The public has lately expressed quite an interest in a series of comments concerning the effectiveness of this committee. I am not sensitive about that at all because I think that the way we are proceeding is correct. We cannot possibly ask all the questions that could be asked in the time allotted; but surely the public, who may be or should be interested in the large subject of defence, might have a line of questioning that they would like us to pursue as a committee. We would welcome a voluminous mail.

Surely all of us would be glad to have the informed public let us know what kind of questions they would like us to pursue. I do not pretend to know everything on the subject.

Mr. WINCH: Mr. Chairman, may I just make this comment as a member of the steering committee? The steering committee finds itself in a most unique situation, unique in this way, that even right now, when the steering committee has a recommendation to make relative to going to Colorado Springs to obtain information which is not available, in Canada,—at the moment we have authority to go from place to place—the chairman is not in a position to tell us who will pay out-of-pocket expenses.

In addition to that, there is the fact that we as a committee have agreed to hear a certain number of persons in the next few days, persons who are not available except by pre-arrangement. For the first time in the history of Canada, as far as I know, we are to have the chiefs of staff of the three services before us, and whether it is a vice admiral, a general or an air force officer, they have commitments. Also this committee decided that the steering committee report would be accepted for the next few days so that we could hear all of the heads of our service forces.

Then, according to a suggestion by the steering committee, this committee would hear a report concerning the relationship between our foreign policy and defence, so we hope to have the minister at that time.

We face another problem. Although the steering committee is recommending that we go to Colorado Springs, leaving at 5:20 on Tuesday and getting back at midnight on Wednesday, it is not known where the out-of-pocket expenses will come from, despite the fact we have authority to travel from place to place. This applies not only to the members but also to the witnesses. So there are quite a few problems not yet resolved.

I can assure you, as a member of the steering committee, that witnesses will be called, if I have anything to say about it, and they will have their expenses paid. These are some of the problems which still have to be faced by the steering committee until somebody in the government who gave the committee this authority to go from place to place tells us who pays the expenses of this committee and of the witnesses.

Mr. LLOYD: When the request is made to the appropriate government minister, probably the assistance we seek will be forthcoming.

I do not think we need to elaborate that point. I like the idea of the present sessions as proposed by the steering committee. As I said some days ago, and, as Mr. Brewin indicated—I would not wish to interfere with the ordinary procedure—I just wanted to be assured that in due time certain witnesses would be called.

Mr. DEACHMAN: Mr. Chairman, it is now a quarter to eleven and we have a most important witness here this morning. So I wonder if we might get on with the business of the committee?

Mr. WINCH: That is correct. May I also suggest, since it is of utmost importance to our future operations not only as to the calling of witnesses but also as to our own movements, that there be a speedy decision as to just what are the terms of reference of this committee, and that expenses be allowed to it for the calling of witnesses, but that those expenses be incurred only on the authority of this committee.

The CHAIRMAN: Is the report of the steering committee agreed to?

Agreed.

The minister will be with us at half past eleven. Now we have with us Lt. Gen. Walsh, Chief of the General Staff, who will make his presentation in the same way as Vice Admiral Rayner made his last Tuesday. Gen. Walsh?

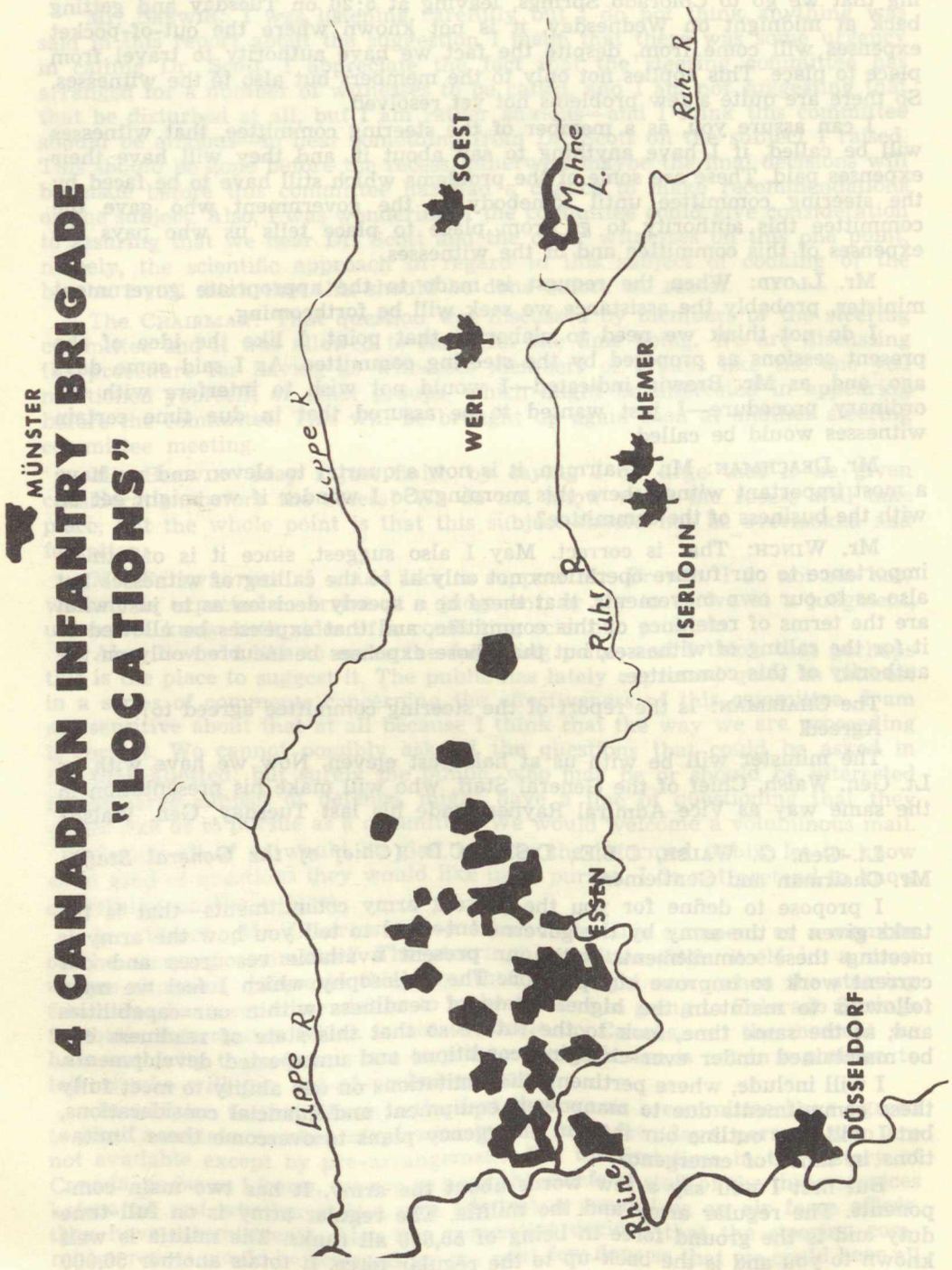
Lt.-Gen. G. WALSH, C.B.E., D.S.O., C.D. (*Chief of the General Staff*): Mr. Chairman and Gentlemen:

I propose to define for you the present army commitments—that is the tasks given to the army by the government—and to tell you how the army is meeting these commitments with our present available resources and our current work to improve our position. The philosophy which I feel we must follow is to maintain the highest state of readiness within our capabilities and, at the same time, look to the future so that this state of readiness can be maintained under ever-changing conditions and unexpected developments.

I will include, where pertinent, the limitations on our ability to meet fully these commitments due to manpower, equipment and financial considerations, but I will also outline our interim emergency plans to overcome these limitations in times of emergency.

But first I will say a few words about the army. It has two main components. The regular army and the militia. The regular army is on full-time duty and is the ground force in being of 50,000 all ranks. The militia is well known to you and is the back-up to the regular force. It totals another 50,000 and the various associated cadet corps total about 75,000.

The regular army in Canada is organized for command and administration into four geographic commands. Western command consists of the provinces of British Columbia, Alberta, Saskatchewan, Manitoba, the Yukon and Northwest Territories.



1. Locations of Fourth Brigade Group in Europe

Central command covers the province of Ontario and Quebec command includes all of the province of Quebec. Eastern command includes the Atlantic provinces, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland.

These administrative commands are further divided into areas which, in the main, correspond with the provinces and afford communication and liaison between the army and the provincial authorities. This is most important in our survival operations planning.

At home we have three infantry brigade groups. One located in western Canada with headquarters at Calgary. One in central Canada located at Camp Petawawa, Ontario and the third located in Camp Gagetown, New Brunswick. Our fourth brigade group, as you know, is stationed in West Germany as part of Canada's NATO force. Three brigade groups make up our commitment to NATO, the fourth forms the defence of Canada force.

The field forces are backed up by a training organization with training schools across the country and by a logistic support organization of stores depots, workshops, transport units and engineer units to look after our barracks and physical installations. I will mention these again, briefly, in concluding, because they constitute the indispensable base from which we support all of the army's commitments.

This will indicate to you the general extent of our military establishment here at home.

I will now deal in turn with each of the army's commitments. Where we have a direct operational role I will outline the threat and the forces we have to meet that threat. In other cases I will describe the aim of our activities, and the main problems in each case.

The order of presentation will be: North Atlantic Treaty Organization; Defence of Canada; Survival Operations; United Nations and Similar Operations, Assistance to Civil Authorities; Militia and Army Cadet Training; Northwest Highway System.

NORTH ATLANTIC TREATY ORGANIZATION

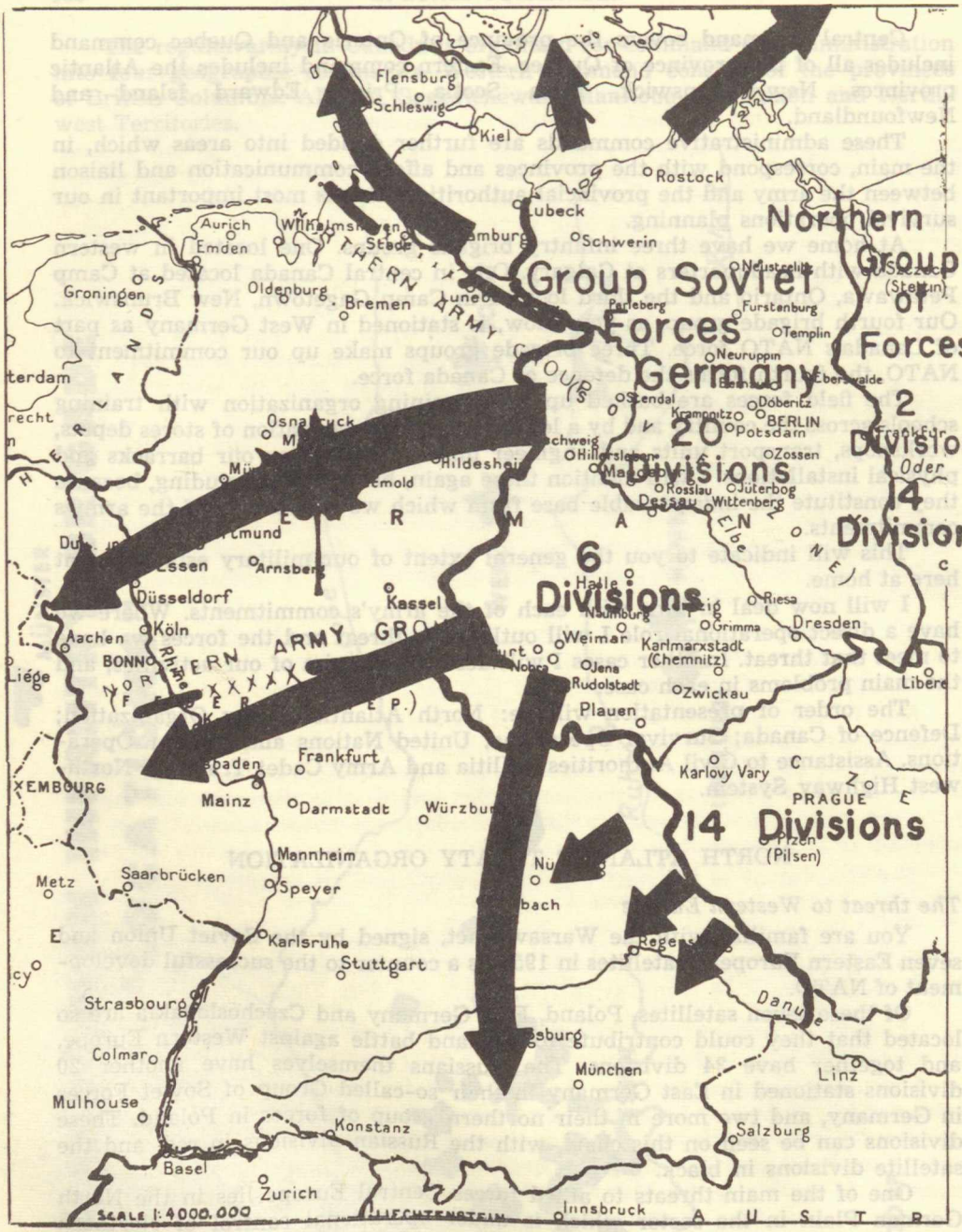
The threat to Western Europe

You are familiar with the Warsaw Pact, signed by the Soviet Union and seven Eastern European satellites in 1955 as a counter to the successful development of NATO.

Of these seven satellites, Poland, East Germany and Czechoslovakia are so located that they could contribute to the land battle against Western Europe, and together have 34 divisions. The Russians themselves have another 20 divisions stationed in East Germany in their so-called Group of Soviet Forces in Germany, and two more in their northern group of forces in Poland. These divisions can be seen on this chart, with the Russian divisions in red, and the satellite divisions in black.

One of the main threats to allied forces Central Europe lies in the North German Plain in the sector which is under operational control of Northern Army Group. This threat is posed by most modern and up-to-date Russian divisions. The 4th Canadian infantry brigade group is under the operational control of northern army group. Hence, if hostilities break out, they will face a most modern and well-equipped force, the bulk of which undoubtedly will be Russian. The other Satellite divisions add weight to the Communist threat but are more likely to be used in supporting roles in less critical areas.

From remarks made by Marshal Malinovskiy, the Soviet Defence Minister, and from agreed intelligence it is apparent that the Soviet Union is well equipped and organized to fight either a nuclear or conventional war. At each end of the spectrum there are these possibilities. At one end, hostilities could



2. THREATS TO NORTH GERMAN PLAIN

break out at short notice. At the other end, full-scale hostilities could break out after a long period of tension and a series of serious incidents. In the first case, it would not be possible to improve our state of readiness due to the shortage of time. In the second case, it could be.

Under our present plans, the brigade in Europe is kept at a high state of readiness and the balance of the division becomes available to the Supreme Allied Commander in Europe on a specified alert condition. The principle

has now been established that if possible the balance of the division will marry up with the brigade in Europe. For planning purposes, the organization, equipping and training of the balance of the division in Canada is compatible with this principle.

The tank strength of the Russian forces in Germany is formidable with a total of approximately 6000 tanks opposing NATO. Their divisions are completely mechanized and no one goes on foot. In addition, the Russians have surface-to-surface nuclear missiles and tactical aircraft for support of their ground forces. They also have nine airborne divisions with their supporting transport fleet, which would be available for operations in western Europe as air-dropped on air-landed troops. The Soviet forces have great mobility and have excellent water-crossing and night-fighting capabilities.

The allies in Europe in NATO study possible courses of action which the Soviet might take in launching an attack against western Europe. Naturally, these studies must remain highly classified. However, you may recall the recent "Der Spiegal Affair" where one western assessment of such an attack was published in the press. This chart shows you this assessment. You will note that the northern army group lies directly in the middle of the path of such a Soviet offensive and the Canadian brigade group is part of this army group.

The forward strategy

You have seen in the papers that NATO has introduced the forward strategy. I would like to say something about it. In the early days of NATO you may recall that in the face of overwhelming Russian strength in ground forces at that time it was not possible to contemplate a defence forward of the Rhine river. But as the strength of the NATO forces improved, particularly when the federal republic of Germany became a member of the alliance, the area of defensive operations was moved eastward from the Rhine. Even on this new line, however, we would be relinquishing substantial areas of west Germany without offering any real resistance and there has always been pressure to move forward. Last year it was decided that the time had come to implement a more forward strategy and now, German soil will be contested at the iron curtain.

This change will be applied throughout Allied Command Europe and will affect United States, British, German, French, Belgian and Netherland forces as well as our own. Within northern army group, of which 4 Canadian infantry brigade group is a part, there will be regrouping and assignment of operational responsibilities further forward in west Germany.

You will appreciate that such a change involves considerable adjustment of communications and logistics support, in view of the longer supply lines. To put the change into effect will require additional equipment, the more important of which will be signals equipment, bridging and transport, because it involves the defence of a larger area in greater depth and one crossed by more rivers. At a NATO conference in France a few days ago it was agreed that to make the plan viable, "force goals" must be met—i.e. national forces promised to NATO must be assigned, must be at full strength and must be fully equipped to NATO standards, with reserves of equipment and supplies to NATO scales.

The Canadian commitment at present is for a brigade group in Germany with the balance, or two-thirds, of a division earmarked as SACEUR's strategic reserve in Canada. This reserve is to come under SACEUR at a given state of alert and be moved to Europe. I will deal with each part of this NATO commitment separately, although there are factors common to both.

First—the 4th Canadian infantry brigade group in Germany. The brigade, together with administrative support units, has about 6,500 all ranks and at

present is made up of a regiment of artillery, a surface-to-surface missile battery with four launchers for Honest John rockets, a regiment of armour and three battalions of infantry, plus supporting reconnaissance, engineers, signals and service units. It also includes an organization called Canadian base units Europe which provides our share of troops on the supply lines to look after peculiar Canadian items of equipment and Canadian interests. The brigade headquarters is located at Soest and units are stationed at Werl, Iserlohn and Hemer in Germany. Major units are rotated to Canada every three years with one battalion of infantry being replaced each year. All other units are rotated on a man for man basis after a three-year tour.

The brigade is kept up to strength generally although normal wastage, except for specialists, is only replaced annually. Specialists who leave the brigade are replaced immediately. There are deficiencies, however, in the base units which require reinforcement on a given state of alert. Plans are in being to provide these, as well as first reinforcement for the brigade. It is considered that the force goal is met except that SHAPE has asked for the mechanization of the brigade by the introduction of armoured personnel carriers. Mobility is now provided by military pattern unarmoured wheeled vehicles which are not entirely satisfactory. With the introduction of new types of equipment, such as antitank guided missiles, surveillance equipment, light helicopters, which we have received or are on order, it will be necessary to do some reorganization within the brigade. However, the brigade group is well thought of in SHAPE where it is considered to be capable of performing its presently-assigned defensive role. Although it is now fully equipped, its full potential for mobile operations will not be realized until mechanization is achieved—that is the introduction of armoured, tracked personnel carriers.

I would now like to deal with the balance of the division in Canada. At the time of the Berlin crisis of 1961 the army was authorized to increase its strength to 59,370. This figure provided the manpower for the reconnaissance squadron helicopters, the Honest John battery and the manpower to bring the units up to strength in Europe and Canada. It also provided a manpower pool to look after the first-line reinforcements for the brigade in Europe and the manpower to activate certain divisional units which were dormant. In addition, it provided manpower for certain survival operational commitments and it allowed the army to replace in units in Canada the officers and men who had been dispatched to such theatres as the Suez and the Congo and whose positions had been left vacant.

When it became necessary to restrict our manpower to 50,000 for budgetary reasons, although it was possible to maintain the brigade in Europe, as now organized, at full strength, the following restrictions had to be made:

The first reinforcements for the units overseas had to be earmarked from the defence of Canada force;

Recruits in training had to be carried on unit strength and not on strength of recruit training establishments;

The full manning of the survival operations system had to be curtailed;

Also certain units in Canada had to be restricted in personnel.

It has been necessary to account for a number of the officers and men serving in the Congo and Suez against divisional establishments and it has not been possible to activate the divisional headquarters, the divisional signals regiment and other smaller divisional units. Thus, the state of readiness to form the division is not as good as it could be—but is better than prior to the crisis. The present emergency defence plan to form the division necessitates the cross-posting of personnel from other establishments in Canada, from the defence of Canada brigade, training establishments and static units. To replace

this manpower the only thing we can do is to avail ourselves of ex-regulars and selected militia personnel.

Although the two brigades in Canada earmarked for NATO are on the same establishments as the brigade in Europe, and have the same equipment scales, full scales of equipment are not available in Canada to bring them up to the same standard. In the main, the deficiencies are in new equipment. In the last few years new equipment has only been provided for the brigade in Germany plus training scales for Canada. In some categories it would be possible to issue in lieu items, most of which have seen long service, but reconnaissance helicopters, antitank guided missiles and surveillance equipment would not be available. Further, it would be necessary to strip the training establishments and the defence of Canada force which would compromise our ability to train reinforcements. A good example of the difference in standard equipment is the centurion tank. Those we have in Europe have been up-armoured and up-gunned, while those in Canada have not. The units in Germany hold more antitank guns than the units in Canada. These are just two examples—one of quality and one of numbers.

Therefore, we can field the balance of the division in accordance with our commitment and could equip it to a minimum operational scale.

There are two other important factors in connection with this commitment, the manpower for administrative support troops and the movement of the balance of the division. The division proper, that is the fighting brigades and divisional troops, can be found from forces in being by the cross-posting of personnel from other elements in the army and replacing them by enlisting ex-regulars, selected militiamen and, in some cases, civilians. There is, however, another manpower requirement arising out of the fact that in the NATO alliance logistics is a national responsibility and because the division will be operating off-shore, base support of peculiar Canadian needs is required. This is referred to as the divisional slice of administrative troops and is not an easy problem to solve. Included in these administrative troops is an organization to handle our casualties and reinforcements and to replenish peculiar Canadian items of supply. In this organization are such units as motor ambulance convoys, field hospitals, general hospitals, reinforcement centres and base installations. The pool in manpower and equipment for this is considerable—and it is specialist manpower—and it is not in being. To find these people in sufficient numbers, it is necessary to look to the militia units, to ex-regulars and civilian specialists.

The second factor I wish to mention is the movement of the balance of the division to Europe. We have recently been given in outline the plan for the assembly and positioning of the balance of the division in SACEUR's reserve. It will be positioned on the same supply sysstem as that of the 4th brigade. The 4th brigade is on the British system which supplies common user items such as rations, gasoline and oil, certain types of ammunition, engineer field stores, bridges, and spare parts all of which are common to the British and ourselves. This is on a repayment basis. Canadian personnel integrated into the British units handle peculiar Canadian items. This decision on the deployment of the balance of the division has now permitted us to commence detailed planning with the war office as to the reception and details of the type of supporting units which will be required. I mentioned earlier the requirement for the divisional slice of supporting units. These plans are plans only. They cannot be considered hard and fast until this detailed planning with the war office has been completed.

Another step we have taken is the procurement of special equipment for ships such as slings, ship derrick strengtheners and other gear so that ships can be loaded and unloaded in smaller ports which do not have the same capacity as the larger ports. This equipment has been thoroughly tested at the

U.S. marine school, and, of course, can be used to support other operations. Thus, plans are in being and about to be completed for the movement of the balance of the division from its home stations in Canada to ports of embarkation and from reception ports in Europe to its concentration area, which leaves me a final point to deal with and that is the movement from Canadian ports to European ports.

As you know, there is not sufficient Canadian shipping under Canadian registry or control to move the balance of the division. However we have been assured that our needs will be considered as a matter of importance when the Canadian government authorizes the move of the balance of the division.

Our present planning charts show that we can despatch another brigade group at full strength and equipped, plus a slice of divisional troops in a reasonably short time. The second brigade group in Canada can be made available soon afterwards, together with the balance of the divisional troops and support units.

Therefore, I feel I can say that within the resources available we have done everything that we can to meet our commitment of providing a brigade in Europe and the balance, or two-thirds, of a division as SACEUR strategic reserve at a given degree of alert.

We have looked at a possible plan involving the prepositioning or stockpiling in Europe of the heavier equipments and ammunition required for this strategic reserve. Such a plan would reduce the time by which the force could be made available. To carry out such a plan, however, would require the procurement of duplicate quantities of equipment, the provision of storage accommodation and personnel for maintenance. A preliminary study places this cost at approximately $135 million and a manpower requirement of at least 400 officers and men. Plans would have to be developed for using air transport to move the men and lighter equipment overseas. Future procurement would also result in higher costs.

I mentioned earlier that our philosophy is to maintain the highest state of readiness consistent with our resources and commitments today and also to be prepared to maintain that state of readiness for the future. I should now like to inform the committee on the steps we are taking today to be ready in the future. To provide a background I will briefly review our planning procedures. The evolution of the field forces of the army is a never-ending process. It starts with the development of concepts of operations to meet the threat and passes through studies and tests and trials of organization and equipment to the actual procurement of equipment and its integration into units.

In the light of the best intelligence forecasts of the enemy's intentions, of NATO strategic intentions and of forecasts of future scientific possibilities, a concept is evolved of how future battles might be fought and the characteristics of the weapons needed. We do this in collaboration with our NATO allies to produce an agreed concept of operations for specific periods of time in the future.

From this concept, which is agreed now throughout NATO for the 1966 to 1970 period, the army evolves its tactical doctrine, organization and equipment requirements. War games and operational research, together with continual scientific monitoring support army planners in this work. The NATO armies keep each other fully informed so that ideas are exchanged and procedures and equipment are standardized or kept compatible.

The third stage is the field testing of techniques and organizations with new equipment, to ensure that theoretical ideas can actually be applied in practice. This phase also is subjected to thorough scientific investigation and results in many refinements.

It is by this process of evolution of new concepts and doctrine and their eventual realization in the form of modified organization and the introduction of new equipment, that the army maintains its state of readiness, not only for today but for the future. Forward thinking is required, the ultimate goal being to keep a proper balance of manpower and equipment to make the most effective use of technical and doctrinal advances.

I wish to repeat that the Soviet forces in Germany are among the best offensively equipped in the world. They are highly trained for continuous operations by day and by night, employing massive tank strength in successive waves, with ample direct airsupport and with or without the use of tactical nuclear weapons. They possess the latter in ample numbers. The Russian threat is of concern to all armies of NATO, particularly the overwhelming Russian tank force.

The NATO concept maintains that the defensive battle will be mobile and fought over wide fronts and in great depth. Today it is visualized that the division may have a frontage of up to 30 miles and a depth of up to 50 miles. Even a brigade may have to operate on a frontage of up to 15 miles. I had a slide to show comparisons but something has gone wrong.

In comparison, during the second world war in western Europe the divisional front was, on the average, four to five miles, its depth varying from three to ten miles depending on the intensity of the battle.

Thus, you will see the requirement for longer-range signal equipment to keep command and control in the battlefield, continuous reconnaissance and surveillance to prevent surprise concentrations and infiltration by an enemy, a high degree of cross-country mobility and a flexible system of supply for forces operating under this concept.

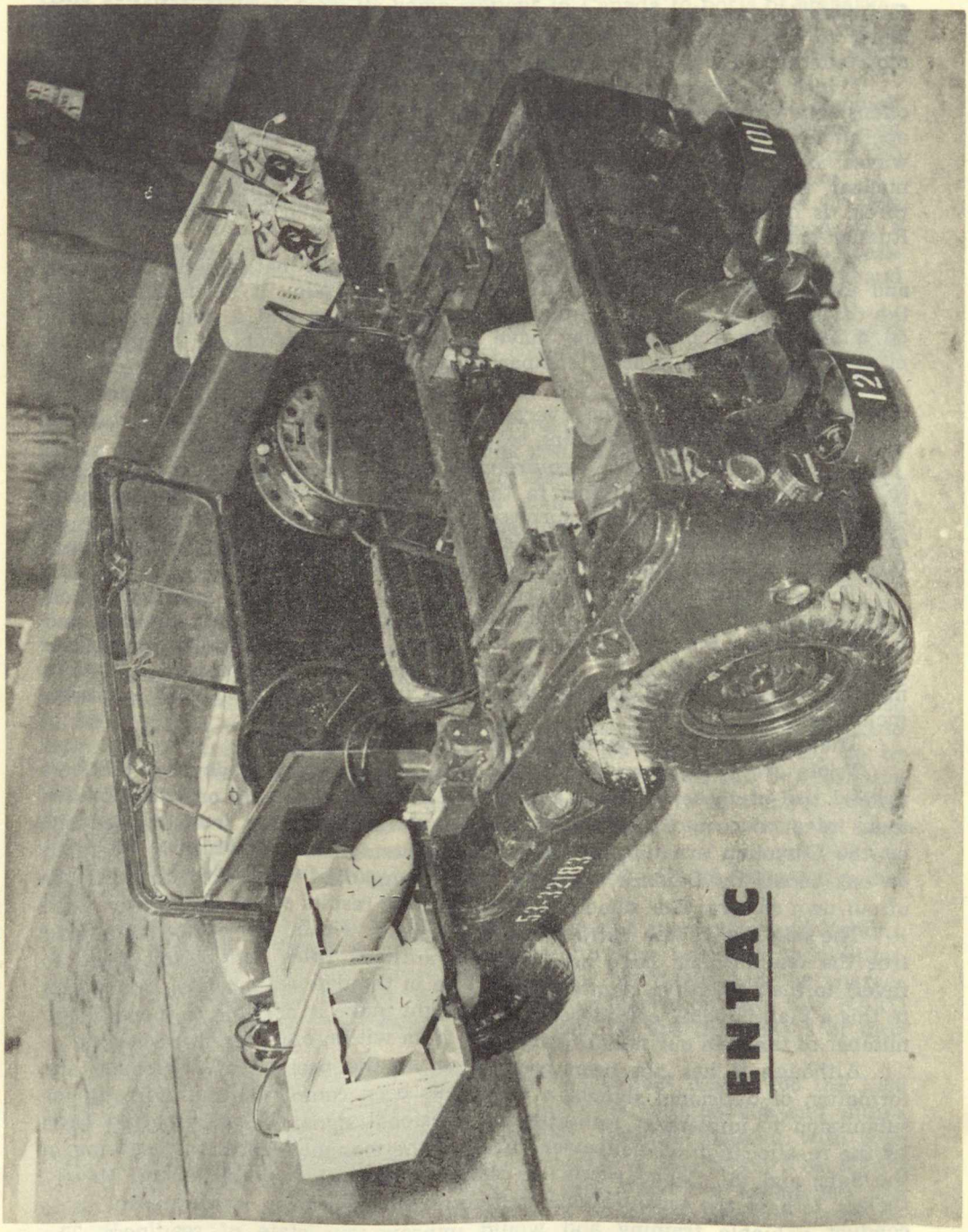
The communist tank threat is of the most immediate concern. Their tank strength is double that which we have in our equivalent division and in their heavier armoured division it is three times as much. To compensate for this, we have on order, to be shortly delivered, wire-guided anti-tank missiles, the SS 11 and ENTAC which are in use in other NATO countries, including the U.S. Army.

That is an ENTAC mounted on the side of a jeep.

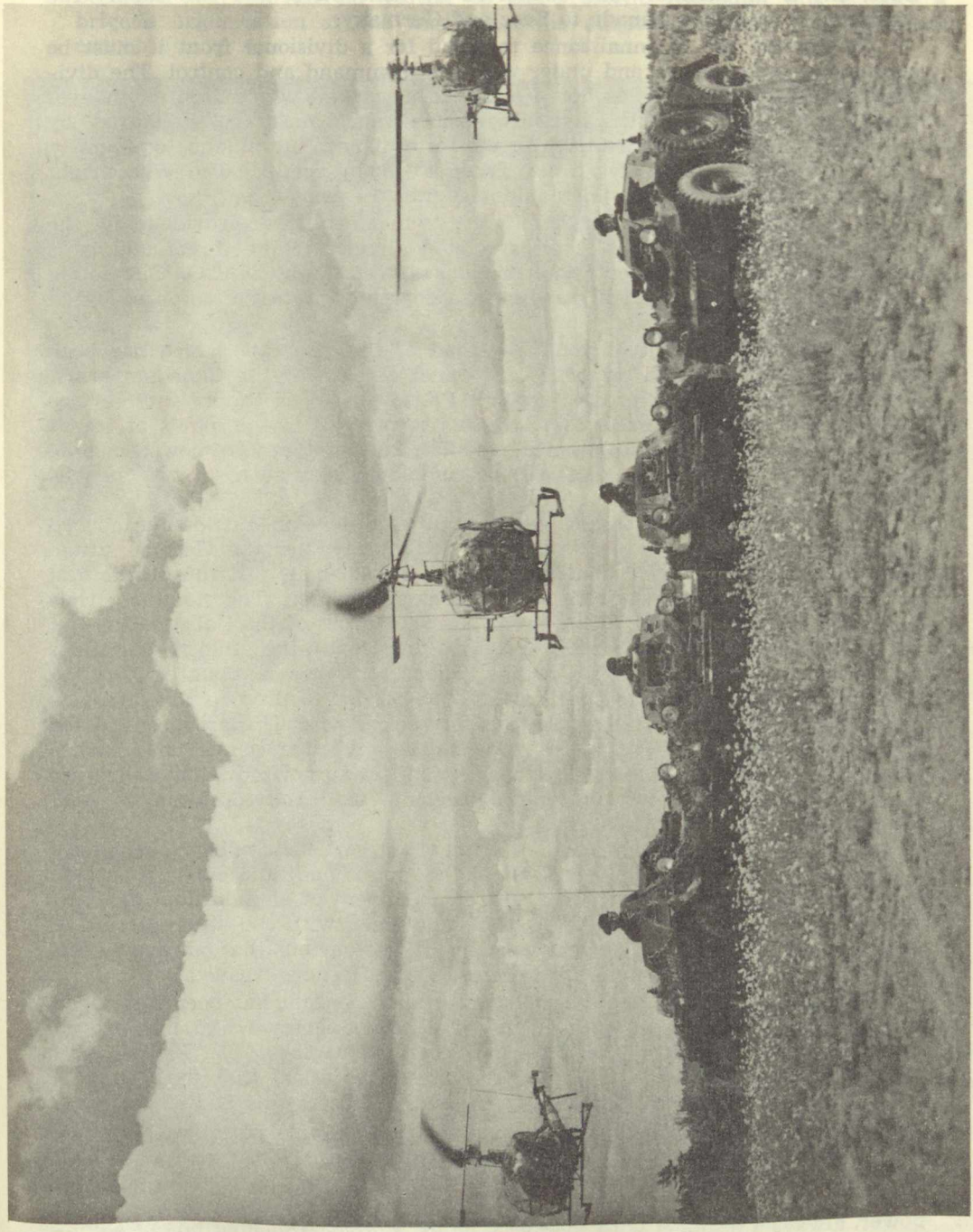
Trials are being carried out this year at Gagetown to develop the best tactical use of these weapons and to find the most suitable organization for their integration into the Canadian division. Initial studies were carried out by the Canadian army operational research establishment which is operated on our behalf by Defence Research Board, supported with a certain number of our own officers. This same group will vet the results of the Gagetown trials.

The addition of the extra antitank weapons within our organization will free the tanks which have been used in antitank roles and permit them to revert to their offensive counter-attack role in the defensive battle. In addition to this a plan is being considered which might make it possible to increase the number of tanks in our field organization from within our present resources.

Although it has not been possible up to the present to implement the formation of divisional signals, a study has been completed and is ready for submission to implement formation of divisional signals on a restricted basis by the re-allocation of manpower. Some of the manpower presently serving in the Suez and the Congo would be carried against this establishment. Nevertheless, to have the organization, even on a restricted basis, would permit us to conduct valuable training and would improve our state of readiness. The signal equipment presently held is not suitable for the concept of the modern battle. The importance of line is decreased as it is susceptible to breaks and not sufficiently flexible under rapidly changing battle situations.



3. THE ENTAC



4. RECONNAISSANCE

The present reconnaissance organization in the army is a reconnaissance squadron in each of the four armoured regiments. One serves in the east in Suez, one is in Germany and supported by helicopters, and two supply the rotational troops from Canada to Suez and Germany.

To provide the reconnaissance required for a divisional front it must be continuous and cohesive and under the same command and control. The divisional front is so wide it is not possible to cover the whole front with eyes only, especially at night. Physical reconnaissance must be supported by mechanical means which we have in the form of new surveillance equipment, which is now being delivered to us. Trials are being conducted at Wainwright this summer to incorporate this equipment into the army.

I mentioned the need for mobility which will be provided by the mechanization of our forces. This is related directly to the threat and is in accordance with the concept of operations agreed to by NATO. Our forces should be able to move quickly and have a degree of protection afforded by an armoured personnel carrier.

I am sure that most of you have read of the "Bobcat" which has been developed as a universal armoured personnel carrier for the Canadian army. Although we have been pressed by SHAPE to push this carrier into service immediately, it is not in our best interests to place it in the hands of troops before adequate trials are completed. The first 20 prototypes are now becoming available and engineering trials will be completed very soon. It will then be possible to seek production.

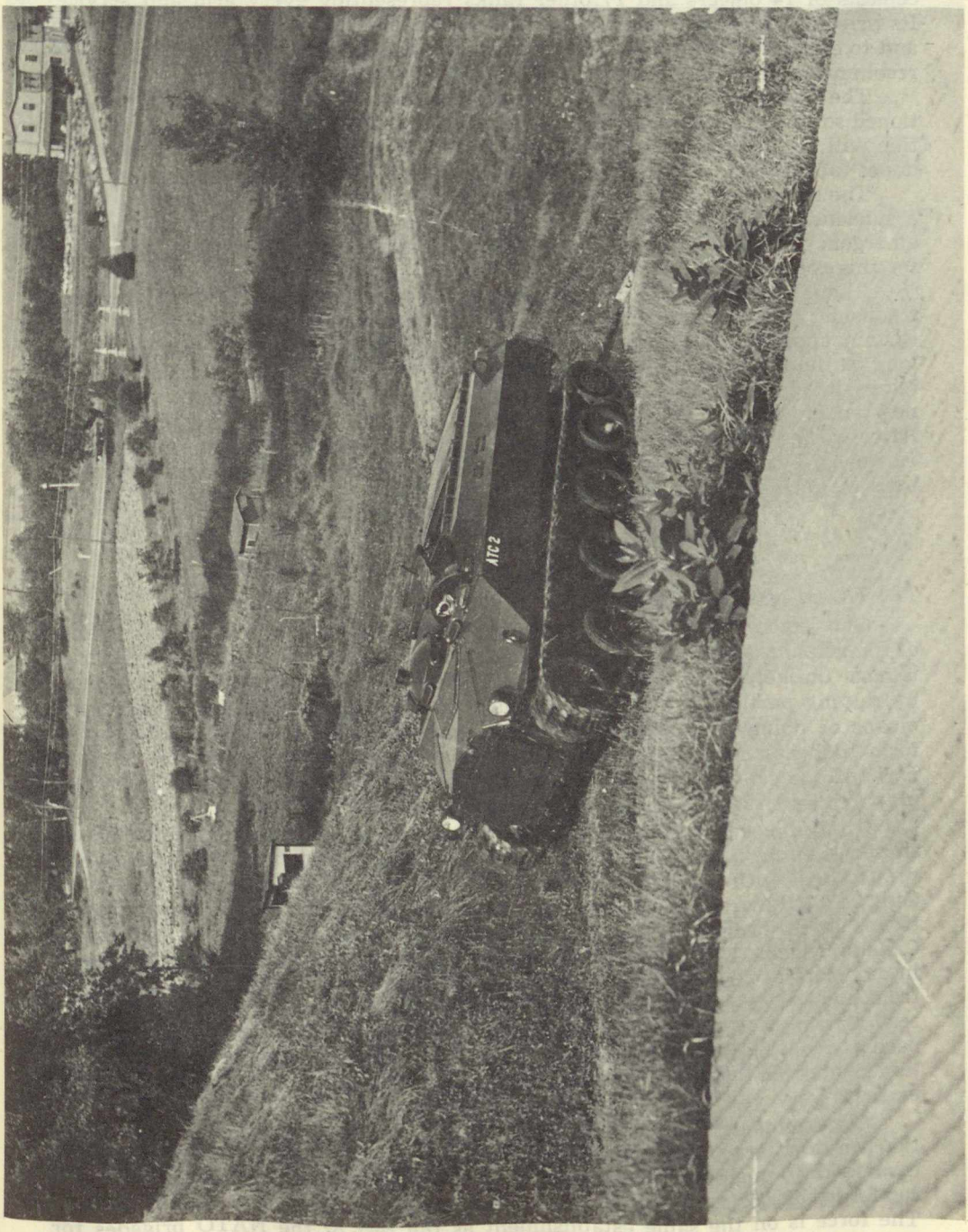
In spite of efforts to standardize, each army has developed its own armoured personnel carrier, the U.S. army, the British army and the German army. The contractor for the Bobcat is carrying out a 2,000-mile test run on the first prototype and no serious faults have developed so far. The flotation trials have been most successful. There are three basic types of the Bobcat. The first is the armoured personnel carrier which can be used in the infantry battalions for troops and close support weapons. The second has a mounting for the standard field gun; and the third is the load carrier to provide close support and resupply on the battlefield to the forward troops. The army originated this project as far back as January 1954 before any other country had such a concept. At that time, the cabinet defence committee authorized the manufacture of one mild-steel prototype for engineering test and preliminary user evaluation.

Now a few words on what we are doing about battlefield support. When the new tactical concept was development for the mobile and fluid battle it became obvious that our support in the way of replenishment of ammunition, gasoline, rations and water was too rigid. At the same time, with the inherent risk of mass casualities by tactical nuclear weapons, it was obvious that our evacuation procedures were not adequate. In short, we needed a new organization.

During the past few years a logistic battalion concept has been developed and tested in principle at both Wainwright and Gagetown and has proved worthy of further investigation on a more permanent basis. The British chief of staff was so impressed at Wainright that he has asked that the Canadian army put on a demonstration of it for his senior officers this September.

This spring we formed a provisional brigade service battalion from the service units already existing. This is a new departure from the conventional method of supply and casualty evacuation we have known up to now. It makes better use of the manpower we have available, especially the technical manpower, always a problem with the increasingly more complicated bits of equipment. It is flexible so that the proper use of air close support logistics can be controlled. It simplifies and makes more reliable the delivery of pure water to the forward troops; and the service battalion commander has under his immediate control more transport including air, ambulance and ordinary vehicles which he can detail to speed up the evacuation of mass casualties. Full scale

trials are being carried out this summer and for the rest of the year, and our experience up to now indicates that, with minor modifications, the service battalion will provide an answer to the problem. Although this is only a brigade organization at the moment, it is adaptable within the divisional concept.



5. THE BOBCAT

I have highlighted the priority investigations and trials which we are carrying out. As mentioned in the army's planning procedures, we make full use of war games and operational research studies and engineering tests. However, the final decision must be made after field trials. To this end, authority was granted last July to form the army tactics and organization board which consists of 14 officers and 17 other ranks representing every arm and service. Its principal task is to take the results of the investigations I have mentioned and to examine the areas where trials should be carried out and then finally to recommend what they consider the best answer.

The board is responsible for the coordination of all the trials I have mentioned so that as new equipment is delivered into the army the proper organization will be ready for its tactical employment. It is by this means that the army hopes to maintain its state of readiness today, and in the immediate future.

The army tactics and organization board has a secondary function—it forms a nucleus on which the divisional headquarters can be built in case of an emergency. It has therefore a secondary task—to prepare organizational plans for this contingency.

I have included these trials in my brief to you this morning simply because I consider them part of our NATO commitment even though they may have certain applications to other commitments that the army has been given. So long as the army has a commitment in western Europe, facing Russian ground forces, it is inherent in the commitment that we maintain a high state of readiness now and in the future. This is the aim of our planning and trial programme. After we resolve the problems I have mentioned there will be others to tackle. However, I consider the problems we have in hand now the most important ones we face today.

DEFENCE OF CANADA AND NORTH AMERICA

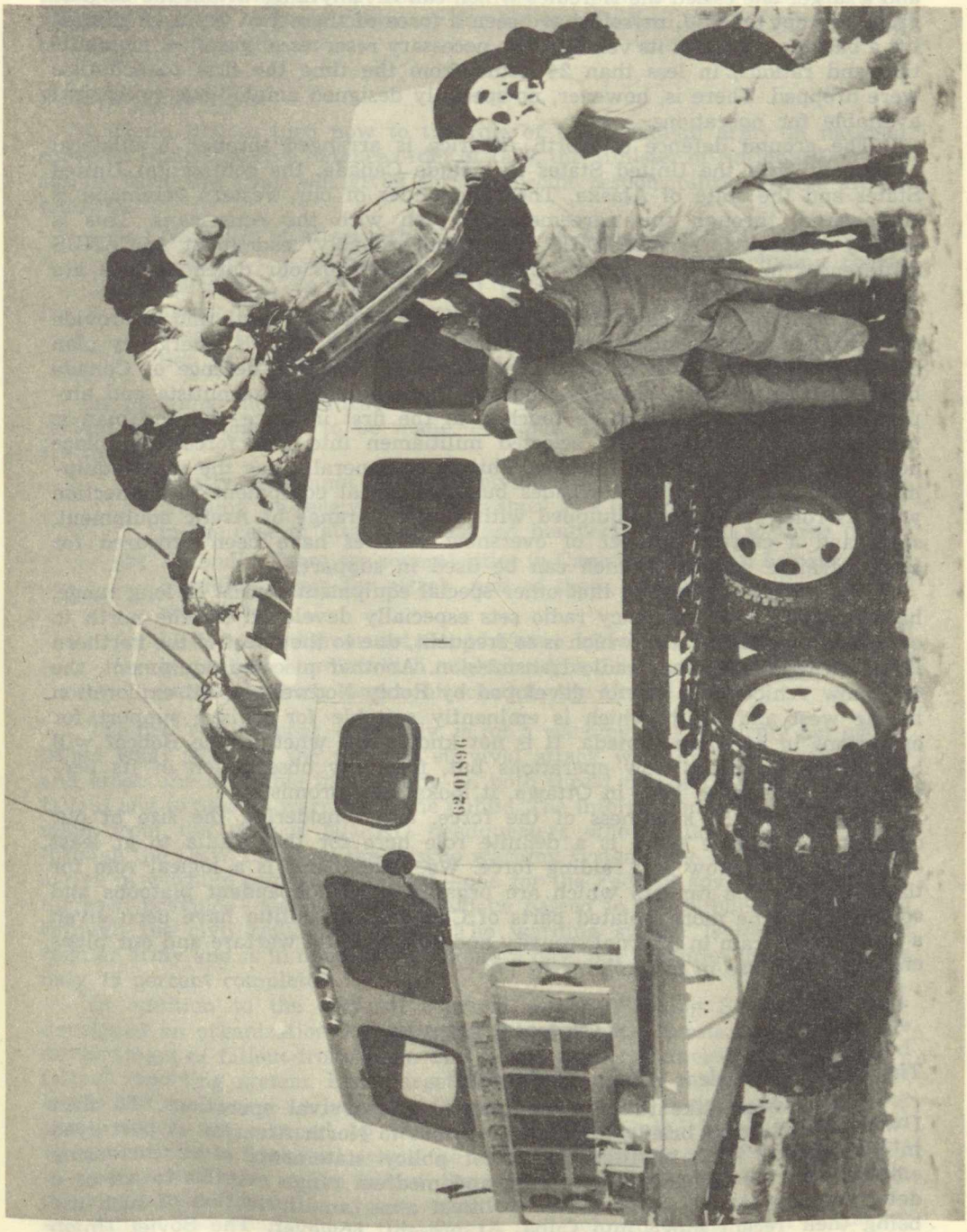
The Threat of Enemy Lodgements in Canada

Gentlemen, the next part of my brief is on the army's role in the defence of Canada and North America. Although a major land attack on North America is most unlikely, it is possible for the Soviets to create a feeling of insecurity by raiding parties or the threat of such on Canadian soil. They have several means of doing this. Such is our geography, that we are vulnerable to this form of harassment. An enemy could establish himself in the more isolated parts of our country. He would be difficult to dislodge unless plans have been prepared and suitable forces were available to deal with him.

I only have to remind you of the aspect of civilian morale, which necessitated keeping a large number of troops in Canada during the second world war to deal with the Japanese threat in the West and the submarines in the Gulf of St. Lawrence. Our present plans do not envisage a large number of troops in this commitment. We have, however, what we call the defence of Canada brigade. I like to refer to it as the "fire brigade". It is trained to operate in any part of Canada, winter or summer. It consists of three battalions, one from each of the following regiments—The Royal Canadian Regiment, Princess Patricia's Canadian Light Infantry and the Royal 22e Régiment. In each of these battalions there is a parachute-trained component which is maintained and exercised monthly. In addition, the battalions carry out a major exercise very year.

Arrangements exist between the R.C.A.F. and ourselves to mount operations in any part of the country and these arrangements are continually being examined to maintain them at a high state of readiness. To improve the capability of this force, reconnaissance ski companies are being trained as well. The force is on the same establishment as the rest of the NATO brigades for ease of administration and training and the defence of Canada brigade provides

units for periodic rotation overseas. Of these three battalions one is located looking to the east, at Valcartier, another is located in Edmonton looking to the west and northwest, and the third is in central Canada at London and can be diverted in either direction.



6. The Oversnow Vehicle

Arrangements for joint operations are very satisfactory with the R.C.A.F. and similar arrangements are being made with the Royal Canadian Navy. The chief of naval staff and myself are preparing a directive to our commanders on the coasts to undertake small amphibious exercises next year. The air force have two basic aircraft which we use—the flying boxcar, which is getting old, and a larger one called the Hercules which can lift anything within the brigade group, except tanks. I, myself, have seen a force of these two types of aircraft lift a battalion with all its vehicles, the necessary reserves of gasoline, ammunition and rations, in less than 24 hours from the time the first parachutists were dropped. There is, however, no specially designed amphibious equipment available for operations.

The ground defence of North America is arranged through a bilateral agreement with the United States to include Canada, the continental United States and the state of Alaska. The commander of our western command is empowered, through this agreement, to plan with the Americans. This is usually referred to as ALCANUS. You have probably read about ALCANUS conferences in the press. Joint studies and review of our defence plans are usually made annually.

To bring the balance of the division up to effective strength and to provide the initial reinforcements for the brigade in Germany, today's emergency plan calls for the withdrawal of a number of troops from the defence of Canada brigade. It is planned, however, that the hard core of parachutists and air-portable personnel will not be touched in the first instance and the plan is to re-enlist ex-regulars and selected militiamen into this force to replace personnel required for the division. This force generally has the same equipment as planned for other brigades but has special equipment in connection with its role. Troops are equipped with a special range of Arctic equipment, sleds and a certain number of oversnow vehicles have been procured for administrative purposes which can be used in support.

It is interesting to note that other special equipment consist of long range, high powered, low frequency radio sets especially developed for the north to overcome the interference which is so frequent, due to the effect of the northern lights on high frequency radio transmission. Another piece of equipment, the oversnow vehicle, is a tractor developed by Robin Nodwell for oil exploration in the west and north which is eminently suitable for logistic support for operations in northern Canada. It is not known yet whether the Bobcat will be suitable for deep snow operations but, from my observation of its performance last winter here in Ottawa, it looks very promising.

Because of the smallness of the force, and considering the size of our country, we believe there is a definite role here for the militia to at least contain or to shadow any raiding force. We believe this is a logical role for them and for the rangers which are organized in independent platoons and companies in the more isolated parts of Canada. The militia have been given a directive to train in internal security and anti-guerilla warfare and our plans envisage their use in this role.

NATIONAL SURVIVAL

The Threat of Nuclear Attack on Canada

Now I would like to say something about survival operations. To start I will mention very briefly the nuclear threat to North America as portrayed in our agreed joint intelligence. Soviet policy statements place increasing emphasis on the development of long and medium range missiles to act as a deterrent and also to support their political aims, an illustration of such use being their recent move into Cuba. At present, however, The Soviet Union does not possess an operational intercontinental ballistic missile force large

enough to merit reduction in their bomber force and consequently, the Intercontinental ballistic missile (which can cover all of North America) and long range manned bombers together constitute the strategic threat to North America.

In addition to the bomber and intercontinental ballistic missile threat there are missile firing submarines which can complement these other strategic weapons systems. It is not necessary for me to elaborate on the vulnerability of Canada to this threat.

Survival Operations

I would like to turn now to the role of the Canadian army in national survival. Under the civil defence order of 1959, the Minister of National Defence, and, in turn, the army was given certain specific responsibilities. These are as follows:

(*a.*) Warning of attack; (*b.*) Location of detonations and fallout warnings; (*c.*) Assessment of damage; (*d.*) Re-entry including rescue operations; (*e.*) Direction of police and fire services in damaged areas; (*f.*) Direction of municipal and other services in damaged areas; (*g.*) Assisting in maintenance of law and order; (*h.*) Operation of emergency communications for the Federal Government.

In planning the organization needed to carry out these responsibilities, certain assumptions had to be made, of which probably the most important are these:

(*a*) Firstly, we cannot rely on receiving strategic warning, and the actual warning we receive may be as short as a few minutes or at the most, in the case of attack by manned bombers, only two to three hours.

(*b*) Secondly, there are several cities in Canada which can be considered possible targets for attack, and of these, the largest cities are the most likely.

(c) Lastly, whether or not Canada were attacked directly, there might be random bombs which might land in this country and there might be fallout from targets attacked in the United States.

The first requirement, obviously, is for a warning and the army has established what is called the national survival attack warning system, to gather and assess the available information on both threat of bombing and predicted fallout and to pass on warning to the public. The information would come in the main from the various NORAD headquarters who would receive warning through the DEW Line and the missile warning system. The information would arrive in warning centres in Canada—one for the Federal government and one for each province—and warning would be passed to the public by sirens and through the civil radio broadcasts. The warning system is manned by the regular army and is in operation 24 hours a day, but the siren installations are only 75 percent complete.

In addition to the national survival attack Warning System we have developed an organization for reporting actual nuclear bursts and plotting the development of fallout from them. This is known as the nuclear detonation and fallout reporting system. Each target city has around it a number of posts to locate and measure a nuclear blast. These are the nuclear detonation reporting posts, which are manned by the army assisted by the other services and selected civilians. Scattered across the rest of the country are some 2,000 posts to measure and report upon fallout. Some of these are also capable of detecting random bursts. Thus this system would, when finished, tell us where bursts and fallout had occurred. At this time it is developed to the point of having a limited operational capability in about 60 percent of the system.

In addition to warning the public and plotting fall-out, we are responsible for what we call "re-entry operations"—that is, rescue of the injured, first aid and so on. Experience in peacetime and wartime disasters has shown that there is little time to conduct rescue if it is to be effective. Very little rescue can be successful after forty-eight to seventy-two hours have elapsed. Therefore, our plans are aimed at bringing to bear the maximum rescue force immediately following nuclear strikes. A headquarters has been established for each probable target area, called target area headquarters, and they are manned by skeleton staffs in peacetime. The main job of these staffs is to collect detailed information at the target area so that if the target area were attacked they would be able to make the best use of what remains of the resources in the target area to restore the situation and be able to take advantage by intimate local knowledge of the city to begin rescue operations with the minimum of delay. There are many tasks for these headquarters to make the whole cloth in planning. As you well realize, with today's complex mode of life, if many of the utilities that we take for granted were destroyed, rehabilitation and substitution would become a major problem. It is the job of these headquarters to assist the provincial and municipal authorities. The principle on which we are working is that we should hand back the responsibility to the normal forms of government as soon as they are in a position to accept them and that we only act in an emergency if and when civilian control breaks down.

The troops required to enter a city that has been attacked come from both the regular army and the militia, and are to be supplemented by civilian volunteer workers organized into what are called "Mobile Survival Columns". A column consists basically of a command and control element—which consists of regular and militia personnel—and several rescue companies in which the civilian volunteer could work. The army components of 265 of these columns have now been organized and most have been equipped. They are grouped in 66 mobile survival groups. These, in turn, would work under the target area headquarters which have been set up.

It is planned that all the military resources that could be made available in Canada at the time of the attack would be devoted to ensuring our survival as a nation. Defence of Canada and re-entry operations would be the highest priority for allocation of military manpower. As mentioned above reliance is being placed on employing civilians in considerable numbers, under army direction, to assist in re-entry. The militia has received extensive training in re-entry operations, as have the members of the regular army.

United Nations and Similar Operations

I turn now from NATO and home defence to the international commitments of the army, which Canada has undertaken in support of the United Nations, through bilateral agreements with commonwealth countries, and as a participating member of the international commissions for supervision and control in Indo-China. The army has been given a number of tasks by the government. These tasks vary anywhere from an officer and one other rank in Korea to a battalion-size force in the Suez. The manpower involved in these tasks totals 1270.

There is one complication, however, and that is that the personnel we have been asked to provide so far have been, in large part, technicians and specialists —soldiers who, to become professional in their trades, require not only extensive initial training but also, because they serve in isolated posts, should have a reasonable amount of experience. Because of the very nature of their specialty and trade, their proportion in the army to the general fighting man is quite low. Thus we have a problem of finding these personnel and also, because they have

to be rotated once a year at least, of finding sufficiently qualified personnel to replace them. Obviously, it is unfair to ask a soldier and, especially an older soldier as a highly trained specialist would be, to be separated from his family too frequently for a year at a time. We have tried as a matter of policy to send abroad officers and soldiers no more frequently than once in five years for a so-called lonely posting. There are, of course, single men and others who volunteer for extended tours and for repeat tours, but these are the exception rather than the rule. To find the back-up for these forces we look to the soldiers in our training and logistic establishments.

The minister has already informed you that Canada maintains a "Standby Battalion" for United Nations duties. The 1st Battalion, Royal Vingt-Deuxieme Regiment is now earmarked and at short notice to move, and is kept at full strength for this role. Since its inception in January 1958 the standby battalion has been altered several times—examples are the crises in the Lebanon and in the Congo. It is exercised periodically in cooperation with the R.C.A.F. to check its state of readiness and its operational procedures for dispatch by air to overseas destinations. For instance, last month we moved the battalion from Valcartier to Wainwright across Canada and on landing it carried out an exercise to restore law and order. This type of exercise is as close to the real thing as we can get. However, in case Canadian infantry might not be asked for, and this is based on previous experience, the 3rd Canadian infantry brigade group has been earmarked as a contingency force from which we would provide units for unforeseen commitments, for example, other United Nations special forces.

More than 800 Canadian army servicemen are with the United Nations emergency force in the Sinai peninsula on reconnaissance and service support duties. This force is composed of a reconnaissance squadron, presently supplied by the Lord Strathcona's Horse, a signal troop totalling 12 officers and 217 men, and a special administrative group of 57 officers and 536 men which provides administrative support for the whole of the United Nations force in the Middle East.

In the administrative group, an engineer company provides the works services, water supply, defences, mine clearing, and so on. I visited the Suez force last January and found them in good heart. I was particularly gratified to be told by the U.N.E.F. commander, General Gyani, that he relied heavily on his Canadian component because of their training and professional attitude. I, myself, witnessed a good example of this when I visited a post at the mouth of the gulf of Aqaba. I found an engineer corporal and two of his soldiers sweltering in the heat and repairing the distillation plant on which the whole force at that point depended for its water. The corporal reminded me that the last time we had served together was in Whitehorse, Yukon, in 1947, the year of the big freeze.

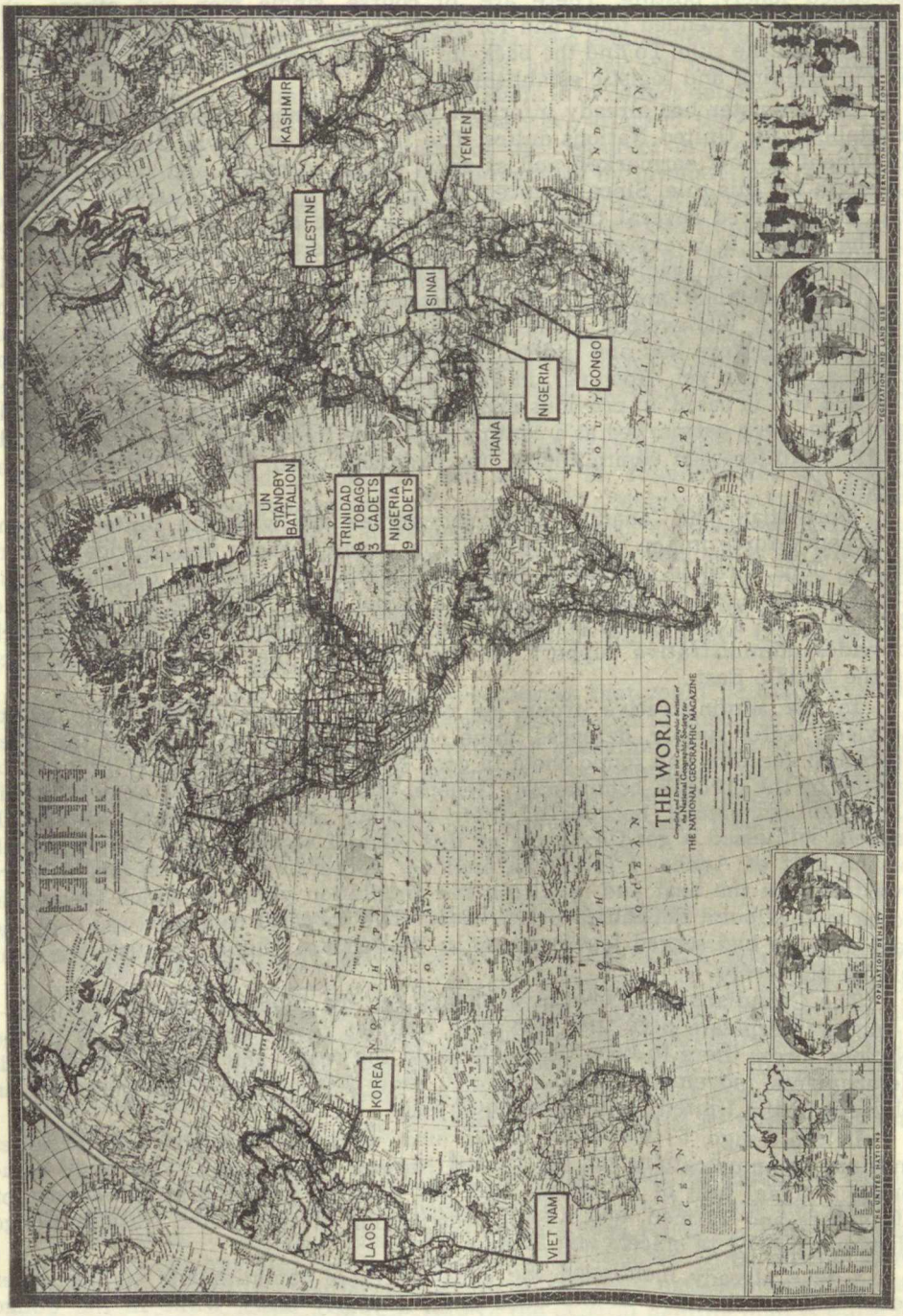
The Canadians also run the workshop for the repair of all the vehicles—I might interpolate here that they also conduct repair courses for all United Nations forces there to keep the vehicles on the road—and we man the signals detachments, movement control, provost, army service corps transport, and an element in the United Nations headquarters.

In the Congo, 57 Canadian signals unit with over 300 all ranks provides military communications for the United Nations organization. This force comprises a signal unit of 15 officers and 175 men, an administrative element of 10 officers and 77 men, and a staff contribution in the United Nations Congo Headquarters of 14 officers and 20 men.

I have already mentioned the effect of these commitments on our other commitments. Rotation in the Suez is on a yearly basis, while in the Congo it is on a half-yearly basis due to climatic conditions. However, a reduction in

the Congo commitment is forecast this summer in line with the planned United Nations force reduction. I have just been notified of the first moves out.

There are, in addition to the two larger commitments I have mentioned, the Suez and the Congo, the following: 42 officers and 34 men are serving one



ARMY PERSONNEL POSTED ABROAD UNDER THE UNITED NATIONS AND SIMILAR OPERATIONS

year tours with international commissions in Viet Nam (27 and 26) and Laos (15 and 8), and small groups of officers are serving similar tours with various United Nations organizations in Palestine (16), Kashmir (8), and Korea (1). Four army officers have now been allotted to the United Nations organization being set up to supervise the withdrawal in the Yemen. There is a special engineer officer in Nigeria on map duties. Recently, there have been inquiries concerning Canadian army participation in other United Nations activities.

A team assists in the training of the Ghanaian armed services and 31 officers and men (mostly army) accompanied by their dependents, serve two-year tours. It seems that this is useful as we have been asked for 10 more—7 army and 3 R.C.A.F. officers. Minor assistance is provided to Nigeria and to Trinidad and Tobago, with a number of their officers and officer cadets undergoing training in Canada.

We take these commitments most seriously. We conduct courses for officers chosen for such duty and all are thoroughly indoctrinated by officers with previous United Nations experience and by external affairs. They are carefully selected to give not only the right trades and specialties but also to ensure that we have worthy representation abroad.

Although these assignments make a demand on our overall manpower, and complicate our planning to meet our other commitments, there is a credit side. Canada is making a major contribution to the United Nations and to newly emergent countries. For the army there are advantages, as well as the problems I have outlined. The first of these is the benefit to the army and to the career of the soldier himself. There is a tendency, notwithstanding the best intentions in the world, to get into a bit of a rut from day-to-day soldiering in Canada. Such postings of officers and men to assist other countries broadens the experience of the soldier and, to my mind, makes him more valuable to the army. In addition, there is an intangible benefit to Canada as a whole in that they have proved to be good ambassadors for our country.

ASSISTANCE TO CIVIL AUTHORITIES

The armed forces may be called upon in peacetime and in war to assist civil authorities in a number of ways:

(*a*) the attorney-general of a province may call out the army, under authority of the National Defence Act, to deal with riot, insurrection or other disturbance of the peace, real or apprehended.

(b) The forces may be called upon to help in any number of civil emergencies. The army is the coordinating service for such activities. There have been many examples of this type of assistance, ranging from searches for lost children to putting out the forest fires in Newfoundland in 1961. More recently we have been active in flood control operations caused by the unusually severe ice conditions in northern rivers this spring.

(c) The armed forces serve the government, and may be called upon to perform such tasks as are in the public interest. Thus the forces are available to other government departments to carry out any work for which the particular resources of a service are suited. The army has two standing commitments of this sort:

(1) Garrisons located near federal penitentiaries are prepared to send formed bodies of armed troops to assist in the maintenance of order at very short notice. The units concerned do exercises in this role to ensure quick response. Troops have helped control disorders at Stoney Mountain, Manitoba, New

Westminster, B.C., and St. Vincent de Paul near Montreal. Troops of the Royal Vingt-deuxième Regiment have been standing by at St. Vincent de Paul quite recently.

(2) Another standing commitment is the provision of an artillery detachment for avalanche control in Glacier National Park each winter. Where the trans-Canada highway goes through the Rogers pass it is overhung by a number of avalanche paths. In order to prevent avalanches of destructive proportions, incipient snowslides are precipitated by bursting high explosive shell at a critical point of the snow mass. This is excellent experience for our artillery. I have visited this detachment and I have been assured by the park authorities responsible that the procedure is proving most effective.

(*d*) Armed forces explosives experts are authorized, by delegation from the Minister of Mines and Technical Surveys, under the Explosives Act, to deal with dangerous and abandoned explosives. There are numerous incidents of various types of explosives and dangerous war souvenirs being reported to the police. The police in turn call upon our people to identify, make safe and remove the explosive. Although this is tricky work, we treat it as routine.

(*e*) A slightly different problem is assistance to the police in the removal of explosive devices planted for sabotage purposes. There have been several such incidents in the last few years in southern British Columbia and, more recently, in the province of Quebec. Since these incidents are criminal cases we have no responsibility and simply respond to requests for help from civil police authorities.

No special organization is set up in order to meet these commitments. Generally speaking the army's greatest asset is its ability to produce a formed body of disciplined men which has its own communications, transport and administration, and which can be supported by specialists with a wide range of skills. Generally speaking we do not have special gear to meet these demands, but use the equipment we have. However, in the past few years we have kept readily available in all commands, and especially these commands vulnerable to forest fires, a mobile forest-fire fighting kit and troops are trained in its use. To enhance our readiness to assist civil authorities in fighting forest fires, we have also had officers and men on courses in forest-fire fighting conducted by some provinces.

To illustrate the diversity and widespread nature of these tasks, I have summarized the assistance given by the army to civil authorities in Canada in the past year.

The first table shows federal government tasks.

The second table lists tasks undertaken at the request of the provinces.

FEDERAL COMMITMENTS

Standing Commitment.	Snow Slide Control—Glacier National Park.	Gun Detachment, Eqpt & Ammo.
17 Jun-18 Jun 62.....	Riots—St Vincent de Paul Penitentiary....	327 Troops & Equipment.
15 Sep 62.....	Doukhobor disturbance—Mountain Prison, Agassiz, BC.....	Troops & barbed wire.
19 Nov 62.....	Minor Flood—Mountain Prison, Agassiz, BC.....	Flood control work.
21 Apr-23 Apr 63.....	Riots—New Westminster Penitentiary.....	100 troops.
Apr-May 63.....	Flooding—Hay River, Fort Simpson, Aklavik.....	Ice demolition experts, staff helicopters.
May 63.....	Tension—St Vincent de Paul Penitentiary..	Standby force.

PROVINCIAL REQUESTS

7 Jul-17 Jul 62.....	Forest Fires—La Tuque, Que.....	31 Troops, Radio Eqpt
22 Aug, 26 Aug 62....	Search for Kidnapped girl—Beeton, Ont....	300 Troops
1 Oct-5 Oct 62.....	Search for old man—Parry Sound, Ont.....	100 Troops
Feb 63.....	Search for lost aircraft—Petawawa area....	Light Aircraft
31 Mar-2 Apr 63.....	Search for mute child—Charleswood, Man..	100 Troops
1 Apr-3 Apr 63.....	Flooding, Chateauguay, Que.....	Ice Demolitions
18 Apr-24 Apr 63.....	Flooding, McLeod and Athabaska Rivers, Whitecourt, Alta.....	Ice Demolitions
May 63.....	Bomb incidents—Montreal..... Bomb hoaxes—Ottawa.....	Explosive Experts Provided
27 May 63.	Hospital fire—Chicoutimi, Que.....	Personnel and Equipment
28 May 63.....	Forest fire—Mont Laurier, Que.....	20 Troops, Radio Eqpt

MILITIA AND ARMY CADETS

Militia

Traditionally, the militia has been the back-bone of the Canadian army. With the advent of the risk of a nuclear war however, the concept of the "forces in being" was adopted for future hostilities, which cast some doubt on the militia's future role. However, this has now been clarified and the militia has a primary role across Canada in support of survival operations.

Since World War Two the militia has been used in aid to the civil power—for instance in hurricane Hazel—and it has also provided personnel for United Nations commitments; for example in the early days in Kashmir. During 1961-62, with initial aid from the regular army, the militia trained some 70,000 men for rescue and re-entry operations, by means of special courses.

Our present plans for survival operations require the militia to provide approximately 500 units of various types across the country to carry out re-entry operations into 16 target cities. It is planned that militia personnel and selected civilians will man many of the filter centres in connection with the fallout reporting system. Much of the work in this field can be ably accomplished by the Canadian Women's Army Corps and present policy is to gradually build up this corps to do this work.

In so far as training is concerned the militiaman is trained first as a soldier since the strength of the militia lies in its capability to provide a formed body of disciplined men. Militiamen undertake their survival traning as soon as their basic military training is completed. Units and groups of units conduct exercises in re-entry and rescue operations at periodic intervals on the target cities to which they have been assigned.

The present concept of field operations in which Canada might become involved does not include initially wide participation by the militia. However, if and when the balance of the division is sent from Canada, it is planned that approximately 7,000 members of the militia will be required to replace regular army personnel withdrawn from the support units in Canada and to bring up the defence of Canada force to strength. Our plans call for the use of the militia to support the RCMP in the intial stages of a war for internment duties and security of vital key points. It is estimated that at least 2,500 militiamen would be required for this purpose.

To meet these commitments approximately 50,000 effective militiamen are being trained this year in survival operatons and in basic corps skills besides learning their fundamental tasks as soldiers. In addition, their training this year will include anti-guerrilla and special internal security training. To find the future officers and NCOs, approximately 8,000 high school students are trained each summer on special courses. These courses are conducted by the militia themselves and the results have been most encouraging. Last year some of these high school students were seen by a visiting general and the impression they made on this general was such that he thought they were Regular troops. He was amazed when I told him they were part of our student militia training. I might add that the requests for running these courses exceed our capacity to meet them.

Cadets

The Royal Canadian Army Cadets provide basic training for 75,000 boys between the ages of 14 and 19. The emphasis during training is on the development of leadership, patriotism and good citizenship.

While not a part of the forces, army cadets are trained, administered and equipped by the army. Cadet training and administration are carried out by a group of officers of the reserves and civilian instructors totalling 2,400. Overall supervision is the responsibility of approximately 130 officers and men of the regular army.

General training is carried out by all cadets with their cadet corps during the school year. During the summer months over 6,000 selected cadets attend cadet camps conducted by the regular army in various centres across Canada. The emphasis during camp training is on the development of leadership and instructional abilities and on specialized training, such as first aid, survival training, signals, driving and citizenship.

To many boys this army cadet participation is their first exposure to a disciplined organized life. The success of the programme can be measured in part by the increasing number of requests to establish more cadet corps as the population of our country increases. We are presently operating under a ceiling of 75,000. I might add, Gentlemen, that one cannot fail to be enthusiastic after seeing these boys at their work.

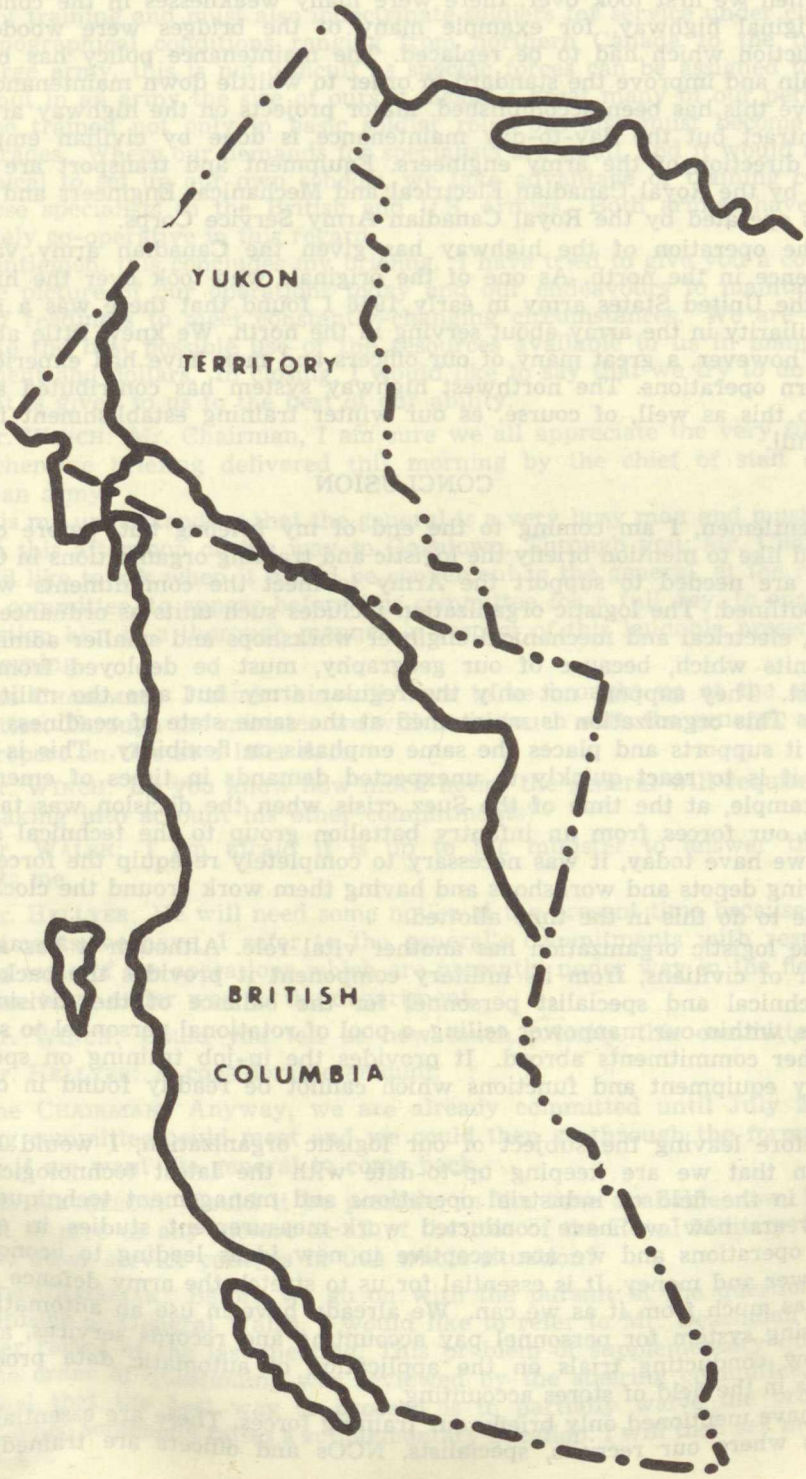
NORTHWEST HIGHWAY SYSTEM

There is an additional commitment in Canada which does not fit into the preceding headings but I believe deserves mention. It is the northwest highway system.

The army operates the Canadian portion of the Alaska highway, through a military organization known as the northwest highway system. In it there are some 57 officers and 352 men, plus a force of some 655 civilians, all in year-round employment. The annual direct cost to the army is some $11,900,000.

The portion of the highway we operate runs from a point about 100 miles north of Dawson Creek, B.C. to the Alaska-Yukon border, and includes a cut-off road from a point in the Yukon at mile 1016 north of Dawson Creek, to

Haines, Alaska, on the Pacific coast. There is a government-to-government agreement with the United States to keep the main road open for U.S. military traffic to Alaska and at the standard which existed at the time we took it over.



8. Northwest Highway System

In addition we have an annual undertaking with the U.S. army for snow clearing on the Haines cut-off to give access to an oil pipe-line pumping-station which is operated by the U.S. army.

When we first took over, there were many weaknesses in the concept of the original highway, for example many of the bridges were wooden-pile construction which had to be replaced. The maintenance policy has been to maintain and improve the standard in order to whittle down maintenance cost. I believe this has been accomplished. Major projects on the highway are done by contract but the day-to-day maintenance is done by civilian employees under direction of the army engineers. Equipment and transport are maintained by the Royal Canadian Electrical and Mechanical Engineers and transport is operated by the Royal Canadian Army Service Corps.

The operation of the highway has given the Canadian army valuable experience in the north. As one of the originals who took over the highway from the United States army in early 1946 I found that there was a general unfamiliarity in the army about serving in the north. We knew little about it. Today however, a great many of our officers and men have had experience in northern operations. The northwest highway system has contributed a great deal to this as well, of course, as our winter training establishment in Fort Churchill.

CONCLUSION

Gentlemen, I am coming to the end of my briefing but, before closing, I would like to mention briefly the logistic and training organizations in Canada which are needed to support the Army to meet the commitments which I have outlined. The logistic organization includes such units as ordnance stores depots, electrical and mechanical engineer workshops and smaller administrative units which, because of our geography, must be deployed from coast to coast. They support not only the regular army but also the militia and cadets. This organization is maintained at the same state of readiness as the forces it supports and places the same emphasis on flexibility. This is essential if it is to react quickly to unexpected demands in times of emergency. For example, at the time of the Suez crisis when the decision was taken to change our forces from an infantry battalion group to the technical service group we have today, it was necessary to completely re-equip the force. Only by having depots and workshops and having them work around the clock were we able to do this in the time allotted.

The logistic organization has another vital role. Although it has a large number of civilians, from its military component it provides the back-up of the technical and specialist personnel for the balance of the division and it holds, within our manpower ceiling, a pool of rotational personnel to support our other commitments abroad. It provides the in-job training on specialist military equipment and functions which cannot be readily found in civilian life.

Before leaving the subject of our logistic organization, I would like to mention that we are keeping up-to-date with the latest technological advances in the field of industrial operations and management techniques. For some years now we have conducted work-measurement studies in all our larger operations and we are receptive to new ideas leading to economy in manpower and money. It is essential for us to stretch the army defence dollar, to get as much from it as we can. We already have in use an automatic data processing system for personnel pay accounting and records services, and we are now conducting trials on the application of automatic data processing systems in the field of stores accounting.

I have mentioned only briefly our training forces. These are essentially the schools where our recruits, specialists, NCOs and officers are trained. You

will appreciate that an army of our size, with its need to achieve a high state of readiness for a diversity of commitments, ranging from operations on a nuclear battlefield to the provision of a survey specialist for Nigeria, requires a complex training organization. This organization must conduct many different forms of training and must also indoctrinate soldiers for service under climatic and topographical conditions ranging from northern Canada to the tropics. In a large army, this is not difficult as specific forces can be assigned to such tasks, but in an army the size of ours it means a great many of our personnel must be trained not only in basic soldier roles but also must become jacks of all trades. Where our demands for specialists are small, and it would not be economical to set up our own schools, we take advantage of training courses for these specialists in the British and U.S. armies. Both armies have been extremely co-operative in this regard.

Gentlemen, this concludes my briefing. I have tried to give you a comprehensive picture of our operations today and our endeavours to maintain our state of readiness to meet constantly-changing circumstances. We are trying to make the best possible use of the resources available to us in manpower, equipment and dollars. In closing, I would like to say that we try to do every job that is given to us to the best of our ability.

Mr. WINCH: Mr. Chairman, I am sure we all appreciate the very full and comprehensive briefing delivered this morning by the chief of staff of the Canadian army.

It is my understanding that the general is a very busy man and must leave Ottawa this afternoon on his way to Gagetown. Through you, Mr. Chairman, I should like to ask when it would be convenient to the general, at the request of this committee, to appear before this committee for a full day, to enable us to question him in a thorough manner in respect of this laudable presentation this morning.

The CHAIRMAN: I think this will have to be brought up at the steering committee. Through the minister we will be in touch with the general, and we could report on this at a later date.

Mr. WINCH: Do you know how much notice the general will require to be here, taking into account his other commitments?

Mr. WALSH: I am afraid it is up to the minister to answer that, he commits me.

Mr. HELLYER: He will need some notice at the present time because of the commitments we have. I refer to the general's commitments with respect to visiting some of the operations which are presently under way in the field and those we have under way in the department.

Mr. WINCH: Could you tell us how much priority this committee has?

Mr. HELLYER: A considerable amount.

The CHAIRMAN: Anyway, we are already committed until July 23. The steering committee could meet and we could then go through the formal procedure if we want the general to come back.

Mr. MATHESON: Would it be possible, in the time available now, for the general to give us any picture at all of the role of the Royal Military College and the other service colleges in this whole situation?

The CHAIRMAN: Before we go on with the pursuit of the questioning of the minister or General Walsh, I would like to refer to Mr. Deachman's point of order raised at the last meeting. This problem of supplementary questions and the order of questioning was reviewed by the steering committee, and I now feel that the best way to proceed is to partially waive the procedure except when somebody raises a supplementary question. I will then ask members

who have already given their names if they have questions in the same field, and if they have, they will proceed with their questions. I will then allow the member who asked the supplementary question to proceed with his questioning. We will try to cover one question at a time as much as possible so that we can cover in a better way the various aspects of the items we are discussing.

Mr. Walsh, could you proceed with the answer to the question put by Mr. Matheson?

Mr. SMITH: On a point of order, Mr. Chairman, do you think it would provide a little more orderliness if, for instance, the chairman called the section as a general guide but not as a firm rule? For instance, General Walsh's statement is broken down very neatly into various compartments or various sections. It might be more useful for the committee if the chairman asked the committee if they wanted to start their questions by asking the minister questions on the section of the statement that dealt with the North Atlantic Treaty Organization, for instance. When that section was finished we could move on to the various other ones. Perhaps that would give some guidance from the Chair to the committee so as to keep this more orderly.

The CHAIRMAN: This was considered, but as the question put by Mr. Matheson was not covered at all in the general statement, it would be difficult to put this into practice.

Mr. SMITH: It is simple. His question would come at the end.

The CHAIRMAN: Then there would also be questions of a general nature. We have reviewed all of this, and for the time being it is felt that possibly we could proceed in this way for a few more meetings and then we might have to go through certain specific fields of questioning.

Mr. HELLYER: May I answer the question put by Mr. Matheson because, as you know, the colleges are now tri-service and I am tri-service.

I think it might be useful, in view of the considerable interest in the service colleges, if, at a later meeting, the committee asked that the director be brought to give a brief statement in respect of the service colleges and answer any questions that you would have in respect of them at that time. As you know, it is quite a comprehensive specialized field, and I am sure that if you are interested in this subject it will be valuable to you and to other members of the committee to have some statement on it.

Mr. MATHESON: It seems to me it is very desirable, and if we could have the agreement of the committee that this should be done, it would be one of the most useful meetings the committee would have.

The CHAIRMAN: I will refer this to the steering committee to try to work it into our program.

Mr. WINCH: Mr. Chairman, I do not think it is possible in only ten minutes to start any questioning of General Walsh on his presentation, but may I have your permission to direct a question to the minister concerning something which I think requires clarification. What are the views of the minister with regard to the work, operation, responsibilities, and power of this committee? In other words, I think it is now time, since we have ten minutes left, to find out directly from the minister in what position as minister, he places this committee. We have now had a number of meetings and I think they were very worth-while meetings and questions, but I would like to know, in view of the repeated statement of the minister that he has a number of policy matters under consideration, before decision is made by himself or the government, whether what he has in mind will be submitted to this committee for its consideration and recommendations? Are we to be left in possession of the number of matters which have been mentioned at the past four meetings by the minister, or are we to be presented with a *fait accompli?*

I think it is time now, in view of the fact that we have had a number of meetings, to learn from the minister directly what he considers to be our responsibility and power, and that we should be told whether we are to be just a questioning committee or whether we are to be presented with a *fait accompli,* and whether this committee will be given the decency of being asked if we have any recommendations to make.

Hon. PAUL T. HELLYER (*Minister of National Defence*): Mr. Chairman, my attitude towards the power and responsibility of this committee is that of complete acceptance of its power as set out in the resolution which was passed by the House of Commons. The terms of reference are very clear and I would not attempt to elaborate on them, either to enlarge them or to narrow them in any way.

Mr. WINCH: I want clarification, sir, that is all. May I then ask the minister if what he has just said means that in respect of what he has told us of certain reviews being made, for example, of frigates and so on, we will not be given a *fait accompli,* but that this committee will be taken into his confidence, and that our views will be considered before any policy decision is made by the government?

Mr. HELLYER: Mr. Chairman, in this country we operate under the system of responsible government. Under this system it is the responsibility of the minister of each department to make recommendations to the government, which if they are adopted, become the policy of the government for presentation to parliament. I would not wish in any way to abrogate this system.

In respect of the particular projects that you are referring to, decisions on some of them will have to be taken before this committee concludes its deliberations, unless it concludes them more quickly than I would expect. Other decisions of a long-range nature will not of necessity be taken until some time later when, perhaps, this committee will have concluded its deliberations and will have had a chance to make recommendations to the government through its reports in the House of Commons.

As I stated earlier, any recommendations or views that this committee makes through its report to the house will be considered by the government and by the department in the course of its reviews. I cannot, however, change, nor would you wish me to change long established principles under which a system of responsible government should operate.

Mr. WINCH: I would not ask you to do that, but may I ask now, in view of your statement that certain decisions will have to be made by yourself as to recommendations to the government before this committee can make a report, if you would take under consideration advising the chairman of this committee what those policy decisions are, so that, perhaps, this committee could rearrange its order of business to give consideration to those matters which you think require urgent attention?

Mr. HELLYER: Well, Mr. Chairman, if this committee wishes to discuss any particular subject, it is within its competence to so decide.

Mr. WINCH: Would you advise us about those matters of early procedure?

Mr. HELLYER: It is not within my jurisdiction to advise the committee as to the course which it should take, nor could I present to the committee all of the subject matter which is presently under review.

Mr. WINCH: Does that not have a tendency to make a little bit of a farce of this committee?

Mr. CHURCHILL: Mr. Chairman, this obviously is not a committee to determine policy for the government. This is redundant. The other day in the house the question was asked of the minister whether he would refer to the committee the question whether or not the frigate program of the navy was

going ahead. He said he would not refer that problem. If he would not refer that I doubt whether he would refer any other problem. We might just as well proceed with what we are doing now which is gaining information and the hope is that this information will get across to the public. Of course, we are not charged with determining policy.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Recommendations as to policy?

The CHAIRMAN: Order. May I say a word. It seems to me we have to receive some information before we are in a position to make recommendations. Some problems have been raised by members this morning. There is a steering committee. We have received our orders from the house and not from the minister. Our orders of reference are contained in Minutes of Proceedings and Evidence No. 1. We have to proceed according to the orders we receive from the house. It seems clear to me, as I said in my opening statement, that we are here to study and review future and present defence policy, and if this committee decides we have to study certain aspects of this policy immediately, after consultation with the steering committee I will report our conclusions and we will be in a position to do as we please; we have been ordered by the house to do so.

I would not like the minister to commit himself to any policy this morning in answering those questions until we on the steering committee have reviewed the problem. Then, in consultation with the minister, we could proceed to make recommendations as to how we should proceed in respect of the problems raised this morning.

Mr. WINCH: Mr. Chairman, I know the terms of reference. Perhaps I did not put it in the right way. What I am asking is this: in view of the information which has been given us by the minister, would he indicate to us—and I imagine he has the absolute right and responsibility to do it—whether there are any phases of defence in all its departments that he thinks he would like to have early consideration of by this committee and a report thereon? I think that is a fair question and I believe that this is completely within our power, if the minister is prepared to do it. Is he?

Mr. HELLYER: In my opening statement I mentioned some of the major matters presently under review. If this committee wishes to consider those early in its deliberations, it is within its power to do so.

Mr. MCMILLAN: There is nothing to prevent us making an interim report on any aspect, is there?

Mr. WINCH: I am asking basically, will the minister take us more into his confidence on these matters?

An hon. MEMBER: I suggest we take the minister more into our confidence too.

The CHAIRMAN: It is half past twelve and this committee stands adjourned until Tuesday morning at 10.30.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 6

TUESDAY, JULY 16, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Air Marshal C. R. Dunlap, Chief of the Air Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29153-4—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, July 16, 1963.
(7)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch.—(23).

In attendance: The Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; and Air Marshal C. R. Dunlap, Chief of the Air Staff.

The Chairman called the meeting to order; and he tabled the printed record of the *Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, Eighty-Eighth Congress, first session (parts 1-6 inclusive)*.

Ordered,—That the above-mentioned documents be identified as *Exhibit No. 1.*

The Chairman also tabled a list of *Abbreviations used in the Department of National Defence.*

Agreed,—That the above-mentioned list be printed as Appendix "A" to today's Evidence.

Air Marshal Dunlap read the submission prepared on behalf of the Air Force. During that presentation a number of slides were shown; reproductions of some of those slides are included in the evidence, as closely as possible, to the points of initial reference.

The Minister and the Air Marshal were questioned.

During the questioning, the Minister read a brief statement respecting the release of information concerning the threat to the North American Continent.

The Chairman mentioned that the Committee would be leaving today to visit NORAD Headquarters at Colorado Springs.

At 12:40 p.m. the Committee adjourned to the call of the Chair.

E. W. Innes,
Clerk of the Committee.

29153-4—1½

EVIDENCE

TUESDAY, July 16, 1963.

The CHAIRMAN: Gentlemen, I see a quorum. This morning we shall have a presentation by Air Marshal C. R. Dunlap, Chief of the Air Staff, R.C.A.F. Before calling upon the Air Marshal, I would like to file as exhibit No. 1 before this committee the department of defence appropriations for 1964; hearings before a subcommittee of the committee on appropriations of the house of representatives, 88th congress, first session. This is in answer to a request made by members of this committee at an earlier meeting.

EXHIBIT 1: The Department of Defence Appropriations for 1964; copy of proceedings of appropriations subcommittee of 88th congress.

Mr. FAIRWEATHER: How many volumes are there, Mr. Chairman?

The CHAIRMAN: There is only one volume here.

Mr. SMITH: I understand there are five volumes, actually, Mr. Chairman.

The CHAIRMAN: There is only one which has been given to us. However, if members feel there are others which would be useful, we might request them also. Do you know if they would be useful to us, Mr. Smith?

Mr. SMITH: Well, some of the other volumes would be of use to the committee, yes. I think, if possible, the committee should have the whole five volumes of the hearings.

The CHAIRMAN: We shall follow it up then and request the five other volumes.

I would also like to file as *Appendix A* to today's evidence a list of Abbreviations used in the Department of National Defence. This would be very useful for members of the committee at future meetings.

Mr. SMITH: Does it include the ball park figures?

The CHAIRMAN: I am sorry, not yet. This will be printed as an appendix Is that agreed?

Agreed.

Mr. MCMILLAN: Could you not file the material used in connection with NATO, the army, and the navy as well?

The CHAIRMAN: I think it covers everything, NATO, army, navy and air force.

Perhaps Air Marshal Dunlap would now proceed with his presentation, and might I say that the minister will be with us at 11:15.

AIR MARSHAL C. R. DUNLAP (*Chief of the Air Staff, R.C.A.F.*): Mr. Chairman and gentlemen, I welcome this opportunity to appear before you today. The brief which I am about to present will last about 60 minutes. It will describe the role of the R.C.A.F. and then the manner in which we perform our assigned tasks.

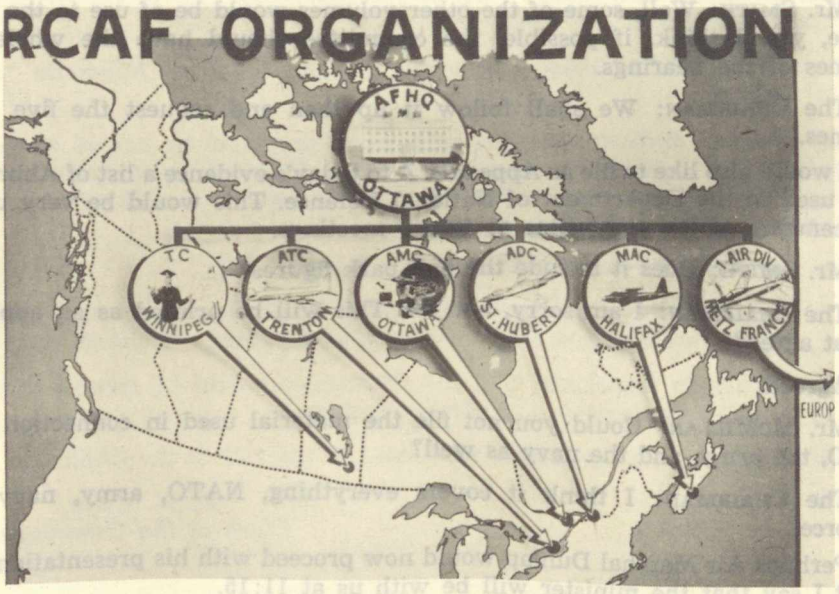
The roles performed by the R.C.A.F. stem principally from Canada's international commitments, which are summarized in Canadian defence policy as follows:

—to contribute to the defence of the Canada/United States region
—to contribute, as a member of NATO, to the defence of western Europe and the north Atlantic;
—to assist the United Nations in emergency actions.

All these commitments have as their primary objective the maintenance of world peace, which in turn depends in large measure upon the maintenance of an adequate military capability. It follows that all operational components of the R.C.A.F. must be ready in concert with the forces of other allied countries to meet the most demanding task—deterrence of all out war.

In line with Canadian defence policy, the R.C.A.F. has been assigned responsibility for the provision of:

—forces for the air defence of north America;
—forces for maritime operations in the Atlantic and Pacific oceans;
—forces for the defence of western Europe;
—airlift support for the Canadian armed forces at home and overseas;
—forces for, and operation of, a national search and rescue service;
—forces and facilities for DND operations connected with civil defence. (These DND operations are known collectively as "survival operations");
—forces to participate in United Nations' operations and,
—training for personnel of the air forces of NATO and other countries.



1. RCAF Organization

To carry out these responsibilities the R.C.A.F. is organized on a functional basis, with—reading from right to left—one functional command in Europe, that is No 1 Air Division, and five functional commands in Canada, which are; Maritime Air Command, Air Defence Command, Air Materiel Command, Air Transport Command and Training Command,—all of which we normally refer

to by their initials. In addition, at this point, I might mention that any air officer in command of such a formation is called the Air Officer Commanding, which we abbreviate as AOC.

Before discussing these five commands, I would like to say a few words about NORAD, and its place in the Canadian scene. But first a word about the threat.

It is well known that the threat to this continent includes both manned bombers and ballistic missiles, all of which would be expected to carry nuclear weapons. Although the threat from ballistic missiles is already significant, and is increasing, it has developed much less rapidly than was expected a few years ago. Consequently the Soviet bomber force will continue to be the greater threat for several years to come, and will remain a serious threat even after it is surpassed in magnitude by the missile threat.

Within the state of the art today, an effective active defence against the manned bomber is both attainable and relatively economical; however, the only practical means of defence at this time against ballistic missiles involves such passive measures as dispersal, hardening, use of fall-out shelters and, of course, the provision of warning. A most significant aspect of today's threat is that it could materialize as a full-scale attack with only minutes of unmistakeable warning, and this situation is unlikely to improve. In the not too distant future we will also be faced with enemy satellites overhead in an operational role, and while it seems unlikely that these will replace other delivery systems, they will undoubtedly serve other important needs.

NORTH AMERICAN AIR DEFENCE

2. North American Air Defence

From the late 1940's, when it first became apparent that the Soviet air forces were developing a significant capability to attack North America, until 1957 Canada and the United States—while co-operating closely in the field of air defence—each maintained its own, fully autonomous air defence system. In 1957, however, it was mutually agreed that air defence of the Canada/United States region was a single, indivisible problem which could be adequately dealt with only by an integrated command.

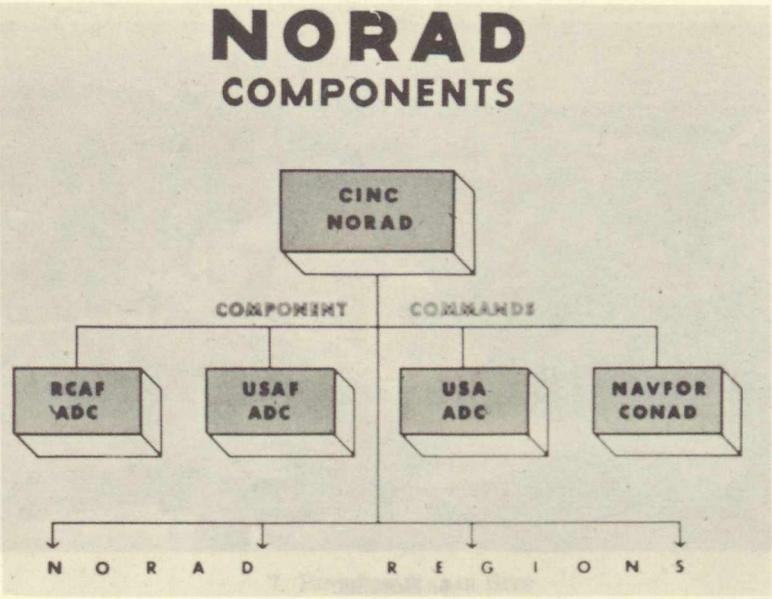
NORAD is an integrated command, responsible for operational control of all air defence forces directly involved in what has become known as the "aerospace" defence of Canada and the United States. These forces include interceptor squadrons, ground-to-air missile squadrons, radar and other sensor systems and operational control centres. The commander in chief is responsible equally to the governments of Canada and the United States, through the Canadian chiefs of staff committee and the US joint chiefs of staff respectively. The total area of the North American air defence command is divided into air defence regions, each with an operational command post as its regional headquarters. Each region is divided into air defence sectors within which the commander is responsible for all air defence actions.

At each of the headquarters responsible for exercising control over significant forces or airspace of both Canada and the United States, the staff of the headquarters is composed of both Canadian and United States officers, and the commander and his deputy are not from the same country. There are some 400 R.C.A.F. officers and men in NORAD regional and sector headquarters in the United States. In the case of the northern NORAD region, with its headquarters at North Bay the commander in an R.C.A.F. officer. He is responsible to the commander in chief of NORAD for exercising operational control over all Canadian and United States forces operating within his region of responsibility.

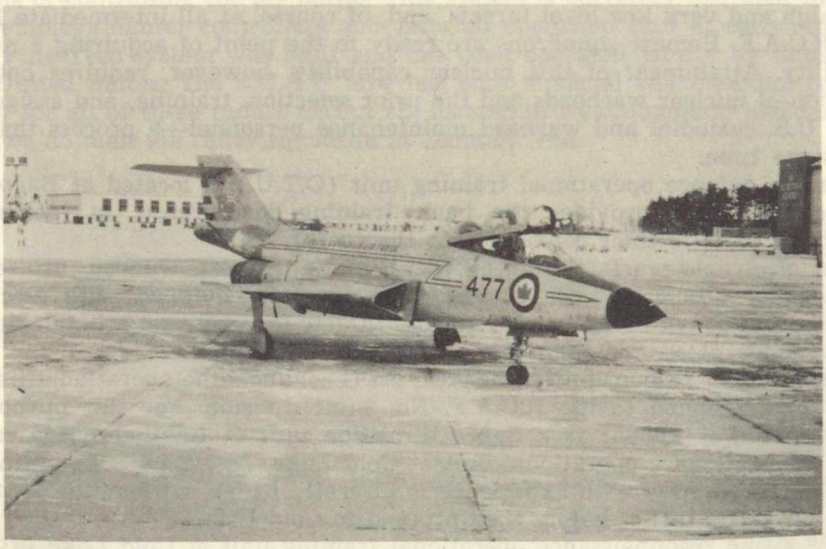
AIR DEFENCE COMMAND

3. ADC Organization Chart

The AOC ADC, whose headquarters is located at St. Hubert, Quebec, has as one of his principal responsibilities the administration, training and support of the R.C.A.F. air defence forces assigned to NORAD. In this capacity the R.C.A.F. ADC is known as a component command of NORAD; the other NORAD component commands are U.S.A.F. air defence command, U.S. army air defence command and U.S. naval forces, CONAD. The R.C.A.F. combat forces assigned to NORAD include five all-weather CF101B fighter squadrons.



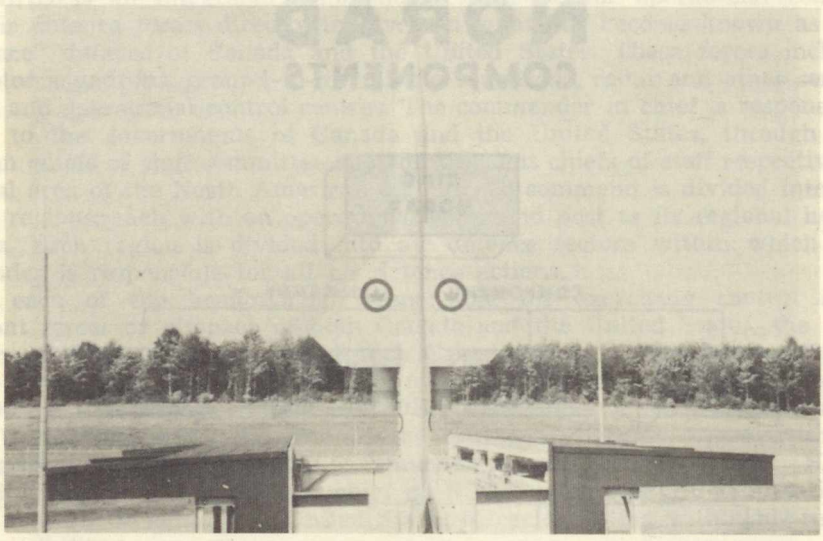
4. NORAD Components



5. CF101

One squadron is based at each of Comox, B.C., North Bay, Ont., Ottawa, Ont., Bagotville, Que., and Chatham, N.B.

The CF101B is a two-seat, supersonic, all-weather, day and night interceptor designed to carry a mixed load of air-to-air missiles—comprising two "Falcon" missiles (with high explosive warheads) and two nuclear-tipped rockets.



6. BOMARC

To complement these manned interceptors, a Bomarc B surface-to-air missile squadron is located at each of North Bay, Ontario, and La Macaza, Quebec. The Bomarc B in its latest operational trials has proved to be a highly reliable and effective weapon, with unique capabilities against both very high and very low level targets, and, of course, at all intermediate levels. Both R.C.A.F. Bomarc squadrons are ready to the point of acquiring a nuclear capability. Attainment of this nuclear capability, however, requires both the provision of nuclear warheads and the prior selection, training, and assignment of the U.S. custodial and warhead maintenance personnel—a process that will take some time.

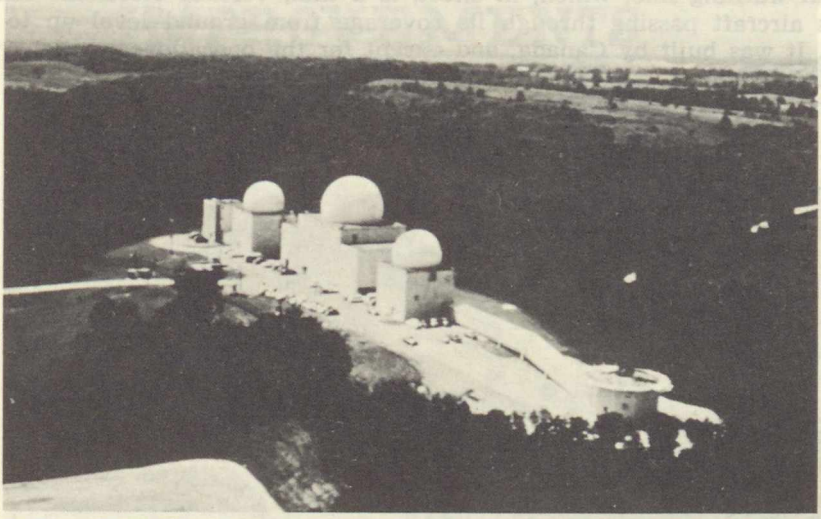
An air defence operational training unit (O.T.U.) is located at Bagotville, Quebec. This unit provides the basic training for aircrew in tactics and procedures prior to their conversion to the CF101.

An electronic warfare unit (E.W.U.) at St. Hubert, Quebec, utilizes the operationally obsolescent CF100 and C119 aircraft equipped with electronic jammers, and provides the conditions and targets for exercising the air defence system under electronic jamming conditions.

As a further responsibility, the AOC ADC conducts the operational training of aircrews assigned to the R.C.A.F. No. 1 air division. For this purpose he operates what is known as a Sabre transition unit at Chatham, N.B., and a strike reconnaissance operational unit at Cold Lake, Alta. The Sabre transition unit provides aircrew with experience in aircraft of high subsonic performance and in low-level tactics before they proceed to Cold Lake.

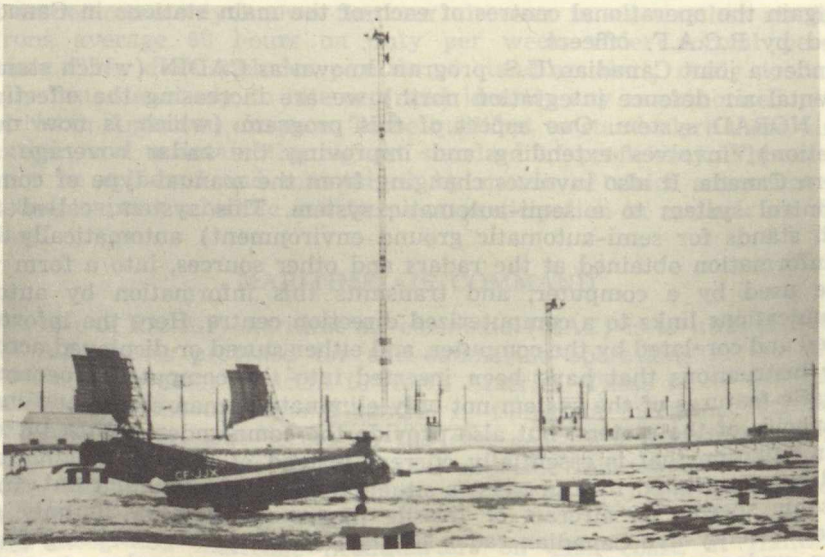
The strike reconnaissance operational training unit at Cold Lake provides aircrew and ground crew training on the CF104 and a large part of this program is devoted to training aircrews in low level navigation and bomb delivery techniques.

In air defence the radars, communications, and command and control facilities which provide the necessary warning, surveillance and control capabilities are known collectively as the "ground environment". The Canadian portion of the NORAD ground environment, most of which is now operated by the R.C.A.F. ADC, embraces three separate warning and surveillance systems. The first system is located generally in the southern area of Canada



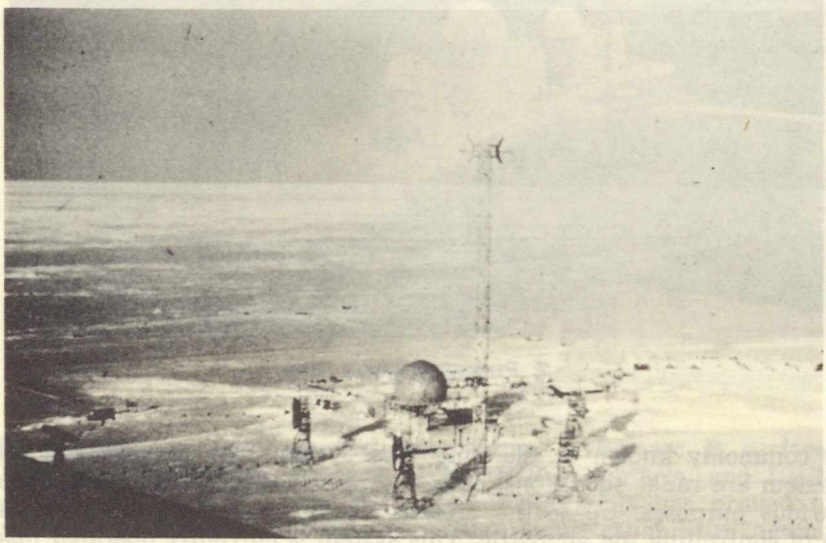
7. PINETREE RADAR SITE

and is commonly known as the Pine Tree system. The major components of this system are radar squadrons, each equipped with a variety of large radars for various purposes. Up to the present, these squadrons have provided the means of controlling the air battle. This system is currently operated manually and employs fighter controllers and assorted operation staff at each radar site. The Pine Tree system was built and has been operated jointly by Canada and the United States. The R.C.A.F. now has both financial and manning responsibility for all of these radars except six located in Newfoundland and Labrador, and we do man the radar squadron at Gander, Nfld.



8. RADAR—MID-CANADA LINE

North of the Pine Tree system is the mid-Canada line. This line is a tractical warning line, which, in effect, is a thin, vertical electronic fence. It detects aircraft passing through its coverage from ground level up to great height. It was built by Canada, and except for the operations positions which are filled by the R.C.A.F. service personnel, the line is maintained and operated for the air force by civilian contact.



9. RADAR—DEW LINE

North again of the mid-Canada line, on the Arctic coast, is the distant early warning, or DEW line built by the United States. This is a composite line combining both heavy rotating radars, similar to those employed in the Pine Tree system, and a Doppler radar fence similar to that on the mid-Canada line. Here again the operational centres of each of the main stations in Canada are manned by R.C.A.F. officers.

Under a joint Canadian/U.S. program known as CADIN (which stands for continental air defence integration north) we are increasing the effectiveness of the NORAD system. One aspect of this program (which is now nearing completion), involves extending and improving the radar coverage across southern Canada. It also involves changing from the manual-type of command and control system to a semi-automatic system. This system, called SAGE (which stands for semi-automatic ground environment) automatically translates information obtained at the radars and other sources, into a form which can be used by a computer, and transmits this information by automatic communications links to a computerized direction centre. Here the information is sorted and corelated by the computer, and either stored or displayed according to the instructions that have been inserted into the computer program. The automatic features of the system not only eliminate human errors and increase the capacity of the system, but also provide the commander with a picture of the air situation that is essentially current instead of several minutes old. It should be appreciated that in today's situation minutes are important since, at supersonic speeds, an aircraft or missile moves many miles in only a few minutes. Twenty-five Canadian radar sites are in the process of being SAGE'd, and an underground SAGE command and control centre close to R.C.A.F.

10. Air Defence Improvements

station North Bay is now nearing completion. The slide on your left is an artist's conception of this installation. The structure, which lies in the depth of the solid rock formtaion, will house the headquarters of both northern NORAD region and the Ottawa SAGE sector.

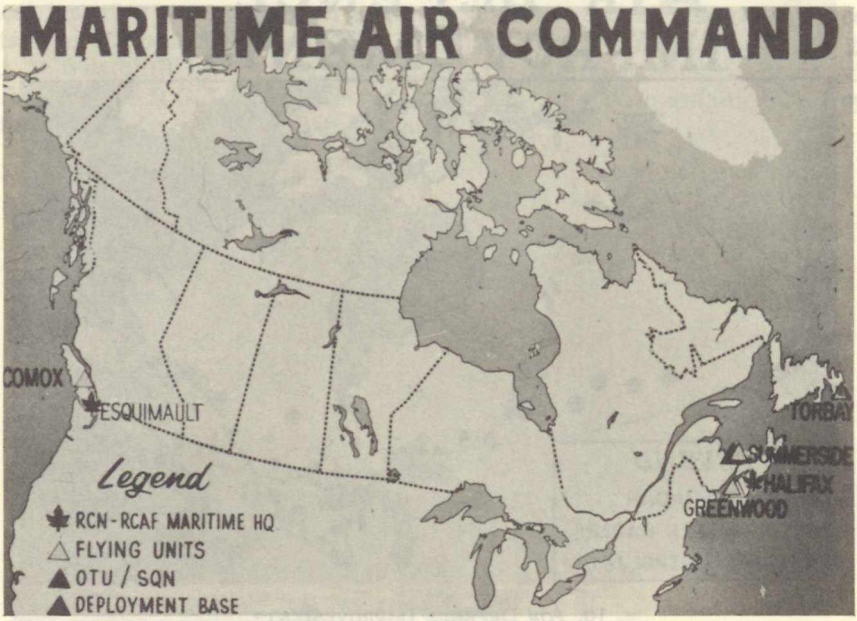
In addition to these ground environment elements for defence against the manned bomber threat, NORAD now has reporting to its HQ command post a rapidly expanding detection and tracking system which keeps track of, and identifies, every satellite or other object orbitting the earth. Some of the facilities in this system are located in Canada, and the R.C.A.F. is participating in their operation.

It is not commonly known that our aircrews in all-weather air defence squadrons average 60 hours on duty per week under normal peacetime conditions. This duty includes periods of standing alert, ready to take off virtually instantaneously to intercept and identify any unauthorized penetration of North American airspace. To be qualified to stand alert these aircrews must attain and maintain the highest standard of proficiency. This standard can only be achieved and maintained by means of strict adherence to an exhaustive training schedule and frequent participation in realistic air defence exercises.

MARITIME AIR COMMAND

The role of R.C.A.F. maritime air command (MAC) is to train and support the R.C.A.F. forces provided for anti-submarine operations in the Atlantic and Pacific ocean-areas adjacent to North America. These forces are assigned in peacetime, to the operational control of Canadian maritime commanders, Atlantic and Pacific. Our forces on the east coast are earmarked, however, for assignment in wartime to the NATO supreme commander Atlantic (SACLANT). The threat which these forces are intended to counter was covered in the brief presented by the CNS.

The integrated maritime headquarters on each coast, at Halifax and Esquimalt, exercise operational control over both R.C.N. and R.C.A.F. forces;



11. MARITIME AIR COMMAND

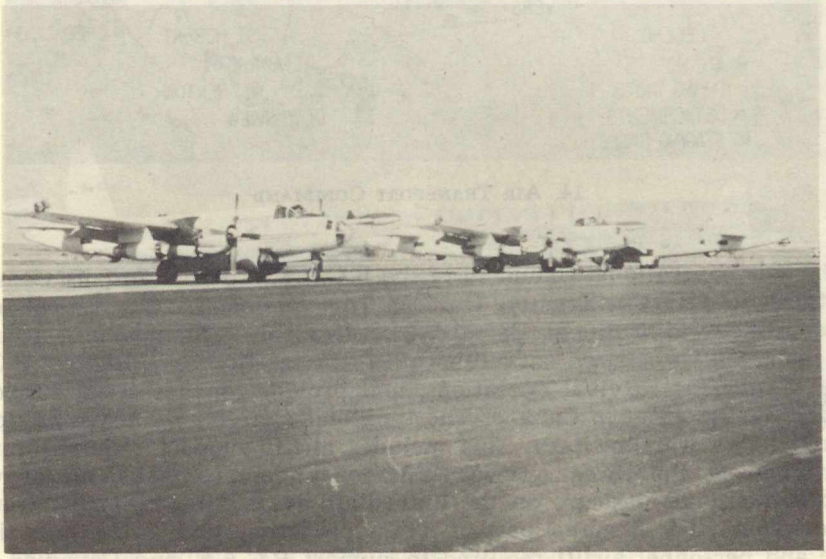
consequently the maritime commander and his deputy are from different services, that is, from the Canadian navy and from the R.C.A.F. In peacetime, the maritime commanders on both coasts are operationally responsible to the chiefs of staff committee. However, in wartime the Canadian maritime commander, Atlantic, is additionally designated as a subordinate commander of the NATO allied command, Atlantic and becomes operationally responsible to

12. ARGUS

SACLANT for anti-submarine operations on the high seas. The Canadian maritime commander, Pacific, while remaining under national control in wartime, will co-ordinate his operations closely with the United States navy commander-in-chief Pacific (CINCPAC).

On the east coast our maritime air command maintains three maritime patrol squadrons equipped with Argus aircraft. Two of these squadrons are based at Greenwood, Nova Scotia and the third is at Summerside, Prince Edward Island. Summerside is also the location of our maritime operational training unit where all new maritime aircrews are trained in the maritime role. R.C.A.F. station Torbay, Newfoundland, is maintained as a deployment base for use in adverse weather or other emergency conditions. On the west coast, at Comox, we have a fourth maritime patrol squadron.

Two maritime air command units—the squadron on the west coast and the operational training unit— are equipped with Neptune aircraft. The Neptune,



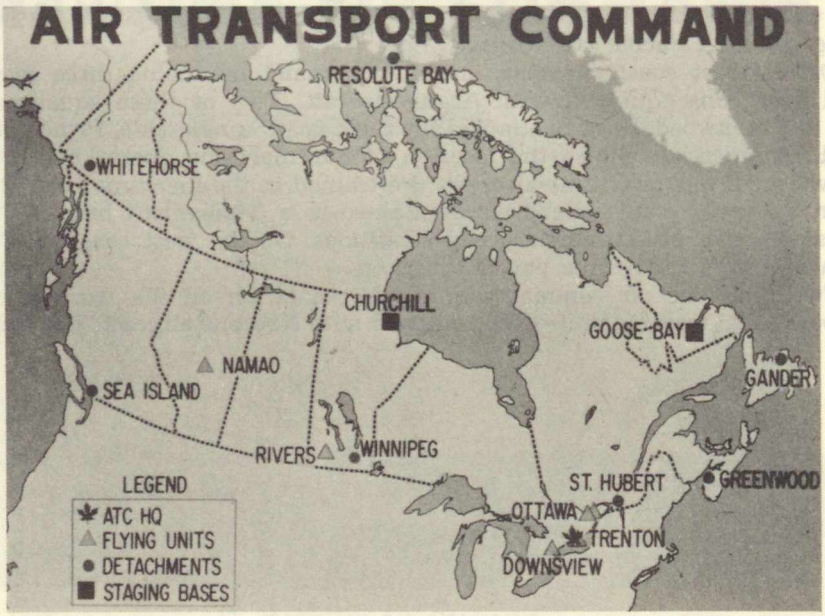
13. NEPTUNE

as you are no doubt aware, is an anti-submarine aircraft which is widely used throughout NATO. It is equipped with considerable electronic gear, and is fitted out to carry a variety of anti-submarine weapons.

As already mentioned the squadrons on the east coast are equipped with the Argus maritime patrol aircraft. The Argus is a Canadian built, long-range anti-submarine aircraft equipped with the latest electronic devices for the detection of hostile submarines. Its present armament embraces the full range of conventional anti-submarine weapons. This aircraft was designed specially for the maritime role, and has a range in excess of 5,000 nautical miles and a normal cruise endurance of twenty-four hours.

It is believed that both the Argus and Neptune aircraft will continue to be suitable for this role through the 1960s. However, it must be recognized that the weapons and equipments carried by these aircraft have their limitations. For this reason, as improved detection and localization equipments and weapons become available these must be given consideration.

AIR TRANSPORT COMMAND



14. Air Transport Command

The third operational command of the R.C.A.F. is Air Transport Command with its headquarters at Trenton, Ontario. This command is the air-carrier for the Department of National Defence, operates one reconnaissance squadron which conducts necessary surveillance in the arctic, co-ordinates R.C.A.F. responsibilities for survival operations, and provides such tactical support as is needed by the army in Canada. The type and quantity of ATC's equipment is geared to its wartime task. This includes airlift support required for implementation of the three services' emergency defence plans, all of which depend in no small measure on the immediate availability of airlift from air transport command. A major part of ATC's peacetime task is the provision of logistic and personnel airlift required to support R.C.A.F. and Canadian army units overseas.

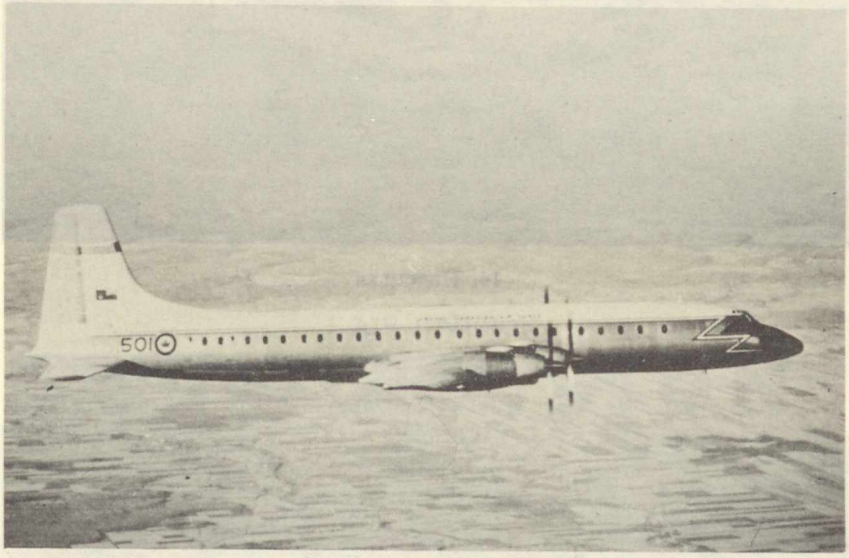
To carry out these tasks ATC has five squadrons—one long range transport squadron equipped with 12 Canadian built Yukon aircraft; two troop carrier squadrons of C119 aircraft, one of which has been augmented with four C130 Hercules; one special transport squadron with a variety of air transport types, and a reconnaissance squadron equipped with T33 aircraft and the famous, but now antiquated Lancasters. ATC operates a transport operational training unit and a field technical training unit at Trenton, Ontario, to provide conversion training for both air and ground crews. This command also administers the Canadian joint air training centre at Rivers, Manitoba, where a number of training courses, including basic helicopter flying training, are provided for air force and army personnel.

Under UN sponsorship, ATC operations extend to the Congo, Indo-China, the Gaza strip and now Yemen. In the Gaza strip, at El Arish, a small R.C.A.F. communications flight is maintained in support of internal UN commitments. This flight consists of Caribou and Otter aircraft, and provides the only local air transportation and aerial reconnaissance support available to the United Nations emergency force.

ATC provides a weekly airlift from Canada to El Arish and the Congo via Pisa, Italy. This airlift is provided primarily to support the Canadian components of the UN forces in the Gaza strip and the Congo, but it also carries other UN personnel and cargo on a "space available" basis.

Air transport command is also called upon from time to time to render assistance to civil authorities during peacetime emergencies, such as the evacuation of civil populations from forest fire and flood areas and the airlift of emergency relief supplies to disaster areas, both domestic and foreign. The most recent operation of this type was the evacuation of the populations of Hay River and Fort Simpson.

The four principal aircraft used by air transport command are—



15. YUKON

The Yukon, which is a long range, turbo-prop, heavy transport aircraft built by Canadair. This is the aircraft that is being used extensively to provide support for Canadian overseas forces, non-stop between Canada and Europe, carrying loads of up to 43 thousand pounds or 134 passengers.

Next, the Hercules, a long-range heavy transport aircraft built by Lockheed, and designed for the air transportation of troops and materiel, for delivery by parachute if necessary. These extremely dependable and versatile aircraft are used for the regular suppply of our Artic units, as well as being the carrier for large bulky equipment in Canada, and overseas when either operational or other circumstances dictate. During the annual Arctic re-supply operation in April of this year, approximately 160 passengers and 1,700,000 pounds of cargo were delivered to six weather stations largely by one aircraft, in a 12 day period. We are currently using the Hercules to airlift CF104 aircraft direct from the factory in Canada to our air division bases in Europe.

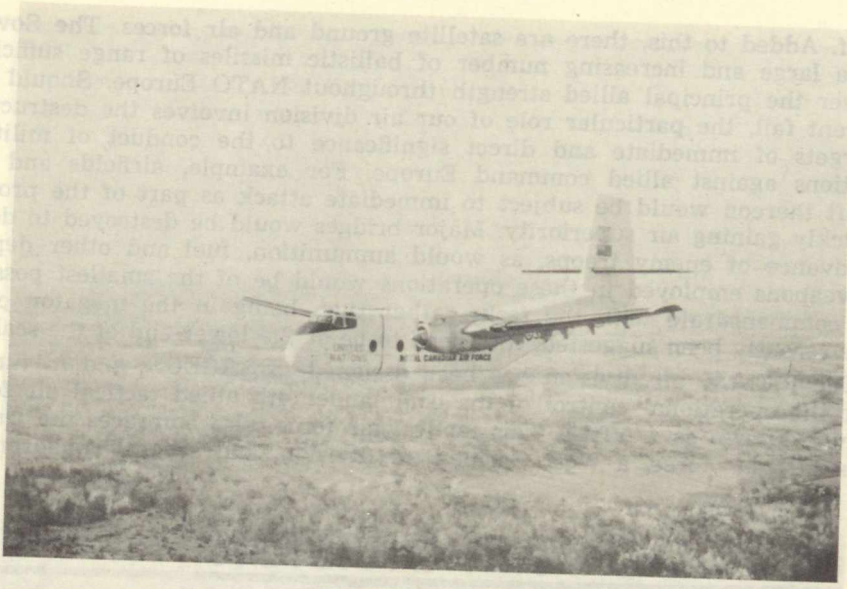
Then, there is the Cosmopolitan, which is a medium-range, medium capacity, turbo-prop aircraft built by Canadair and used domestically for a variety of purposes including special passenger flights.

And, finally, we have the Caribou, which was designed and built by DeHavilland of Canada. It is a strictly utilitarian twin-engine airplane, capable

16. HERCULES

17. COSMOPOLITAN

of carrying payloads of three tons or thirty-three troops, and is designed to operate from short, unimproved air strips. The upswept rear fuselage allows it to be readily loaded through large rear doors, which also permit air dropping of supplies.



18. CARIBOU

1 AIR DIVISION

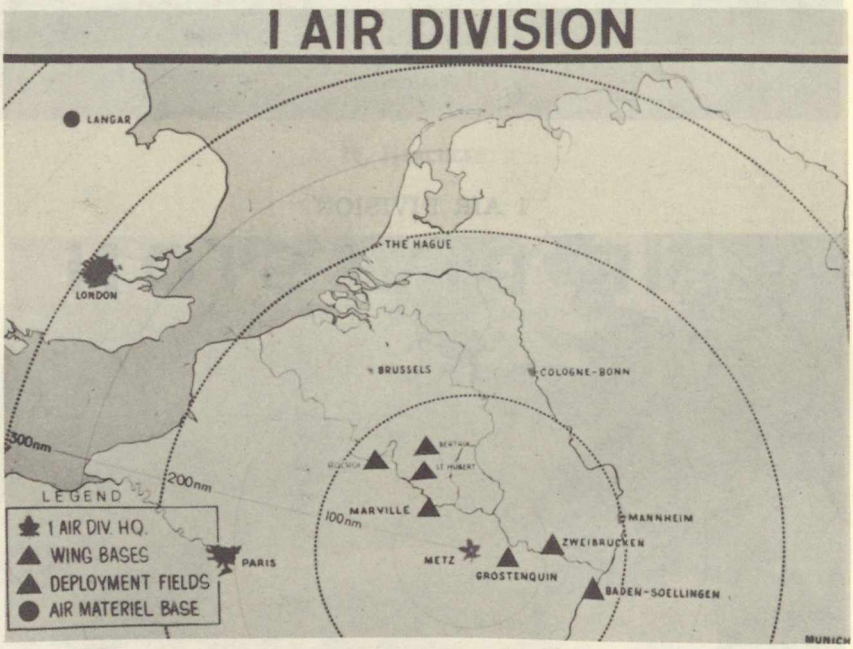
19. 1 AIR DIVISION

The fourth major operational role of the R.C.A.F., performed by 1 air division in Europe, is to contribute to the NATO deterrent in Europe and, should this deterrent fail, to contribute to the defence of western Europe.

The threat to this area is too well known to need much elaboration. There are many Soviet army divisions in East Germany and some in the other satellites—as well as several thousand tactical aircraft in direct support

thereof. Added to this, there are satellite ground and air forces. The Soviets have a large and increasing number of ballistic missiles of range sufficient to cover the principal allied strength throughout NATO Europe. Should the deterrent fail, the particular role of our air division involves the destruction of targets of immediate and direct significance to the conduct of military operations against allied command Europe. For example, airfields and the aircraft thereon would be subject to immediate attack as part of the process of quickly gaining air superiority. Major bridges would be destroyed to delay the advance of enemy troops, as would ammunition, fuel and other depots. The weapons employed in these operations would be of the smallest possible yield commensurate with the task; rather than being in the megaton class, as has recently been suggested, they tend to be at the lower end of the scale.

The R.C.A.F. air division has been assigned to SACEUR, and in turn is under the operational control of the commander 4th allied tactical air force, otherwse known as 4 ATAF. This tactical air force, also embraces the United States 17th air force, a West German air division, and several squadrons of

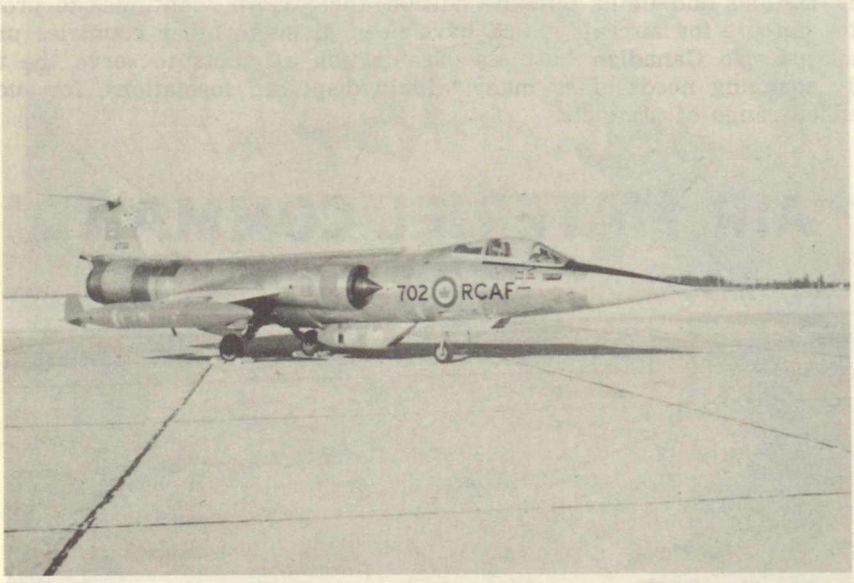


20. 1 Air Division Units

the French air force located in West Germany. Generally speaking, 1 air division headquarters and its four main wing airfields are located astride the French-German border. The headquarters at Metz and two of the wings, Marville and Grostenquin, are in France, while the two remaining wings are in Germany at Zweibrucken and Baden-Soellingen.

To provide for the annual continuation weapons training of its aircrew, the air division operates an air weapons unit, as a lodger unit at the NATO air weapons training installation at Decimomannu, Sardinia.

As you are aware, we are now in the process of re-equipping the air division squadrons with CF104 aircraft for employment in the strike reconnaissance role.



21. CF104

As I have indicated, in the strike role the squadrons would serve in a short-range, tactical capacity, attacking targets whose destruction would contribute directly toward minimizing an enemy's capability to support his front line formations.

As far as the reconnaissance role is concerned, the aircraft's equipments are such that it is capable of performing a limited reconnaissance role only. When the aircraft is to be used for reconnaissance, cameras are carried in a pod which can be fitted to the centre line of the aircraft in approximately 30 minutes.

Four squadrons have already been re-equipped with their new aircraft and, according to present plans, the last squadron will be reactivated early in 1964. However, it must be appreciated that, regardless of other factors, none of these squadrons can become operational in the strike role until they have their weapons, have completed the necessary training in conjunction therewith, and have successfully passed a formal tactical evaluation.

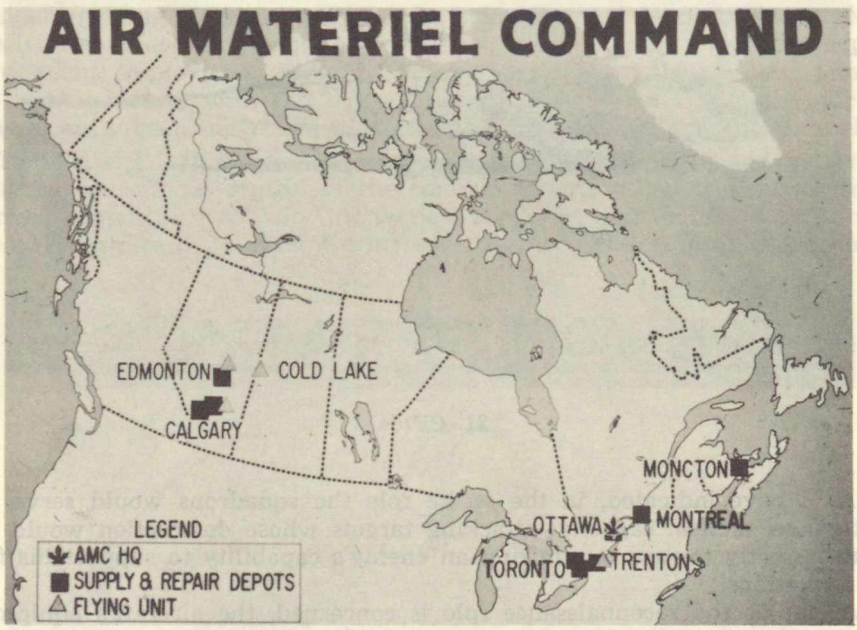
In the strike role, CF104 squadrons will be required to maintain demanding, continuous alert commitments. When not on alert status the crews will carry out rigorous operational training exercises to enable them to maintain the minimum standards required to retain their combat-ready status. These exercises are designed to simulate the navigation and bombing problems which they would experience during their assigned wartime missions.

AIR MATERIEL COMMAND

To support the operational commands there are two other commands. One of these is Air Materiel Command, with its headquarters at R.C.A.F. station Rockcliffe, Ont. The functions of AMC can be stated broadly as the procurement and distribution of materiel, plus the repair, modification and quality control of R.C.A.F. equipment. For these purposes AMC operates supply depots, repair depots and technical service units.

The AMC "supply" complex might be considered as one of Canada's largest wholesale businesses. Its principal customers are other R.C.A.F. com-

mands, stations and units; but, in addition, the R.C.A.F. continues to provide logistic support for aircraft which have been given to other countries under mutual aid. No Canadian business organization attempts to serve the constantly changing needs of so many widely dispersed formations, for such a diversified range of products.



22. Air Materiel Command

AMC has three general supply depots in Canada that occupy approximately three million square feet of warehouse space. In these depots more than one million line items and 100 million pounds of materiel are processed annually.

It will be obvious to you that a fast reacting, automated system is essential to stay abreast of this workload. To meet this requirement, AMC uses an IBM 705 electronic data processing system. All requisitions from R.C.A.F. units are despatched by teletype and automatically fed into the computor. The computor then does all of the routine tasks associated with reviewing the availability of stocks, and automatically orders the items required from the nearest supply depot, or other source.

As an addition to these present uses of computors at AMC the possible use of automatic data processing for centralized control of our entire inventory, including both unit as well as depot stocks, is under study.

Because the R.C.A.F. operates major formations on two continents, and across the full breadth of North America, a considerable portion of our inventory is—at any given time—necessarily tied up in transportation. We refer to this non-effective portion of our inventory as "pipeline". However, our recently increased air transport capability has had a marked effect in reducing the quantities required in these supply pipelines. For example, by airlifting the jet engines used in air division CF104s between the overhaul contractor in Canada and the user bases in Europe, we achieved a saving of 18 in the requirement for spare engines for a financial saving in this item alone of 5½ million.

23. Training Command

This brief and rather cursory review will, I hope, give you some feeling for the magnitude of AMC's task and the steps we are taking to increase its efficiency.

TRAINING COMMAND

The second support command is Training Command. The AOC, training command is responsible for all aspects of air and ground crew training in the R.C.A.F. up to but not including operational training.

The majority of our air training units are in the prairie provinces, while the ground training units are located in Ontario and Quebec. Training command headquarters is at Winnipeg, Manitoba.

After a period of indoctrination, selection and preflight training, including a few hours flying in Chipmunk aircraft, pilot trainees proceed to a basic flying training school, and receive some 160 hours on Harvard aircraft. The graduates of the FTS then proceed to an advanced flying school to achieve wings standard on the T33 Silver Star jet aircraft.

Radio/navigator training to wings standard is conducted by the air navigation school at Winnipeg. Advanced training of selected graduate radio/navigators is given at the central navigation school which is also at Winnipeg. These schools make use of the Beechcraft C45, known in the R.C.A.F. as an expeditor, and the rather ancient Douglas DC3, which we call the Dakota—both something less than ideal for this purpose.

In addition to meeting R.C.A.F. training requirements we have, since 1950, trained approximately 8,000 aircrew from eleven other NATO countries. The original NATO commitment was completed in January 1959 and a later commitment to train 220 pilots for the West German air force was completed later in the same year. Canada continues to provide training for approximately 75 aircrew each year under bilateral agreements with Norway and Denmark. Also, we are providing advanced training on Sabre aircraft to thirty Norwegian graduate pilots a year, and have recently undertaken the complete flying training of a small number of Nigerians up to instructor standard.

Recently the R.C.A.F. was authorized to procure a basic jet trainer, which we have named the "Tutor", to replace the Harvard in the flying training schools. The Tutor, designed and built by Canadair, has an altitude capability in excess of 40,000 ft. and a speed range from 65 to 400 knots. The first of these aircraft should begin coming off the production line early next year.

Our groundcrew personnel, who are and must be the solid foundation upon which any modern air force is built, receive their basic training at our manning depot, in St. Jean, Quebec. Here they are schooled in all of the basic knowledge and skills required by any airman regardless of his trade. From manning depot they proceed, according to their specialty, to one of the several specialist training schools at either R.C.A.F. station Clinton, Ontario (which specializes in the communications and electronics field) or Camp Borden, Ontario (which specializes in the trades associated with aircraft, engines and armament systems). To properly appreciate both the depth and importance of groundcrew training today one must first appreciate that, in the past 25 years, the technical complexity of the various equipments that we use has increased to an almost fantastic extent. We are able to operate these equipments effectively, efficiently and safely only because of the very thorough training we give to, and the high standards we demand from, our groundcrew personnel.

SEARCH AND RESCUE

24. SEARCH AND RESCUE ORGANIZATION

There are two other functions of the R.C.A.F. I would like to mention briefly. The first of these is search and rescue, which is both a national and international responsibility under ICAO (The International Civil Aviation Organization).

As I mentioned earlier the R.C.A.F. has the prime responsibility in the Canadian area for conducting and coordinating all search and rescue operations. The R.C.A.F.'s search and rescue responsibility embraces the provision of aid to aircraft and ships in distress, including coordination of the use of marine search and rescue facilities.

The Canadian area of responsibility has been divided into four regions in which search and rescue activities are coordinated through the various rescue coordination centres shown by the red triangles on the map.

For rescue purposes we now have a total of twenty-two specially equipped aircraft. This fleet will soon be modernized by the introduction of several twin-turbine Vertol 107 helicopters. This specialized force is augmented with aircraft from other sources, as required, for search operations.

25. VERTOL 107

The air force flies about 8,000 hours a year on search and rescue missions. In 1962, a total of 47 search operations was conducted, resulting in the survival of 97 individuals who might otherwise have perished.

R.C.A.F. AUXILIARY

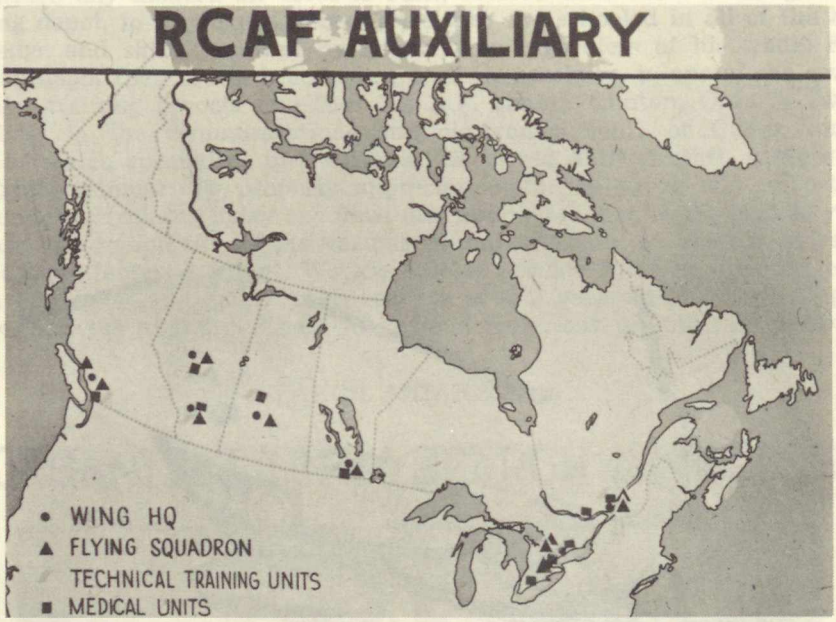
The R.C.A.F. auxiliary, which is the active element of the R.C.A.F. reserves, comprises 11 flying squadrons, and a number of medical and technical units, all under air transport command.

The flying squadrons are equipped with Expeditors (which are also used for a number of other purposes in the R.C.A.F.), and the internationally popular Otter designed and built by DeHavilland of Canada. These squadrons, as equipped, are ideally suited for short-range aerial communications and reconnaissance tasks, and they are being used regularly by air transport command for such purposes. To maintain proficiency, the personnel of these squadrons carry out prescribed weekly and annual training.

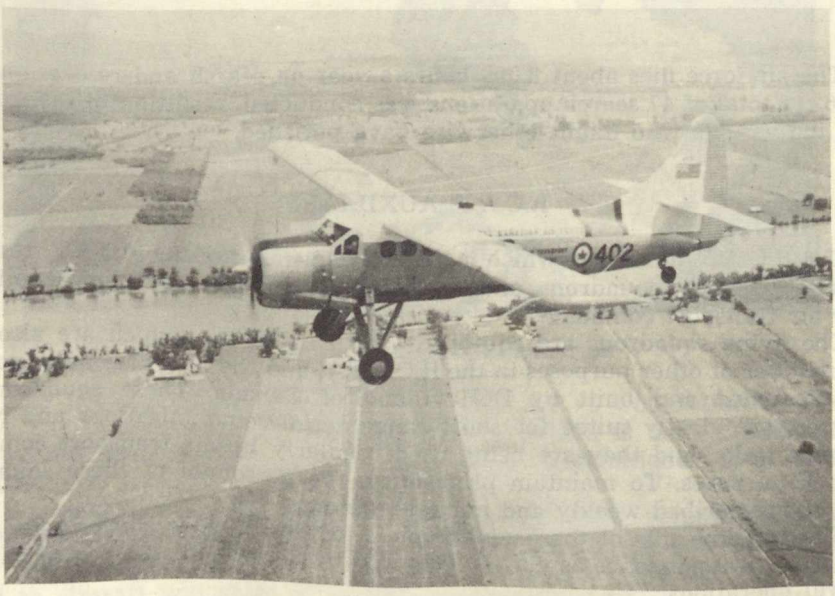
The wartime role of these squadrons is to provide such short-range airlift and aerial reconnaissance as may be required by the Canadian army in national survival operations.

I have now outlined for you all of the major activities of the R.C.A.F.

Now let us look briefly at the R.C.A.F.'s financial and equipment situation generally, and at the manner in which the R.C.A.F. uses the financial and other resources that the government makes available to us.



26. RCAF Auxiliary



27. Otter

BUDGET AND FINANCE

It is sometimes suggested that the Canadian armed forces are among the best paid, best fed and poorest equipped in the world. This is certainly a highly misleading and inaccurate description. If our armed forces enjoy a higher standard of living that the forces of certain other countries—and they unquestionably do—this is simply because Canadians in general enjoy a higher standard than the people of these same other countries. As for our equipment, speaking for the air force I must say that most of our operational aircraft are, at the present time, first class. We do, as I have pointed out, have some obsolescent and even a few obsolete aircraft in our inventory but this is unavoidable if we are to get an acceptable, useful life out of these very costly items, and also if we are to avoid peak expenditures on capital equipment that would far exceed our normal budget level. We are, however, quite properly concerned over the ever-increasing squeeze being applied to the funds available for equipment and plant replacement. This is caused, on the one hand, by the relentless increase in normal operation and maintenance costs and, on the other, by a progressively decreasing defence budget. Let me illustrate this with a few figures. In 1955/56 the R.C.A.F.'s budget was divided evenly between capital expenditures and recurring costs. The picture has changed since then. In 1956/57 the proportion was 44 per cent for capital and 56 per cent for recurring. In a gradual progression we find in 1962/63 and the current year that about 75 per cent was needed for operations and maintenance with only 25 per cent left for reequipment and capital outlays.

This persistent change in fund allocation has been due to many things. In addition to the factors already mentioned, during the past ten years the R.C.A.F. has had to operate (1) with progressively smaller budgets, (despite the declining value of the dollar), (2) with the acquisition of more and more complex equipment which is correspondingly, more expensive to operate and maintain, and (3) with the acceptance of more and more national and international commitments.

It could, of course, be misleading to compare one year against another in isolation, because we will always have some unavoidable variance in capital spending. For example, a CADIN program or a CF104 program can inflate the capital budget over a one or two year period. We have, therefore, taken the average spending in the various categories over the past five years and put them on the chart. We see that, even with the heaviest years of spending on CADIN and the CF104 included, an average of only 31 per cent went for capital. That we have been able to reserve even this percentage for capital has been due partly to the strides we have been able to achieve in logistic support operations, and other management improvements, and partly to the deferral to future years of necessary plant modernization or replacement. In summary, I do not mean to leave the impression that a 50-50 division of funds between capital and operating costs is essential, but you should be aware that something has to give if recent cost trends continue.

R.C.A.F. MANAGEMENT PRACTICES

The R.C.A.F. itself has always tried to manage its resources in a way which will economically achieve and maintain a sound military posture, capable of effective action in emergencies. Today our management practices are constantly being put to the test: first, by the variety and severity of possible military threats; second, by the rapid scientific and technological change which impacts very heavily on the R.C.A.F.; and last, but not least, by the necessity for restraint in making demands on the country's resources of dollars, scientific brains, and technological skills.

In the air force we have staff whose primary duty it is to keep informed

on the threat, on the state of the art (both in warfare and technology), and in the other areas of knowledge required to conceive and make sound recommendations on the kind of equipment which ought to be procured. In making recommendations these staffs look into all alternatives and examine carefully all aspects of the problem, including cost versus effectiveness and other factors which bear on the feasibility and wisdom of possible courses of action.

In managing the development and acquisition of our materiel and equipment we employ many of the most modern management techniques, including one known as "PERT" (which is a military adaptation of the so-called "critical path method", now so widely used by industry).

Finally when the "user" command receives a new weapons system, it is provided with a predetermined scale of manpower and materiel, and with instructions on operational, maintenance and management matters and techniques. These are, of necessity, all based on the experience of other "users" of the equipment (if any) adapted to our own situation and intended use, on the basis of our own best judgment. As you will realize, in some cases there may be little or no previous experience on which to base decisions concerning these matters, and in such cases some wrong forecasts are bound to be made. However, as first-hand operating experience is acquired, refinements in procedures and in the determination of requirements begin, and the new weapons system is brought to an optimum state of readiness and effectiveness as quickly as possible while at the same time adjusting the supporting resources, both direct and indirect, to achieve maximum economy.

Throughout, in developing both major decisions and the myriad of lesser administrative and operational implementing actions, we strive to keep our management practices as sound as possible. To this end, we critically examine our own experience, and that of other armed forces and industry, for ways and means of improving our efficiency. For instance:

> For many years we have devoted considerable effort to the education and training of our officers and NCOs in the practices and functions of management. For example, this summer we are introducing a senior officers management seminar as a means of emphasizing the importance of good management, and to disseminate current information on management improvement techniques.
>
> We provide special staffs to apply and promote the use, throughout the air force, of modern management improvement techniques. For example, we have a continuous methods-improvement and time-study program in being, which results in the tasks performed by over 25,000 of our working force being periodically scrutinized.
>
> We welcome constructive investigation by outside agencies, such as the Glassco commission, recognizing them as a valuable source of suggestions for our own constant efforts toward self-improvement.

Perhaps I could sum up in this way—there is usually a gap between what one strives for and what one achieves, and there is always room for improvement. Having said this, I feel I can truthfully state that the RCAF stands up well in any comparison with other air forces on the basis of effectiveness per man and per dollar spent.

And now, gentlemen, in my closing remarks I would like to emphasize few points. As I hope this briefing has shown, the role of the R.C.A.F. embraces a wide variety of operational and supporting tasks, all of which have as their primary purpose the maintenance of peace. However, recent technological advances in both weapons and delivery systems have made it possible for an enemy to mount an opening attack, with little or no warning, on a scale that could be catastrophic. For this reason all of our operational commands must be ready, at all times, to deter such attack. Indeed most of our units at home

and abroad are on the job 24 hours a day, day-in and day-out, throughout the year. This imposes heavy and constant demands upon our aircrew and support personnel, in their regular tasks associated with the maintenance of an operationally-ready posture. These peacetime tasks, in fact, are geared to and similar to those which might be expert under actual wartime conditions.

I think you will agree with me that the operational record of the R.C.A.F. so far has been the object of admiration internationally, and a source of pride to Canadians. The principal concern of every officer and man in the R.C.A.F. is to keep it that way.

THE CHAIRMAN: Mr. Winch.

Mr. WINCH: Mr. Chairman, I am certain we are grateful to the air marshal for his presentation. One could ask a vast number of questions. However, sir, may I ask two questions at this moment. In view of what he has said about early warning, can the air marshal give us the reasons why to a great extent our DEW line warning system is to be almost cancelled.

Mr. CHURCHILL: Mr. Chairman, on a point of order, here we go again, in respect of a document which is divided into sections, we begin perhaps half way through it. This was brought up at our last meeting. Why do we not start and take it section by section, thereby working our way through the document. With 24 of us here to ask questions in respect of this document, would it not be wiser if we started at the front and worked our way through it section by section?

The CHAIRMAN: I thought Mr. Winch was going to raise this question and that is why I allowed him to speak right away. I agree with Mr. Churchill that it might be preferable to go through it section by section.

Mr. WINCH: My first question is in relation to the first statement made. The first one is on the DEW line warning which most certainly is the first section.

The CHAIRMAN: What page is this on?

Mr. WINCH: My second question is on page 5.

The CHAIRMAN: The first three pages are on organization. Are there any questions on that section?

Mr. CHURCHILL: Yes, Mr. Chairman. On page 1 it is stated that the most demanding task of the R.C.A.F. is deterrence of all-out war. This is rather basic to a study of the role of the R.C.A.F. In the opinion of the air marshal or in the opinion of the minister who is now here, is it the basic philosophy of the air force planning that our air force is to act as a deterrent to all-out war, because the organization of our air division in Europe now, when it is fully equipped, is that of a nuclear deterrent force. Is that the concept we now have with regard to our air force?

The Hon. PAUL HELLYER (*Minister of National Defence*): Mr. Chairman, I think it certainly contributes to the total deterrent. As we have stated before, Canada's forces and commitments are contributions toward the total strength of the alliance, and in his regard they would be part of the total deterrent to all-out war.

Mr. CHURCHILL: May I ask this question: is it essential to add to the present deterrent force in the hands of the United States?

Mr. HELLYER: Mr. Chairman, that is a difficult question to answer, because you have to break the answer down into the strategic and tactical aspects. As has been stated before in this committee, it is pretty well agreed that the strategic deterrent is adequate and the plans for dispersing and hardening would make it adequate for the immediate future. There is, however, the feeling that the tactical aspect of the deterrent still could stand some additional strengthening.

Mr. BREWIN: At some time, would the minister give us more particulars in respect of that. This is not the first time he has told the committee there were deficiencies in the tactical support of NATO. I would be interested in knowing where such deficiencies are said to lie.

Mr. HELLYER: We might come back to this, but I believe in my opening statement I referred to the type of targets which were normally assigned to the tactical forces in Europe. They are in general those targets which would have an effect on the immediate outcome of a battle in the European area and would include those short range missiles which are directed toward central European targets.

Mr. BREWIN: In this deficiency in tactical nuclear resources, is there a lack of adequate tactical nuclear weapons and the equipment to deliver them in Europe?

Mr. HELLYER: In the opinion of the military leaders of the western alliance there is.

Mr. BREWIN: Can you give us any more detail on that?

Mr. HELLYER: Not at the moment.

Mr. WINCH: In order to get it clear, I am wondering whether we are to direct our questions in respect of policy to the minister now. I hope we will have the minister here at almost every meeting. I am wondering whether we should direct our questions now to the air marshal because he cannot be with us at every meeting. It is rather important to decide whether we are going to direct questions to the minister—and I have plenty if you follow that course—or whether we are going to direct them to the air marshal.

The CHAIRMAN: In the past we have directed questions both to the Minister and the main witness and I think we should proceed in this manner again this morning. Mr. MacLean, is your question related?

Mr. MACLEAN: Yes, it is, Mr. Chairman, I have one brief question. What is the approximate number of R.C.A.F. personnel engaged in other duties which are odd—and I use the word "odd" in the sense of being unusual—and which have not been enumerated here? I am thinking of such things as postings to staff colleges, air representatives abroad, air attaches and that sort of thing. Could you give us a rough figure?

Mr. DUNLAP: I would have to give a very rough figure; I have not a precise total in mind but I think upwards of 1,000 are involved in installations, courses and in those areas to which you have referred.

Mr. LAMBERT: Mr. Chairman, I would like to revert to the line of questioning developed by Mr. Churchill where you indicate the most demanding task of the air force is the deterrence of all-out war. On the other hand, since we are considering defence forces for Canada, what is your conception of the air force role with respect to defence of Canada and what proportion do you consider that should play in your over-all role?

Mr. DUNLAP: The forces that we have in Canada—and certainly those which are concerned with air defence—are playing their part in deterrent strategy in as much as they are concerned, amongst other things, with the protection of the forces of military commands in both Canada and the United States and particularly strategic air command, which is tahe main deterrent force.

Mr. LAMBERT: Can you put a percentage figure on this or, in your mind, is it not subject to assessment of that kind?

Mr. DUNLAP: I do not think I could put a percentage figure on it. Practically the whole of our operational effort overseas, and our forces in air defence command at home, and in maritime command on the east coast are in greater or lesser degree concerned with the deterrent strategy.

Mr. LAMBERT: The R.C.A.F. is not involved in any retaliatory portion of the deterent?

Mr. DUNLAP: Quite right, and I should have emphasized that. That is not part of our role. We play no part whatsoever in the offensive or strategic aspect of providing a deterrent; ours is more in the subsidiary aspects of the deterrent.

Mr. LAMBERT: But would you agree that there is a shaded area here when you are considering the role of the air division as it is now being developed?

Mr. DUNLAP: Personally, no, I would not; I would not. Having spent a number of years in SHAPE I am familiar with the targeting and I know that our forces will be concerned with tactical operations, that is, tactical targets which are concerned with the conduct of the tactical battle between the land and the air forces.

The CHAIRMAN: Mr. Winch, is your question related?

Mr. WINCH: I would hope that those questions directed by Mr. Lambert would lead me to page 5 upon which I would like to ask a question.

Mr. CHURCHILL: Mr. Chairman, I have one more question in connection with page 3.

The CHAIRMAN: Are there any further questions up to and including page 3?

Mr. WINCH: I thought he was referring to page 5.

Mr. CHURCHILL: Mr. Chairman, I am dealing with the first section, pages 1 to 3 inclusive. Referring to the first paragraph at the top of page 3 the air marshal reaches the conclusion—and these are his words:

> Consequently the Soviet bomber force will continue to be the greater threat for several years to come . . . .

The information we have received from the congressional investigation in the United States is that the bomber threat is not considered to be the greater threat. I read into the record at the second last meeting the statement made by Mr. MacNamara to the effect that he put the ICBM attack as the most difficult to deal with and the most dangerous and, secondly, the defence against missiles launched from submarines. And, if you continue to read the evidence of that congressional committee you will discover the Soviet bomber threat is not considered to be the greater threat; it is now in third place. I would like to ask why the air marshal considers that the Soviet bomber force will continue to be the greater threat?

Mr. DUNLAP: I think perhaps this is a matter of interpreting what has been said by Mr. MacNamara.

On January 30th of this year, in speaking before one of the armed services committees he said:

> Last year, in my appearance before this committee, I noted that the weight of the strategic threat against the United States was steadily shifting from the manned bombers to ICBMs and submarine-launched missiles although the balance in megatons is still with the manned bombers. This trend is continuing and, as I pointed out earlier in this statement, the Soviet missile-launching submarine fleet is building up.

He has indicated there that there is a shift in emphasis. Whether he has intended to say one is greater than the other at the present moment I cannot say but one has to read rather carefully in order to interpret it.

Mr. BREWIN: Mr. Chairman, I have a supplementary question in that connection.

The CHAIRMAN: Mr. Fairweather, is your question related to the same problem?

Mr. FAIRWEATHER: No, Mr. Chairman.

The CHAIRMAN: Would you proceed, Mr. Brewin.

Mr. BREWIN: Mr. Chairman, my question is this. Is not one of the reasons the bomber threat is less serious the fact the warning of bombers would be given in sufficient time to enable the retaliatory forces to get off the ground to seek out targets; in other words, they would be prepared to get off the ground whereas the same is not true of the ICBMs because of their far greater speed of delivery.

Mr. DUNLAP: Yes, that is an important factor in this.

Mr. BREWIN: In fact, I might go so far as to say that Major General Simonds of the army and not the air force, said the Russians would be crazy to attempt an attack on North America by manned bombers because the warning would be given in time to enable the retaliatory forces to be off the ground in time. Do you not agree with that?

Mr. DUNLAP: Well, the Soviet forces have both intercontinental ballistic missiles and long-range forces; they have them in being. If war were to break out presumably they would use both; they would use them in a combined capacity. It would make sense that they would use missiles as the first element and, having used those, I cannot see them keeping their large bomber force back unused. I think it is probably good sense to think that that is the reason they are retaining the two systems and would employ both weapons systems in any war that would involve attacks on this continent.

Mr. SMITH: Perhaps the Air Marshal could explain what is meant by a manned bomber. Most civilians on the street, including those who experienced military conditions during the last world war, understand that a manned bomber is an aircraft that drops bombs from directly overhead. Relating that understanding particularly to the Russian air force, is that the type of manned bomber of which you speak when you refer to the Russian manned bomber fleet, or do you speak of bombers which may launch guided missiles from 500, 1,000 or even 1,500 miles away from the target?

Mr. DUNLAP: I am speaking by and large of a force that would make an attack not dissimilar in nature to the type of attack you have described. That is, the dropping of bombs similar to the dropping of bombs during world war II. However, in recent years there has been developed some capability in air to surface missiles, but the range of those missiles is not great. The range is not comparable to the Skybolt. In fact, in the main, the range of their air-to-surface missiles is very small and of the order of approximately 100 miles. The Russians do have one that has a little longer range than that but nothing that places the bombers in a stand-off position a long way from the targets under attack. For example, if they were attacking targets in New York state, Pennsylvania or Ohio, the bombers would have to come right over and beyond this area in order to be able to reach the suggested targets.

Mr. SMITH: The Russians, as far as is known, have no bomber which would enable them to stand-off, for instance, out of the range of the Bomarc stations?

Mr. DUNLAP: That is correct and, furthermore, and perhaps I should have mentioned this earlier, the Bomarc missile itself is able to engage this type of air to surface missile.

Mr. SMITH: The Bomarc could be aimed at a missile itself after the missile had been discharged from its platform plane or carrying plane?

Mr. DUNLAP: That is correct.

Mr. DEACHMAN: I should like to ask a question in regard to stand-off bombers.

The CHAIRMAN: Mr. Lambert has indicated that he has a question related to this subject and I have recognized him.

Mr. LAMBERT: In your assessment of the relative merit and proportions of bomber missiles and submarine launched missiles, is there any suggestion that your assessment is based on the fact that the bomber threat is a known force? That is, we have a fairly good idea of this potential because of our considerable experience in that regard; whereas, with the missiles and submarine launched missiles, it is only a potential field and, therefore, being an unknown factor it is downgraded?

Mr. DUNLAP: You are now getting into an area that is very highly classified, which makes it difficult for me to answer. I can assure you that I do not think there is any doubt in regard to that point either in my mind or in the minds of others connected with this subject.

Mr. LAMBERT: Will you agree that the bomber force today is a potentially declining threat as compared to the other two threats?

Mr. DUNLAP: That is correct.

Mr. GRANGER: What is known as to the accuracy of ICBMs and their use as compared to bombers, and I refer to missiles launched from Russia, pinpointed at targets in North America?

Mr. DUNLAP: Again you place me in a difficult position as far as security information is concerned. All I can say is that considering the range of these weapons between the two continents they are remarkably accurate. They are not as accurate as a bomb aimed from an aircraft but, nevertheless, are remarkably accurate when you consider the range over which they operate.

Mr. DEACHMAN: In regard to this question of stand-off bombers, last March there was quite a flurry of excitement as a result of the appearance both on the Pacific and on the Atlantic coasts of the TU-20 and the TU-114 in that the TU-114 is a commercial model and the TU-20 is a military model of a Russian plane which is supposed to be the largest flying plane in the world in either a commercial or military capacity. The TU-114 was then in regular service between Russia and Havana, Cuba, flying down the entire reaches of the Atlantic, and I believe one or several of these aircraft while flying over the Azores took pictures of the U.S.S. *Forrestal.* It is my understanding that the TU-20 is a military model of that aircraft.

If one looks at the 1962-63 edition of *Jane's Planes of the World,* one will see that the TU-20 is listed with photographs, showing the aircraft with a Fitter attached underneath. The account in *Jane's* edition goes on to state that this stand-off bomber carried under the larger aircraft is identified by NATO as the Fitter which, in fact is as big as a small fighter plane with a range of approximately 500 miles, and a longer range when equipped with wing tip tanks. Having regard to the reports already received; photographs taken of this weapon by military reconnaissance planes during its flight down the Pacific and Atlantic coasts; the reliability of the edition of *Jane's Planes,* which is a very reliable source of information; company figures in respect of this aircraft, would the air marshal care to comment on the danger of this type of stand-off weapon and deal at further length with its capabilities, some of which have been intimated earlier to this committee?

Mr. DUNLAP: Thank you for bringing this subject to my attention. I have not actually read the account in *Jane's Planes,* but my comment is that the Fitter is an aircraft and not a missile.

Mr. DEACHMAN: That is correct, but *Jane's* goes on to explain that the stand-off bomber shown attached to the TU-20 is of exactly the same configura-

tion and size as the Fitter, and the Fitter has been adopted as a drone and not just as a stand-off bomber of considerable capacity.

Mr. DUNLAP: That may or may not be accurate information. *Jane's*, of course, is a remarkably reliable organization considering that it is an organization which operates outside the classified area. I am not able to comment on that statement specifically, but if one of those aircraft carries something designed or adopted from the Fitter, certainly that would not be a difficult target for our defences to deal with or shoot down. Shooting down such a weapon would be similar to shooting down a fighter aircraft.

Mr. HAHN: There has been considerable discussion regarding the stand-off bombers and manned bombers, and it seems fairly obvious that the trend is away from bombers through the possible adoption of an intermediate stand-off bomber. The basic threat consists essentially, as I understand it, of missiles of various types. The only reasonable suggested defence in this regard is the locating and inhabiting of a cave within a certain period of time. I do not know whether you can give me an answer to my next question, but what are possible future developments in this regard?

Mr. DUNLAP: I am afraid I cannot answer that question at this time, but obviously there is a great deal of research and development effort being made in this area both in the eastern camp and western camp. It is important that there should be great effort directed toward this vastly complicated and difficult area of research and development in order to discover a satisfactory counter weapons system. This will be a very costly project. Beyond that I am afraid I cannot say more.

The CHAIRMAN: Are there any other members who want to ask questions on this subject? We are on pages 1, 2 and 3.

Mr. WINCH: Mr. Chairman, I am going to ask a question now based on what you have said, namely that we can ask questions of the witness or of the minister. I am going to base my question on the statement on page 3:

> Consequently the Soviet bomber force will continue to be the greater threat for several years to come, and will remain a serious threat even after it is surpassed in magnitude by the missile threat.

My question is based on the fact that at our opening session we had an introduction on policy by the minister, we had the chief of staff of the navy, the chief of staff of the army, and we now have the air marshal of the air force. This question would have to be directed to the minister. In the minister's own statement and in the briefs of the navy, the army and now the air force, everything is based on the possibility of an aggressive attack from the Soviet union. This is amplified in the statement from which I just quoted. Can I ask the minister why is everything based on the assumption of an aggressive attack from the Soviets in spite of the declared policy of co-existence expressed by Khrushchev and the declared Chinese policy to expand communism by means of a war? This is a statement from the services and from yourself. Why is the emphasis on the Soviet union and not on China?

Mr. HELLYER: Mr. Winch, you might wish to refer some of your questions on this very interesting and delicate subject to the Secretary of State for External Affairs if he appears before the committee, but I think that from our standpoint it has been recognized that during the past number of years and down to the present time the only potential enemy, the only country or group of countries capable of launching an all-out attack which would pose a real threat to the western alliance, and if they so decided to the North American continent, would be the Soviet union and those countries associated with them. Our planning has been based on the necessity to deter that group of countries from finding it desirable, or indeed rewarding, to start any military offensive.

Mr. WINCH: But as of now—and I mean today—as Minister of National Defence you are working on the basis that the threat is from the U.S.S.R. who have stated their policy of co-existence, and not from China who wish to extend communism by war?

Mr. HELLYER: I really think it would be advisable for us to observe very carefully the developments in the international field in the next few days before making any radical changes in our approach.

Mr. WINCH: But you are working on the basis that the threat, as you see it now, comes from the Soviet Union?

Mr. HELLYER: I am observing these developments very carefully to determine if, in the future, any change of policy would be warranted.

Mr. SMITH: With relation to the possible threat from manned bombers and ballistic missiles, does not the fact that the Russians are able to put into space a space vehicle much heavier than the Americans, that they can put it into space seemingly whenever they wish to, and it can orbit the world many more times than anything the Americans have done, indicate the development of the Russians in the field of intercontinental ballistic missiles?

Mr. DUNLAP: I do not think so. They have developed a means of providing greater thrust, and they have turned their attention initially in the space field towards the development of very high thrust engines. They have enough thrust in their ICBM's, and so have the United States, to provide all of the range they need in their intercontinental ballistic missiles. I therefore do not think it gives the Russians any particular advantage in the field of intercontinental ballistic missiles to have those high thrust engines as used in space vehicles.

Mr. SMITH: But is it not reasonable to assume that they are putting their seemingly more powerful and more efficient engines to a military use also?

Mr. DUNLAP: I do not think so.

Mr. MACLEAN: I have a question for the air marshal. Would the relative importance of the bombers versus the missiles not be dependent on the absolute quantity of each? In other words, if the quantities are such that both would have to be employed to achieve something like saturation of main targets, then bombers are important, but if quantities in each field are so large that they could achieve near saturation with one or the other, then it would seem obvious that it would be the missiles that would be used first in any surprise attack. Could you give us any indication of what the absolute threat might be? I know this is highly classified.

Mr. HELLYER: If you will allow me, this might be a good point to read a short statement which I would like to make to the committee.

During an early meeting of the committee I indicated that the chief of the air staff might be able to give you figures on the anticipated threat to the North American continent by Soviet bombers and intercontinental ballistic missiles.

We have checked into this matter very thoroughly with our intelligence people and I regret to inform you that this cannot be done. It is the well-supported opinion of our intelligence staffs that officially divulging such figures would not be in the best interest of our country and our allies, and would be information of value to a potential aggressor.

I am aware that estimations have been published or given out in briefings on certain aspects of the threat, for example the fact that the Soviet Union is estimated to have approximately 1,000 bombers, all classes, capable of reaching the North American continent. But generalizations of this nature do not spell out the expected threat to our continent against which we must plan to defend.

The exact nature of the threat is influenced by many factors. I cannot, for obvious reasons, go into all these factors in an open briefing, but they involve in respect of bombers, for example, such considerations as:

(*a*) serviceability rate of aircraft;
(*b*) the range of the aircraft;
(*c*) whether tankers would be used for re-fuelling or as delivery vehicles for weapons;
(*d*) whether the Soviet union would use all available aircraft for an attack on North America, ignoring strategic targets in Europe and other parts of the world;
(*e*) whether they would be willing to absorb the losses of one-way missions by medium-range aircraft.

All these factors and more must be taken into consideration when evolving the calculated figure which becomes the agreed upon probable bomber threat to North America.

Other considerations, some similar, others radically different, affect the intelligence estimate on the probable ICBM threat to this continent.

I have looked into this matter very thoroughly and I am convinced that it would not be in the public interest to release either specific or approximate figures of the estimated bomber and ICBM threat against the North American continent. This policy is also followed by the U.S. Department of Defense, which will not reveal, confirm or deny such statistics.

To assist you in your thinking—and this, Mr. MacLean, is the reason I introduced the subject at this time directly in answer to the question you posed—I can say, however, that at the present time the bomber threat is a substantially larger part of the total than is the intercontinental ballistic missile.

Mr. MacLEAN: I have one more question which is closely relevant to this. I accept that answer. I do not want to pursue anything which is not in the public interest, but I do hope on some occasion we might have an in camera session when some information of this type might be given.

My question is this: The U.S.S.R. have a bomber force in being. This is obvious. Even if their ICBM strength was such that they did not have to depend on their bomber force, would it not be good strategy for them to keep it in being for the strategic purpose of tying up a large enough number of forces especially in North America for defence against the bombers?

Mr. HELLYER: I think this works both ways; for both sides to keep bomber forces in being involves a large proportion of the resources available to the other side in providing a defence against them.

Mr. TEMPLE: Mr. Chairman, would not our full concept of defence be changed almost completely if the anti-missile program is a real success?

Mr. DUNLAP: If it is a real success, yes.

Mr. TEMPLE: Because I note that the Nike Zeus intercepted at least a substantial number of missiles.

Mr. HELLYER: It is only fair to point out that even if an effective defence against the ICBM is developed, there are still some pretty staggering problems to be met. First of all, there is a very heavy cost involved. Secondly, there is the problem of fall-out which was raised by Mr. Winch at an earlier meeting. The prospect of having an early solution to this double problem is not very great.

Mr. TEMPLE: I realize this but if it is a success, it certainly seems to me that it will change things a lot in many, many ways.

Mr. HELLYER: It would have a very important bearing on future planning.

M. MARCEL LESSARD (*Lac Saint-Jean*): Monsieur le président, on a parlé

de bombardiers pilotés par des hommes comme étant la principale menace au pays; on a parlé aussi, dans le passé, qu'on avait développé des avions qui étaient dirigés par radio; a-t-on cessé de dévolopper cette façon de diriger des appareils ou croit-on que cette menace existe encore, c'est-à-dire qu'un certain nombre de bombardiers transporteurs de bombes soient envoyés afin de survoler le pays et qu'ils soient dirigés au sol, soit par radio soit d'un navire quelconque, soit d'un sous-marin quelconque? Cette menace existe-t-elle toujours?

Mr. DUNLAP: In answer to that question let me say that the radio controlled aircraft is pretty well dead now. It has been pretty well dropped on both sides. There may be a few still left in some aspects of development, but the signs are that it is fading out.

Mr. PATTERSON: I would like to ask a question, and this may have been covered by the answer given to Mr. Hahn. We have been told there is no defence against missiles. On page 3 of the statement we read that the only practical means of defence at this time against ballistic missiles involves passive measures. What stage has been reached in research in respect of development of some effective defence? I do not know whether or not that question can be answered from a security point of view.

Mr. HELLYER: As has been pointed out, this is one of the most highly classified areas, because it is so sensitive. Notwithstanding that, as has been pointed out, the United States has achieved considerable success with their Nike-Zeus program which is a point defence of a missile against a missile. They are continuing development of this system although at the present time they are not going into production for the other reasons which already have been mentioned. Firstly, there is a very large cost involved and, secondly, there is the problem of fall-out. There are other avenues of approach to the ballistic missile threat, but unfortunately we are not at liberty to discuss these.

Mr. PATTERSON: I would like to ask the air marshall whether in his opinion the fact that the ballistic missile threat has not been developed as rapidly as expected is owing to physical reasons, or is there any indication that the advanced types of warfare may be already in process of development?

Mr. DUNLAP: This poses a difficult question. I would think it is simply a matter of cost and time of construction, manufacture and build-up; this is very elaborate and complicated. It does take time and it does take a lot of money. My guess—and it is only a guess—is that this is the real answer to delay in development of the system.

Mr. PATTERSON: So far as you know there is no indication that they are at least slowing up this program and giving preference to some other type?

Mr. DUNLAP: There is no such indication.

Mr. LAMBERT: Could we have a clarification of the minister's reply to Mr. McLean that the present bomb threat he was talking about is that aimed at North America; or is this the Soviet versus the world?

Mr. HELLYER: The general impression I intended to create in the last part of my answer was that of the threat presented against North America at this time, the larger proportion is from bombers as against the ICBM.

Mr. WINCH: Since we only have another five minutes and are only at page 3, if the other members are in the same position I am, there are quite a few questions still to be directed to and answered by the air marshall. May I ask whether or not the air marshall will be called back so that we can ask questions in respect of the remainder of this extensive brief?

The CHAIRMAN: This question was asked when the witnesses from the other services appeared. At that time it was said that we very probably would have them back. I hope to call a meeting of the steering committee.

Mr. WINCH: I assure you, sir, that I do not want the air marshal to get away from here without a number of questions being asked which I think should be answered by the air marshal.

The CHAIRMAN: At the meeting of our committee on July 11, we decided that in those instances where the questioning of the witnesses is not completed in the time allotted, the said witnesses will be recalled on or after July 23 as the committee may order.

Mr. WINCH: I have a very important question in respect of page 5.

The CHAIRMAN: We will have a steering committee meeting on our way to Colorado Springs this evening at which time we will review the future hearings of this committee. In the meantime there still are other members who wish to ask questions.

Mr. BREWIN: Mr. Chairman, at page 3 the air marshal says:

> Within the state of the art today, an effective active defence against the manned bomber is both attainable and relatively economical...

In connection with that statement, Mr. Chairman, my question might fall within the general ban which the minister suggests. I wanted to ask about the estimated... although I think the minister prefers the word "approximate"... rate of attrition that is anticipated; in other words, if you have 500 bombers coming over, how optimistic are you as to the rate of attrition? How many could you knock down? If that is the line that is open for questioning I would like to pursue that.

Mr. DUNLAP: Well, again we are getting into an area upon which it is difficult to speak. Let me say that during world war II it was considered to be a very disastrous rate or a very successful defence, depending which side you were on, if 10 per cent of the attacking force was knocked down. We have progressed a very great way in the intervening years in techniques of destroying attacking aircraft and although I cannot say the percentage that would be destroyed it is very much in the direction of the higher end of the scale rather than on the low. In other words, the number that would be knocked down would be quite a high percentage.

Mr. BREWIN: You say quite high, 50 per cent?

Mr. DUNLAP: I am sorry but I cannot go beyond that.

Mr. HELLYER: I think the air marshal has come just as close . . .

Mr. BREWIN: To being vague.

The CHAIRMAN: I have four more members who wish to ask questions; I will recognize them one by one and then adjourn. Mr. Asselin, would you continue?

Mr. ASSELIN (*Notre-Dame-de-Grâce*): On a point of order, Mr. Chairman, I would like to continue with the procedure of questioning as suggested although I do realize that other members will have important questions to ask later on. May we continue with the present procedure?

The CHAIRMAN: Yes; I recognized you.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): At page 3, Mr. Chairman, Air Marshal Dunlap stated near the bottom:

> In the not too distant future we will also be faced with enemy satellites overhead in an operational role...

Can you say why you feel that this will not replace or will be unlikely to replace other delivery systems?

Mr. DUNLAP: Yes, I think it is generally felt that the ICBM's, as presently available, and the other missiles that could be directed against this continent

would be as effective, if not a good deal more effective, than a weapon launched from a satellite and, not only more effective but less costly, and therefore it seems unlikely that any country would go to the extra expense of trying to use satellites as a weapons delivery system.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): Thank you. You go on to say:

...they will undoubtedly serve other important needs.

Would you care to expand on this?

Mr. DUNLAP: There are a variety of things satellites can do which come quickly to mind; surveillance is one which, in wartime, would be a very likely role. Of course, it could be used in peace or war but particularly in war. Communications is another field. There are a variety of things.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): It has struck me it could have a duality of roles and that it might have use in peacetime as well as in war.

Mr. DUNLAP: Even in regard to meteorological aspects it would be beneficial to anyone contemplating war to be able to acquire rapid first hand up to date information as to the weather in the areas in which they wished to operate.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I have for some time felt that the possible roles of development could be of beneficial use to other than purely military establishments, and that our policy should be directed toward ends, such as you have just mentioned. Do you feel that this is something which might be explored?

Mr. DUNLAP: It would be very costly, of course, to break into this area of development. We have made certain efforts in our defence research board and in other scientific bodies, as well as in other areas within the services, directed toward this field, but our contribution necessarily must be quite small and, generally speaking, is a very small part of the larger effort being made by our major partners.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I would not like to restrict the air marshal to a consideration of overhead satelites, but regarding the generality of the question, does the air marshal feel, having regard to our military roles, we might at the same time consider the usefulness for civilian and other purposes of such research and developments, resulting in a wider base on which to spread the tremendous cost to which he has referred?

Mr. DUNLAP: Yes, there are a certain number of areas in which the use of satelites is important to Canadians as well as to all peoples of the world, including communications and meteorological studies. Those are the two principal areas of interest involved.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Thank you very much.

Mr. MCMILLAN: Mr. Chairman, I should like to ask a question related to this subject.

Mr. CHURCHILL: Mr. Chairman, it is now after 12.30. Will I be given an opportunity to ask a further question?

The CHAIRMAN: I indicated earlier that I had recognized four members and would allow them to proceed with their questions, following which we would adjourn.

Mr. WINCH: Mr. Chairman, I should like to make a very brief statement before we adjourn.

The CHAIRMAN: You may make that statement following the conclusion of questions to be asked by the four recognized members.

Mr. MCMILLAN: A great deal of reference has been made to stand-off bombers. Do you know the distance from which a stand-off bomber could successfully attack a target, and would they always be within range of our defensive forces?

Mr. DUNLAP: I am sorry that I cannot indicate the distance from which a successful attack could be made by a stand-off bomber because it is difficult to assess the effect or success of developments in this field.

In answer to your last question, from knowledge that is available to us, I can state that stand-off bombers would certainly be within range of our defensive systems.

Mr. MCMILLAN: Woul you also care to comment in respect of the comparative size of a warhead carried by an ICBM and that carried by a stand-off bomber?

Mr. DUNLAP: Generally speaking the warhead of an ICBM is smaller than that carried by a bomber. That is not to say that it will continue to be so in future years. That has been the situation up to the present time. All that is required to change this situation today is the addition of a greater boost and larger rocket engine which, of course, would involve a much more expensive missile. It certainly would be possible to develop this weapon in that direction if a nation so wished.

Mr. MATHESON: Mr. Chairman, the air marshal has referred again and again to the elaborate complicated defence complexes that have been developed both by a potential enemy and our ally, the United States. May I ask him whether our contribution, which has dropped from 46 per cent of our air defence dollar to 23 per cent, stands out in marked contrast to that which has happened within the alliance and within a similar area on the part of a potential enemy?

The CHAIRMAN: I think that question relates to subjects discussed further on in the brief and is related to the budget item. I do not think this question is related to subjects discussed in the first three pages, which we are now considering. Would you mind deferring that question until our consideration of the latter part of this brief. Mr. Deachman, do you wish to ask a question at this time?

Mr. DEACHMAN: My questions have regard to those subjects appearing at page 5 of the air marshal's brief, Mr. Chairman.

Mr. CHURCHILL: Why should I not get a chance to ask my question? I have had my hand up eversince twenty after twelve.

The CHAIRMAN: I think Mr. Winch wants to bring up a question which is not related to the statement made by the witness.

Mr. CHURCHILL: Mine is related to the problem under discussion.

The CHAIRMAN: Mr. Winch, do you still want to speak? Is it very important?

Mr. WINCH: I think so. It concerns the business of the committee. It will not take a minute. Can I speak now?

Mr. ASSELIN: He is a member of the steering committee.

Mr. CHURCHILL: I protest my exclusion from the privilege of asking a question.

The CHAIRMAN: I will not recognize any other speaker at the present time. The regular meeting stands adjourned until Thursday morning. Tomorrow we are going to assemble in Colorado Springs.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

(*Page 192*)

Mr. MARCEL LESSARD (*Lac Saint-Jean*): Mr. Chairman, it has been said that manned bombers constituted the main threat to this country. It has also been said in the past that radio-controlled aircraft had been developed. Are such aircraft no longer being developed or is it still thought that this threat still exists, that is, that a number of aircraft carrying bombs might be sent over this country and controlled from the ground either by radio, or from a ship, or from a submarine? Does that threat still exist?

APPENDIX "A"

ABBREVIATIONS USED IN THE DEPARTMENT OF NATIONAL DEFENCE

ADC	Air Defence Command
ADM (A&P)	Assistant Deputy Minister (Administration & Personnel)
ADM (C&P)	Assistant Deputy Minister (Construction Engineering & Properties)
ADM (F)	Assistant Deputy Minister (Finance)
ADM (R)	Assistant Deputy Minister (Requirements)
AG	Adjutant General
AHQ	Army Headquarters
AFHQ	Air Force Headquarters
AMC	Air Materiel Command
AMP	Air Member for Personnel
AMTS	Air Member for Technical Services
AOC	Air Officer Commanding
ASSOC DM	Associate Deputy Minister
ASSOC/MIN	Associate Minister
ATC	Air Transport Command
CA(R)	Canadian Army (Regular)
CA(M)	Canadian Army (Militia)
CADC	Crown Assets Disposal Corporation
CADIN	Continental Air Defence Integrated North
CAORE	Canadian Army Operations Research Establishment
CAPO	Canadian Army Post Office
CARDE	Canadian Armament Research & Development Establishment
CAS	Chief of the Air Staff
CCOS	Chairman, Chiefs of Staff (Committee)
CDRB	Chairman, Defence Research Board
CFMC	Canadian Forces Medical Council
CG	Comptroller General (Army)
CGIS	Comptroller General Inspection Services
CG(P)	Chaplain General (Protestant)
CG(RC)	Chaplain General (Roman Catholic)
CGS	Chief of the General Staff
CJS	Canadian Joint Staff
CIBG	Canadian Infantry Brigade Group
CINC NORAD	Commander in Chief NORAD
CMR	College Militaire Royal
CNP	Chief of Naval Personnel
CNS	Chief of Naval Staff
CNTS	Chief of Naval Technical Services
COTC	Canadian Officers Training Corps
CSC	Chiefs of Staff Committee
DCL	Defence Construction Limited
DDP	Department of Defence Production
DEW Line	Distant Early Warning Line
DM	Deputy Minister
DND	Department of National Defence
DN Inf	Directorate of Naval Information

DPR (Air)	Directorate of Public Relations (RCAF)
DPR (Army)	Directorate of Public Relations (Army)
DPR (ND)	Directorate of Public Relations (ND)
DRB	Defence Research Board
DRCL	Defence Research Chemical Laboratories
DRTE	Defence Research Telecommunications Establishment
GObC	Ground Observer Corps
GOC	General Officer Commanding
ICBM	Intercontinental Ballistic Missile
IRBM	Intermediate Range Ballistic Missile
IS	Inspection Services
JAG	Judge Advocate General
MAC	Maritime Air Command
MCL	Mid-Canada Line
MGS	Major General Survival
MRBM	Medium Range Ballistic Missile
NATO	North Atlantic Treaty Organizations
NCO	Non-Commissioned Officer
NCompt	Naval Comptroller
NDHQ	National Defence Headquarters
NHQ	Naval Headquarters
NORAD	North American Aid Defence Command
NRE	Naval Research Establishment
NWHS	Northwest Highway System
ONUC	Organisation des Nations Unies au Congo
PNL	Pacific Naval Laboratory
QMG	Quartermaster-General
RCAF	Royal Canadian Air Force
RCN	Royal Canadian Navy
RMC	Royal Military College
SAC	Strategic Air Command
SACEUR	Supreme Allied Commander Europe
SACLANT	Supreme Allied Commander Atlantic
SAGE	Semi-Automatic Ground Environment
SAR	Search and Rescue
SES	Suffield Experimental Station
SPADATS	Space Detection and Tracking System
Surg Gen	Surgeon General
TC	Training Command (RCAF)
UN	United Nations
UNEF	United Nations Emergency Force
UNMOG	United Nations Military Observer Group
UNTD	University Naval Training Divisions
UNTSO	United Nations Truce Supervisory Organization
USAF	United States Air Force
USN	United States Navy
URTP	University Reserve Training Plan
VCAS	Vice Chief of the Air Staff
VCGS	Vice Chief of the General Staff
VCNS	Vice Chief of the Naval Staff

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

No. 7

WEDNESDAY, JULY 17, 1963
(Visit to NORAD Headquarters)

THURSDAY, JULY 18, 1963

WITNESS:

Dr. A. H. Zimmerman, Chairman, Defence Research Board.

EDMOND CLOUTIER, C.M.G., O.A., D.Ph.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

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HOUSE OF COMMONS

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SPECIAL COMMITTEE

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MINUTES OF PROCEEDINGS AND EVIDENCE

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OTTAWA, 1963

29282-1—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

WEDNESDAY, July 17, 1963.
(8)

The Special Committee on Defence, having arrived in Colorado Springs, Colorado, U.S.A., on the evening of July 16, assembled at the Headquarters of North American Air Defence Command, at 8:30 a.m. this day.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch,—(23).

In attendance: Honourable Paul T. Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister; Dr. G. Marcoux, M.P.; Commander Marc Favreau, Military Secretary for the Minister of National Defence, and Group Captain W. M. Lee, Special Assistant to Minister of National Defence.

General John K. Gerhart, U.S.A.F., Commander in Chief of NORAD, welcomed the party and then requested the Deputy Commander in Chief, Air Marshal C. Roy Slemon, R.C.A.F. to take charge of the briefing session.

The briefing sessions were conducted *in camera.*

At the mid-day intermission, General Gerhart was host to the group at a luncheon.

The *in camera* briefing and discussions continued until late in the afternoon.

Some of the persons who assisted with the briefing were: Brigadier General L. W. Stocking, U.S.A.F.; Colonel J. W. Bothwell, U.S.A.F.; Air Vice Marshal M. D. Lister, R.C.A.F.; Wing Commander V. Rolfe, R.C.A.F.; Lieutenant Colonel J. L. Pilant, U.S. Army; Commander A. M. Smith, U.S.N.; Lieutenant Colonel, J. L. Beck, U.S.A.F.; Squadron Leader S. E. Collins, R.C.A.F.; and Mr. G. Salsky.

Squadron Leader R. S. Davis, R.C.A.F., the Assistant Director of Protocol, NORAD, who was responsible for the arrangements at Colorado Springs, acted as the escort officer for the party.

At approximately 4:30 o'clock p.m. Mountain Standard Time (7:30 o'clock E.D.T.) the party enplaned for the return trip to Ottawa.

THURSDAY, July 18, 1963.
(9)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Matheson, Patterson, Sauvé, Smith, Temple, Winch,—(21).

29282-1—1½

In attendance: The Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; Dr. A. H. Zimmerman, Chairman, Defence Research Board; and Dr. G. S. Field, Chief Scientist, Defence Research Board.

There being a quorum, the Chairman referred briefly to the Committee's visit to Colorado Springs on Wednesday July 17, 1963.

Dr. Zimmerman was called and he read the prepared brief of the Defence Research Board. During that presentation a film was shown, illustrating the development and launching of the *Alouette* satellite.

The witness tabled a pamphlet entitled *Nuclear Weapons Effects*. That document was identified as *Exhibit No. 2*.

Ordered.—That copies of *Exhibit No. 2* be secured and distributed to members of the Committee.

Dr. Zimmerman answered questions respecting the operations and responsibilities of the Defence Research Board.

At 12:30 p.m. the Committee adjourned until 10:30 a.m. on Tuesday July 23, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

THURSDAY, July 18, 1963.

Mr. WINCH: Mr. Chairman, I see a quorum. May I say, sir, how wonderful I think it is and what a sense of responsibility is shown by this committee when after an exhausting trip we are here and have a quorum only eight minutes late.

Mr. CHURCHILL: Is the meeting open, or what is happening?

Mr. WINCH: I saw a quorum, Mr. Churchill.

Mr. DEACHMAN: Mr. Winch is telling us how wonderful we are to be here.

The CHAIRMAN: Gentlemen, perhaps this would be an opportune time for me to refer briefly to the visit of this committee to Colorado Springs yesterday. I am sure that all committee members wish to join with me in expressing our appreciation of the welcome and of the briefing that we received at NORAD headquarters. General Gerhart, Commander in Chief and Air Marshal Slemon, Deputy Commander in Chief of NORAD, as well as the personnel serving under them, did everything possible to make our visit pleasant, informative and very instructive.

At the same time I would like to thank the Minister of National Defence, the associate minister, and the personnel of the department for the manner in which the transportation and accommodation were arranged. May I add that we arrived at 1.15 a.m. at the Ottawa airport after having worked from eight o'clock in the morning until five in the evening when we left Colorado Springs.

Gentlemen, this morning we have with us Dr. A. H. Zimmerman, Chairman of the Defence Research Board who will make his presentation. The minister will be here in time for the question period at 11.15 or 11.30.

Dr. A. H. ZIMMERMAN (*Chairman, Defence Research Board*): Thank you.

Mr. Chairman and honourable members of the committee, I appreciate very much the opportunity to appear before you today for the purpose of presenting to you in broad outline the responsibilities, organization and scope of activities of the defence research board.

In order to give you as complete and well-rounded a picture as possible within the allotted time limit, I propose to deal with my subject under a number of separate but related main headings in the following order:

Historical introduction; National Defence Act, Part III—scope of operations; basic responsibilities; organization; research and development programs; finance; advisory committees and panels; international relations; the Alouette story.

To proceed in this order, then, I will begin with a brief historical introduction.

HISTORICAL INTRODUCTION

Government recognition of science as an emerging factor in the life and well-being of the nation took place with the formation of the national research council in 1916 during world war I. But it was not until world war II that a strong defence research capability was produced in Canada, when the national research council turned from its peaceful civilian pursuits to organize and carry out a scientific attack on defence problems. At the conclusion of the war, it was natural that the majority of Canadian scientists should return to their pre-war

studies. But, because of the valuable contribution of science to the war effort, it was clear that some sort of scientific organization should be perpetuated to carry on research specifically for the benefit of the armed forces, with a close connection established between the defence scientist and the serving officer.

After lengthy debate, the concept of a research service, organized and administered by civilians, to concentrate on the scientific needs of the armed services, was agreed to. The defence research board came into being on April 1, 1947, with Dr. O. M. Solandt as its first chairman. D.R.B. is now in its seventeenth year, and although its organization and programs have been modified from time to time, the concept of its founders has well withstood the test of time and experience.

NATIONAL DEFENCE ACT, PART III—SCOPE OF OPERATIONS

The scope of the board's operations is set forth in the National Defence Act, Part III, a copy of which you will find in your folder. You will note that the terms of the act, while limiting the operations of the board to matters of defence interest, were wisely stated in a general, rather than a specific way in order to provide freedom in building the most suitable type of organization, manned with scientists of high quality, and provided with first class facilities to accomplish the task. The terms of the act also permit the board to extend its efforts beyond its own establishments, by means of grants-in-aid of research and by research contracts to both universities and to industry. All of its operations are, of course, subject to the approval of the Minister of National Defence.

THE BASIC RESPONSIBILITIES OF THE BOARD

Arising from the broad terms of reference contained in the National Defence Act, and to keep pace with the ever-changing political, economic and military conditions, the scientific progress of the board was re-examined in detail in 1960 with a view to identifying what might be considered as our basic responsibilities, and also to review the principles we employ as guide lines in the administration of the board's operations.

The results of this study were presented to, and received the approval of, the chiefs of staff committee and of the defence research board in July 1960, and were subsequently approved by the then minister of national defence, who at that time was Mr. Pearkes.

In essence, the activities of the board are governed by the need to fulfil four basic responsibilities:

(*a*) To provide scientific advice to the Minister of National Defence, to the chiefs of staff and to the armed services.

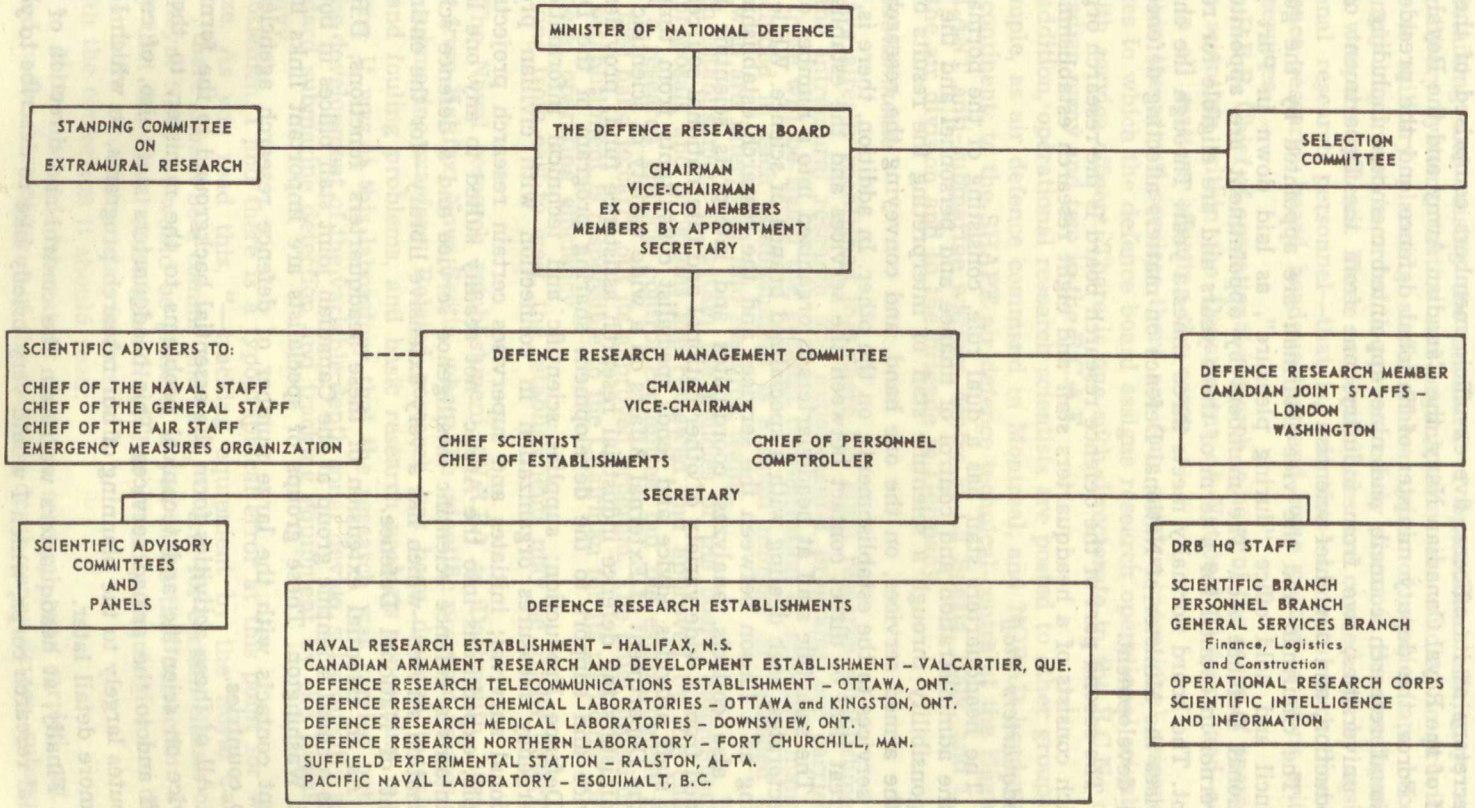
(*b*) To provide for the research needs of the armed services.

(*c*) To contribute to collective security.

(*d*) To encourage and support basic research of defence interest in Canadian universities. In addition, since July 1961, we have had the responsibility for encouraging applied research of defence interest in Canadian industry. I will describe that program later.

With the background I have given to you so far, I would now like to describe our organization in some detail. It may assist you to follow my comments by referring to the organization chart which follows:

DEFENCE RESEARCH BOARD ORGANIZATION



The defence research board consists of two parts. First, there is the board itself, which is comparable to the board of directors of an industrial corporation. This is composed of a chairman (myself), a vice-chairman and a secretary as its officers; five ex-officio members comprised of the chiefs of staff of the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force, the deputy minister of national defence and the president of the national research council, and nine appointed members including five from the universities, two from industry, one from the Department of Defence Production, and our chief scientist.

The chairman and the vice-chairman are appointed by the governor in council and hold office "during pleasure", as laid down in Part III of the National Defence Act. The members by appointment are appointed by the governor in council for a term of three years and are eligible for re-appointment. The board normally meets three times a year. Through the chairman, it advises the Minister of National Defence on matters affecting defence research and development.

The second part of the defence research board is the research organization, which consists of a headquarters staff and eight research establishments.

Headquarters Staff

The headquarters staff has a dual role, consisting of the normal function of the administration and control of finance and personnel and the additional responsibility through a scientific staff of interpreting the results of research to the armed services, on the one hand, and conveying the research needs of the services to the establishments, on the other. In addition, there is, of course, a great deal of direct contact between the services and the establishments.

The scientific staff at headquarters is organized into a number of scientific directorates, each dealing with a specialized branch of science. While primarily acting as a liaison between the services and the research establishments, this staff also collects, analyzes, coordinates and interprets scientific knowledge gained from a wide variety of other national and international sources. Further, this staff provides advice and lends specialist consultants from time to time, to the Department of External Affairs on a wide variety of scientific questions; administers the defence industrial research assistance fund; provides scientific advice and support to the development sharing program of the Department of Defence Production; supplies scientific and technical information to the emergency measures organization in connection with civilian problems of national survival; initiates and supervises certain research projects—for example, expeditions into the Arctic—not readily suited to any one laboratory; maintains a defence scientific intelligence service and a defence scientific information service—which has a very extensive library—for the entire Department of National Defence.

As an essential extension of these headquarters' functions, D.R.B. maintains a small scientific group at the Canadian joint staff offices in both London and Washington. These groups of specialists are important links in our frequent contacts with the large number of defence research agencies in those two countries.

All of these activities form the essential background to the formulation of advice on scientific and technical problems to the minister, to the chiefs of staff and to the armed services. This headquarters staff also, of course, contributes largely to the planning of our research programs, to which I will refer in more detail later.

Finally, at headquarters we retain the control and direction of an operational research corps, which I would very briefly like to describe to you.

The Operational Research Corps

Military operational research is conducted in two main areas. First, existing weapons systems and tactical concepts are analyzed in order to suggest means for maintaining and raising the standard of operational efficiency; second, future military systems, tactics and organizations are studied to provide assistance to military planning staffs. These types of studies are becoming increasingly important, in order to prevent costly errors in the development of complex weapons systems. These responsibilities are carried out by assigning operational research personnel—that is, scientists—some to work directly in the defence research board headquarters and some posted to work with the armed services.

The D.R.B. Chief of operational research is head of the corps of operational research scientists within the Department of National Defence and acts as adviser in all matters affecting the corps.

Within the armed services there are four service operational research directorates to which the defence board assigns research operational scientists to work with service officers. There is one such directorate in the R.C.N., one in the Canadian army and two in the R.C.A.F.

In addition, operational research scientists are posted to other groups such, for example, as air defence command in Montreal, and NORAD headquarters, on this continent; to the SHAPE air defence technical centre at the Hague and to SACLANT anti-submarine warfare centre at La Spezia, Italy, and I might add to the air division and to the brigade in Germany.

The Establishments

I have already mentioned that there are eight research establishments in which the intramural research and experimental programs are carried out. Within these will be found the greatest concentration of scientific manpower. Also included in each establishment is a small number of seconded service officers who are integrated into research teams.

Each establishment is, within the policies of the board, autonomous. Research proposals and programs are reviewed and approved by the chairman through a research projects control committee, but the establishment is then given a free hand to carry out its approved program. The chief superintendent of each establishment is responsible to the Chairman for its particular program and general operating efficiency.

Moving from east to west, the establishments may be briefly described as follows:

1. The Naval research establishment (N.R.E.) at Dartmouth, across the harbour from Halifax, Nova Scotia, where the scientific program relates chiefly to anti-submarine warfare. Related research has been devoted to ship corrosion and fouling problems, and basic research projects concerning maritime operations. It was at this laboratory that the research was carried out which led to the development of the variable depth sonar device, subsequently adopted as standard submarine detection and tracking equipment by the Royal Canadian Navy.

Gentlemen, I find there is a typographical error at this point for which I apologize. As you read this, "—tracking equipment by the Royal Canadian Navy—", there should be a comma and then, "—and for certain classes of ships in the Royal Navy". I would be grateful if you make that correction. I might also say that the Royal Australian Navy has recently acquired some of these equipments for evaluation trials in Australia.

With the correction it should read:

> It was at this laboratory that the research was carried out which led to the development of the variable depth sonar device, subsequently

adopted as standard submarine detection and tracking equipment by the Royal Canadian Navy, and for certain classes of ships in the Royal Navy.

Two well-equipped research ships are available for coastal and deep-water work, and facilities include a laboratory which deals with daily problems arising within the Royal Canadian Navy dockyard at Halifax and on naval ships, on such items as fuel oil, boiler feed water, failure of metal parts, and the like.

2. The Canadian armament research and development establishment (CARDE) is located at Valcartier, Quebec, about 17 miles from Quebec City. Its principal activities comprise fundamental research as a contribution to intercontinental ballistic missile defence, the development of new and improved weapons, investigation of new explosives and propellants, and research and development relating to guns, fuzes, rockets and guided missiles. Among the unusual research facilities are five hypersonic firing ranges, a versatile aeroballistic range and a solid propellants pilot plant considered to be one of the finest in the western world. It was here that the Heller anti-tank weapon was developed, with which our brigade group in Germany is now equipped; and also is where the new Black Brant rocket is at present under development, to be used as a probe to carry scientific instruments into the ionosphere.

3. The defence research chemical laboratories (D.R.C.L.) at Shirley Bay just beyond the western outskirts of Ottawa, and with a wing in Kingston, Ontario, emphasizes research in the defensive aspects of biological, chemical and radiological warfare. Its program also includes work in electrochemistry related to new sources of power; in the design and testing of radiac equipment, with which to measure the radioactivity of fallout from nuclear explosions; and in new types of protective clothing and respirators for the army.

At the defence research Kingston laboratory (D.R.K.L.), scientists investigate biochemistry, radiobiology, protective and therapeutic measures against biological agents. At the present time, a new building is under construction at Shirley Bay, to which the Kingston operation will be moved later this year. This consolidation will enhance our research efficiency and will permit some economy in administration costs.

4. The defence research telecommunications establishment (D.R.T.E.) comprises four laboratories, as follows:

The radio physics laboratory (R.P.L.), at Shirley Bay, emphasizes radio propagation problems and in particular those associated with northern latitudes, where the aurora and other natural disturbances make radio communications especially difficult.

The communications laboratory (C.L.), at Shirley Bay, specializes in research on radar and communications systems, in an effort to make them more reliable and useful under the difficulties of modern warfare. This laboratory also advises the Department of Transport in its operation of vertical ionospheric sounding as part of a worldwide network. The results of the soundings are made available internationally as an aid to the prediction of optimum communication frequencies for every hour throughout the year.

The electronics laboratory (E.L.), at Shirley Bay, where electronic techniques are developed and applied to a variety of communications and related projects. Activities include research into specific radio components and individual circuitry problems, and the perfection of various circuits which employ transistors. Through the use of transistors, light-weight materials and other techniques, this laboratory has made major contributions to the miniaturization of equipment, so essential to military operations. It was here that our Alouette satellite was designed and built.

The Prince Albert radar laboratory (P.A.R.L.), at Prince Albert, Saskatchewan, began operation during the summer of 1959. Sponsored jointly by the D.R.B. and the United States air force, P.A.R.L. is employed for investigations of various factors that influence the radar detection of aircraft and missiles entering the auroral zone, and in tracking satellites.

This is an excellent example of a joint international project.

5. The defence research medical laboratories (D.R.M.L.) are at Downsview on the northwestern outskirts of Toronto. Investigations concern the physiological and psychological problems of service personnel relative to their environment and tasks, rather than to the cure or alleviation of illness. Our scientists explore the factors likely to help or hinder the military man's ability to perform his duties effectively, in such environments for example, as high altitude, extreme cold or heat, or underwater diving.

6. The defence research northern laboratory (D.R.N.L.), at Fort Churchill, Manitoba, provides laboratory space and facilities for visiting Canadian, British and American scientists as well as for staff members engaged in auroral or ice research, and other studies in which the environment of these latitudes is a major factor. The establishment earlier served as a headquarters for rocket firings associated with the international geophysical year. The facilities now provide support for launchings of D.R.B. solid propellant test vehicles and research rockets employed to study the upper atmosphere, fired from the nearby research rocket launcher installation.

7. The Suffield experimental station (S.E.S.), near Medicine Hat, Alberta, is used principally for experimental and field trials activities relating to the defensive aspects of biological, chemical and radiological warfare, and a shock and blast research program designed to measure the area effects of heavy explosions on buildings and other structures. S.E.S. occupies an experimental range area of about 1,000 square miles.

8. The Pacific naval laboratory (P.N.L.), at Esquimalt, British Columbia, is Canada's westernmost defence research station. Here investigations are aimed primarily at assisting the Royal Canadian Navy in its anti-submarine role, including an active program in the Arctic. Here also, our scientists carry out extensive anti-corrosion and fouling investigations related to conditions peculiar to the Pacific ocean. Basic oceanographic studies play an important role in the program. Like its sister establishment in Nova Scotia, two specially adapted ocean-going vessels are available for at-sea research. Facilities also include a laboratory which deals with daily problems arising within the Royal Canadian Navy dockyard at Esquimalt and on naval vessels, similar to those at Halifax.

This completes a brief description of our research laboratories and facilities, and their respective functions. Now I would like to comment on the all-important subject of

Personnel

Defence science is our primary concern, and a high standard of research effort is of paramount importance. Perhaps our most important principle of operation is that scientific quality must not be compromised.

Therefore, every effort is made to employ only first-class scientists of proven ability, and to give them modern equipment and facilities with which to carry out their researches. In this connection, scientists and engineers must in general, have graduated in the top one-third of their class to be considered for employment by the defence research board.

To obtain first-class quality in professional personnel in the face of severe competition, mainly from industry and from the universities, the board must retain freedom to recruit efficiently, to ensure good working conditions with

competitive rates of remuneration, and to be able to offer attractive careers in both research and administration. In practice, the board works closely and harmoniously with the national research council and with the civil service commission with respect to grades and salary scales but as an exempt agency, retains complete independence in the exercise of judgment with respect to the employment, promotion or transfer of any individual scientist or engineer.

As of June 30, the employment level stands at 545 scientists and engineers, 747 technicians, and 1308 other ranks, for a total of 2600.

For some years our annual turnover of professional staff has averaged about 8 per cent. This figure compares favourably with the turnover rates in similar organizations here and in other countries. I know of some organizations in which the turnover rate runs to 16 per cent.

Although some of our professionals are attracted by the higher salary scales obtaining in industry, chiefly in the United States, the majority who remain in Canada leave us to take up appointments in universities, which afford them the opportunity to teach as well as to continue to do research, and of course, many of them continue to collaborate with us. In this connection, we employ a number of honour graduate and undergraduate university students and members of Canadian university staffs during the summer months. This employment serves two useful purposes:

(1) It provides additional technically qualified assistants during the time of year when the weather is suitable for carrying out an active program of field experiments;

(2) It gives valuable training in defence research problems to the young scientists of the future, and has proven a fruitful source of contact for later permanent employment with the board.

During this current summer, we are employing up to 120 university students, and some 20 members of university staffs.

I would now like to turn to the research program.

RESEARCH PROGRAM

Our broad research program is made up of two major segments—the intramural or in-house program carried out within our own research establishments, and an extramural program pursued by means of grants in aid of research to universities, about which I will speak in more detail later. The related subject of development will also be covered as a separate item.

A. *Intramural Program*

With respect to our intramural program, it will be recognized that a challenging variety of research projects is essential in order to attract competent scientists. Our intramural program is made up of both basic and applied research projects. Here I would like to digress for a moment to clarify the terms "basic research", "applied research", and "development". Basic research means simply the pursuit of new knowledge for its own sake. It is the foundation on which applied research and subsequent development are built. There are really two kinds of basic research, which can be identified as pure basic research and objective basic research. Pure basic research has no specific end objective in view—is largely carried out in the academic atmosphere of universities. Its results are unclassified and are available to anyone who can use them. They are usually published in the open scientific literature. Objective basic research is similar but lies in fields of recognized potential technological importance and calls for somewhat more of a planned approach. On the other hand, applied research has as its object the attaining of a practical goal, fairly precisely defined, such as

a new process, technique, or piece of equipment. The final stage is engineering development, which essentially bridges the gap between research and production.

In general, our intramural program is mainly in the field of applied research, with, for various reasons, relatively small amounts of objective basic research, at the one end, and of development, at the other. In the selection of our projects—of which there are several hundred—we are governed by a number of guiding principles and other considerations.

Primarily, the board recognizes that its main function is to meet the scientific needs of the armed services. These needs divide themselves naturally into four major areas:

(*a*) The air defence of North America, including the threat from both air-breathing and ballistic missiles;

I apologise for that technical word "air-breathing". I should have said "bombers".

(*b*) Maritime defence against submarines;
(*c*) The employment and tactics of ground and air forces primarily in the European theatre;
(*d*) National survival, in which the army plays a major role.

Within each of these areas, research projects arise and are weighed in relation to one or more of the four basic responsibilities I mentioned earlier, before being incorporated into the active research program and assigned to the appropriate laboratory.

These projects usually require facilities not available elsewhere; they are often classified to preserve their security, and they frequently require the cooperation of one or more of the armed services. Further, joint cooperative projects, particularly with Great Britain and with the United States, are included in the intramural program.

It is of interest to point out that there have been developed several unique facilities at a number of our establishments. For example, the thousand-square-mile experimental area at the Suffield experimental station with permanent trial and test facilities; high-speed especially instrumented ranges for aeroballistic and aerophysics research at the Canadian armament research and development establishment; a solid propellant pilot plant at the same establishment; a high-powered radar laboratory at Prince Albert as a component of the defence research telecommunications establishment for upper atmosphere research, and several others.

B. *The Extramural Research Program*

This program is carried out in two ways, by means of grants in aid of research and by means of contracts to industry.

(i) *Grants in Aid of Research*

Grants, for the most part, are made to individual professors in some 34 Canadian universities to work on unclassified problems in fields of defence interest. As a rule, the research done by the grantees is not chosen for its immediate defence application, but to provide new knowledge in fields from which important military developments are most likely to arise in the future. It is pure basic research.

In addition to the acquisition of new knowledge, grants have, as an objective, the development and support of an interest in defence science which assists in staffing establishments of the board with young scientists of promise.

Among the several federal agencies which make grants in aid of research, the defence research board's program is one of the larger. In the current fiscal year, the program will total some $1,890,000, spread among about 240 research projects.

(ii) *Contracts*

In addition to the defence industrial applied research program, which I will describe below, the board awards other contracts to industry to cover specific requirements related to projects in the intramural program.

An illustration of that would be in the case of the variable depth sonar equipment at Halifax, where we carried a prototype to a certain stage, then we let a contract to industry to build one unit according to our specifications for evaluation by the navy before a specific production contract was arranged.

(iii) *Defence Industrial Research (DIR) Program*

In 1961 the board received authority to give financial support to industry in the form of matching grants, in the field of applied research. An applied research fund has been established to promote and strengthen the research capability of Canadian defence industry. It is intended thereby to increase Canada's ability to participate in the development and supply of defence equipment to meet North American and NATO requirements.

Primary responsibility for this research program has been assigned to the defence research board, acting in concert with the Department of Defence Production and in consultation with the Department of Finance.

The program has created considerable interest and a number of proposals for applied research projects have been accepted. To date there are some 50 active projects spread among 33 firms.

DEVELOPMENT PROGRAM

There are two aspects to development in Canada: development of military equipment and materiel for the Canadian Forces; development of military equipment and materiel for potential use of our allies.

Two departments of government are involved (apart from finance) in the operation of the development program, namely, the Department of National Defence and the Department of Defence Production. This latter department is the agency responsible for the negotiation of development contracts. The defence research board has the responsibility of ensuring that development projects are scientifically and technically promising and, in addition, it administers the development votes of the Armed Services.

With regard to development of items for the Canadian forces, development projects are initiated by the armed services and are normally carried out under contract with industry. Projects are examined by the defence research board, and when approved, are passed to the Department of Defence Production for contractual action. Monitoring of each contract is carried out by the service concerned with assistance, where necessary, from the defence research board.

With regard to development of items for potential sale elsewhere, development projects are initiated by the Department of Defence Production. These projects normally cover developments which are designed to meet requirements of our allies and are not necessarily a Canadian requirement. The defence research board again has the responsibility of evaluating scientific and technical feasibility but in this case is not responsible for the financial aspects of the development. This phase of development is referred to as the development sharing program, and its object is to develop items which are likely to provide good production possibilities in Canada for sale outside of Canada.

FINANCE

The budget requirements of the defence research board form a part of the total appropriation allotted to the Department of National Defence. Within

D.R.B. they are devoted to the cost of carrying out both the intramural and extramural programs, that is, all defence research projects within our own Establishments and in universities.

It should be noted that the development programs of the armed services are quite distinct, being funded through a separate development vote.

In addition, funds for the relatively new program for encouraging and assisting Canadian Industry to strengthen its defence research capability are provided as a separate item added to the normal D.R.B. budget, in the amount of $5,300,000 in this current year. In the current year 1963-64, the normal D.R.B. research budget amounts to $30,917,000, of which about 50 per cent is required to pay the costs of personnel, leaving the balance to cover other operating expenses such as supplies and minor equipment, maintenance, capital expenditures for major equipment and new construction, and the extramural grants program to universities of $1,890,000. There is one additional item in the form of a Supplementary Vote of $827,000 to cover expenditures on the recently approved satellite program during this fiscal year.

This is a follow up program to our current Alouette program which was approved only in January of this year; so it had to be put forward as a supplementary vote. The complete program covers the building of four satellites over the next five year period, and will cost an estimated $7½ million through fiscal year 1966-67.

ADVISORY COMMITTEES AND PANELS

Two senior advisory committees merit special mention, as their membership is made up of the appointed academic and industrial members of the board itself:

(*a*) The standing committee on extramural research, which advises on the allocation of funds in support of research in universities, and

(*b*) The selection committee, which passes upon new applications of scientists and engineers for employment, and considers internal recommendations for promotion.

In addition, the board makes extensive use of advisory committees and panels composed of members of high professional standing in their respective scientific disciplines, including university professors, service officers, and personnel of other government departments and agencies. The object is to obtain unbiased and constructive advice on research projects for both the intramural and extramural programs. At the present time there are some 14 such committees, some with a number of specialist panels attached to them. For example, the defence medical research advisory committee has some 12 specialist panels, the memberships of which include eminent medical men from most of the medical teaching centres throughout Canada. All of these volunteers—I would stress that they are volunteers—give invaluable advice and support to the defence research board, serving without remuneration except for out-of-pocket expenses.

INTERNATIONAL RELATIONS

International co-operation in the field of defence science takes a variety of forms. For example, for several years Canada has joined with Great Britain and with the United States in what is known as the tripartite technical co-operation program. This stemmed from the declaration of interdependence at the highest level in all three countries late in 1957, requiring a much closer collaboration in order to make the fullest possible use of defence research resources and facilities.

There are now a number of active tripartite committees in various scientific fields, which exchange "state-of-the-art" information and provide a basis for the co-ordination of certain projects within the three countries.

There are also arrangements—I am speaking now of D.R.B.—in the form of bilateral agreements with several NATO nations, including France, Norway, and the Netherlands at the present time, with negotiations with West Germany in the final stages, also for the purpose of exchanging "state-of-the-art" information.

The defence research board represents Canada in a number of NATO committees, including those of the NATO defence research directors, the SHAPE air defence technical centre and the SACLANT anti-submarine warfare centre.

Further, we recently instituted a modest fellowship scheme, whereby we accept up to eight scientists from NATO countries to work in our laboratories for one or two years. This scheme has been particularly well received by our NATO partners.

In short, we believe we are playing our part in contributing to collective security within NATO, and in doing so, we in turn derive invaluable information from many international sources which strengthens our own capability to deal with our internal projects and problems.

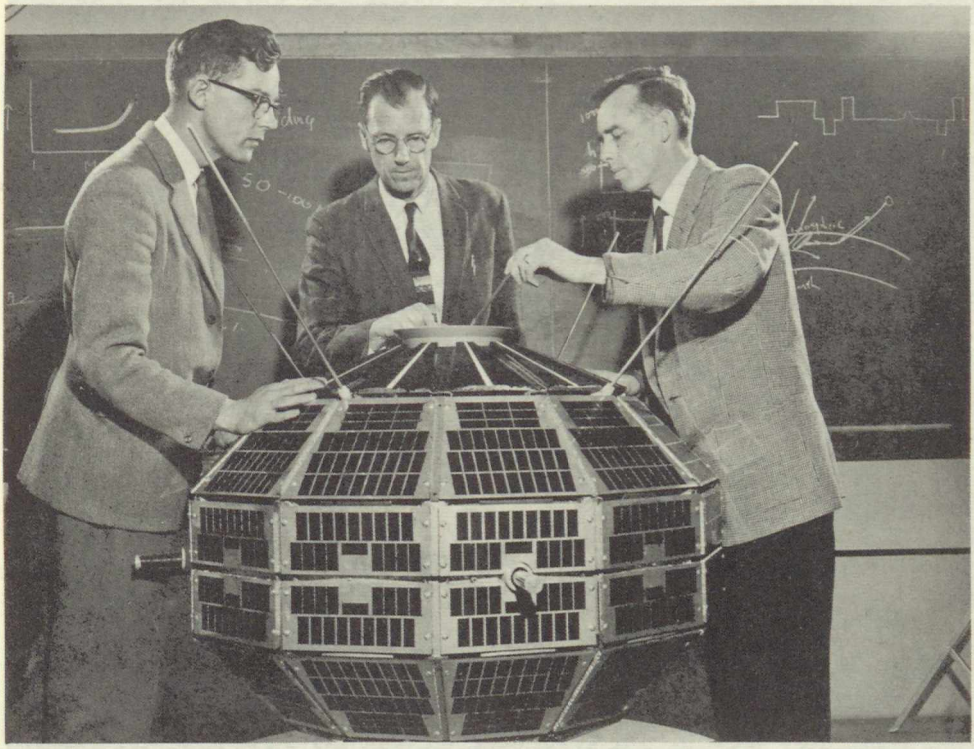
THE ALOUETTE STORY

In concluding my presentation, I would like to show you a short 14-minute film showing the design, building, testing and launching of our highly successful Alouette satellite last September. This picture will give you some impression of the nature of research in general, and of the complexity of this project in particular. As you may know, after Russia and the United States, Canada is the first country to design and build its own satellite, so, in a very real sense, this was a pioneering effort never before attempted by Canadian scientists. Among other things, they have had to develop new kinds of instruments and new types of command and control systems and to operate them while travelling at 17,000 miles per hour in the almost unknown conditions 630 miles above the earth.

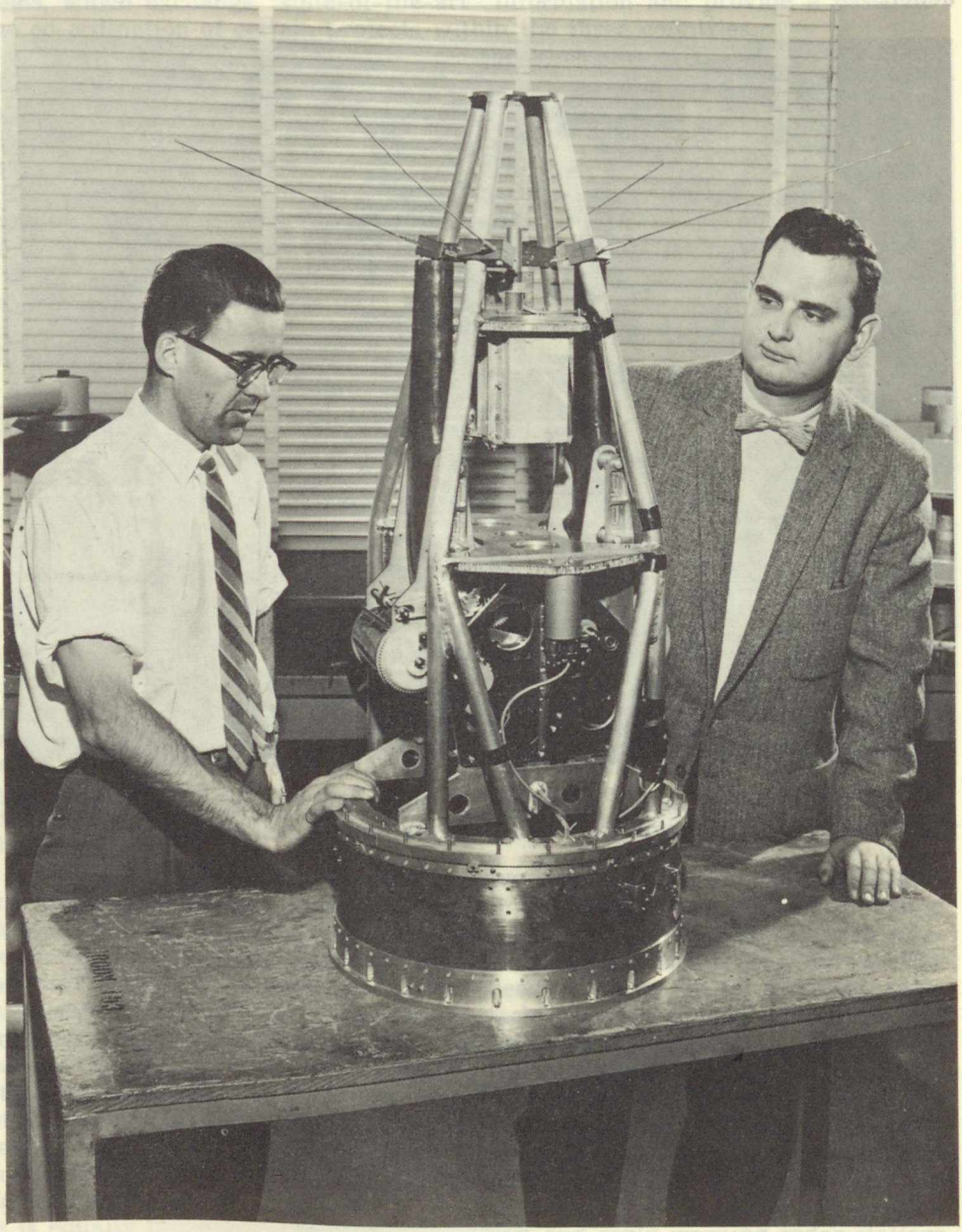
We, in the defence research board, have been actively interested in studying the physics of the upper atmosphere in high latitudes for more than a decade. This work has largely been carried out at our defence research telecommunications establishment at Shirley Bay just outside of Ottawa. The practical objective of our interest has been to solve the problem of radio blackouts in our far north, that is—to reach a point when we might be able to predict the best radio frequencies to use in times of electrical disturbances caused by solar storms—and so ensure reliable communications. These solar storms or giant solar flares of electrical energy create and intensify the activity of the aurora, causing radio blackouts which may last for hours or even days. It takes little imagination to see how important it is for our isolated communities, scattered across our vast Arctic and sub-Arctic regions, to be able to maintain radio contact—their only means of communication with the outside world. It is equally important for ships and aircraft and early warning radar stations in those areas to have reliable radio links. Our original researches into the nature of the ionosphere were confined to ground-based instruments. Then rockets became available to carry instruments momentarily up into the ionosphere, and we now have the great advantage of using a space craft as a research tool, allowing us to make continuous measurements over long periods of time at all latitudes, from altitudes above the ionosphere.

The actual launching of Alouette was, of course, made possible by the interest and generosity of the national aeronautics and space administration in the United States.

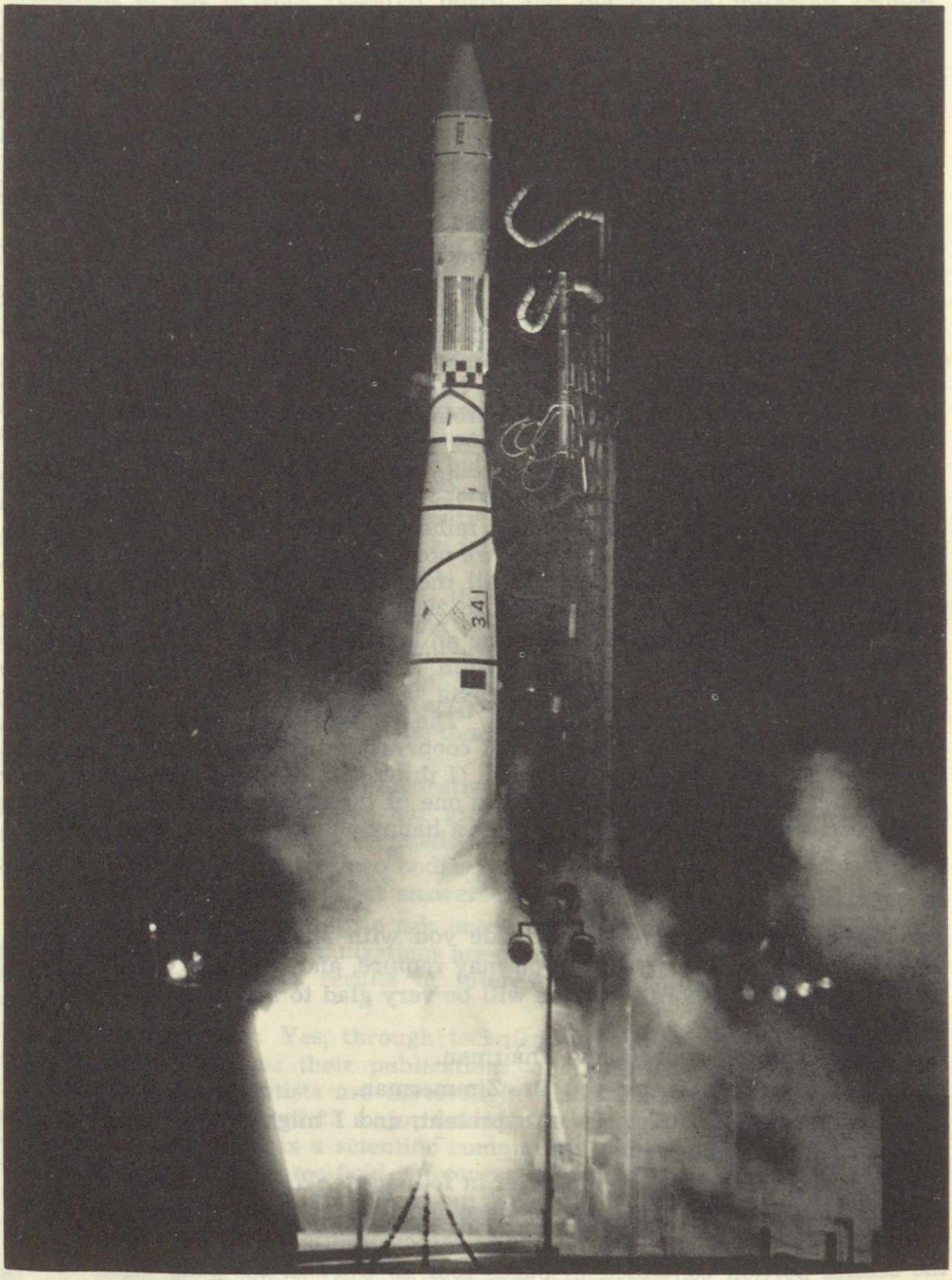
With this brief introduction to Alouette, we might now see Alouette in action.



A small group of DRTE scientists and engineers discuss the accelerations the Alouette satellite will experience during the launch phase.



DRTE instrumented a Javelin rocket nose cone which was fired in the U.S. to prove the efficiency of the Alouette antennae system. This is a prototype of the nose cone with some of the DRTE instrumentation employed.



The Defence Research Board Alouette satellite, protected from air friction during its ascent through the atmosphere by the nose cone, begins its journey into space on this Thor-Agena B rocket at Vandenberg Air Force Base in California.

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Mr. WINCH: How did you know we were going to see it tracked at Colorado Springs yesterday afternoon.

Mr. ZIMMERMAN: I am glad to hear you did see it. I did not know that.

In that connection, I think it will interest the members very much to know that just 15 minutes ago Alouette completed its 3,990th orbit; it was heading southward just west of Vancouver. Since the launching you saw on September 29th it has travelled about 115 million miles. It has responded to more than 10,400 commands—that is, commands to be turned on and off.

It has produced over 335 thousand what are called ionograms, which are magnetic tape recordings from instruments on the experiments.

Its performance today is just as good as the day of the launch except, of course, that the power is gradually being degraded. It is now about 63 per cent of its original power and we anticipate that the loss rate is so low now it may well last for upwards of two years instead of the one year that was originally planned, provided, of course, that it is not hit by a meteorite, or that there is not some major circuit failure. We have had 100 per cent success with it to date which is a very difficult place to start from, from the point of view of duplication in any future performance.

Alouette was designed—hopefully—to operate for one year, in order to measure the variations in the electrical conditions of the ionosphere through all four seasons. Barring an unexpected failure of some major electronic component, or a direct hit by a meteorite, we now expect to receive useful information from it for about 600 days. It will then continue in silent orbit for centuries—variously estimated from 500 to 2000 years!

I would like to conclude by quoting an article in a recent scientific journal by an eminent American scientist from Stanford University's radioscience laboratory. He calls the Alouette launching "a spectacularly successful scientific space venture", and goes on to say: "The Alouette represents a brilliantly successful effort in which international cooperation in scientific experiments in space may be seen working at its best." I think that having the full confidence of our international partners is perhaps one of the greatest dividends we have received from this project, and provides a happy augury for our joint efforts in future.

In conclusion

I would be most happy to provide you with any additional information, within our responsibility, which you may require, and if at any time you wish to visit any of our laboratories, we will be very glad to make suitable arrangements.

Thank you very much Mr. Chairman.

The CHAIRMAN: Thank you Dr. Zimmerman.

Gentlemen, Mr. Hellyer is now present, and I might state that Dr. Field will assist Dr. Zimmerman.

I propose that we study this brief in four parts. We will proceed first with subjects covered from page one to page four, which include *historical introduction, National Defence Act* and *basic responsibilities*. We shall then consider the second portion contained in pages four to thirteen covering *organization*, followed by the third portion covering *research and development programs*, appearing at pages 13 to 17, and, finally, the fourth portion covering *finance, advisory committees and panels, international relations* and the *Alouette story* appearing at pages 17 to 22.

Are there any questions relating to the first part appearing at pages one to four?

Mr. HAHN: Mr. Chairman, I should like to inquire as to the sphere of operations of the defence research board and the national research council. How do the two organizations work together and what liaison does exist between these two scientific bodies?

Mr. ZIMMERMAN: In general, of course, the defence research board relates to programs of defence science interest, and the national research council, on the other hand, is purely devoted to civilian applications and to assistance to industry and so forth, except that in some cases we contract with the national research council to carry out certain work on our behalf. The reason for this is an historical one, in that there was no defence research board during the war, and in 1940, Sir Henry Tizard came out from Britain with some radar problems. Resulting from that original mission in 1940 the national research council build up a very substantial effort and indeed made a magnificent contribution to radar and radio problems relating to the war.

From that point on they had a radar laboratory and when the defence research board was formed it was not considered desirable to duplicate that kind of research effort. Up until the present time the national research council at the Montreal road establishment has done a good deal of radar and radio work as well as design work for us. That is one type of connection.

The other type of connection, of course, is more of an administrative one. We both have, for example, university grants programs. They have a very substantial program and we have a fairly large one but the principles are entirely different in their application.

The national research council is the major federal grantor to universities and is charged really with keeping pace with the growth of universities. Their grants fund rises quite substantially from year to year to keep pace with that growth of universities. On the other hand, our fund does not rise so quickly because we are using this fund to promote research of defence interest only. We are not concerned with the total growth or keeping pace with universities as such.

We work very closely administratively with the national research council and we compare, for example, our grants proposals and applications before final decisions each year are ever made in order to avoid duplication of grantees applications received by the two bodies.

I do not know whether that answers your question or not sir.

Mr. HAHN: I should like to ask one further question. Do you review the projects with which the organizations are concerned in respect of basic research so that if one produces results of interest to the other these results are available?

Mr. ZIMMERMAN: Yes, through technical societies and through our own publications as well as their publications, our scientists have access to this information. Our scientists are involved in many fields of sciences, probably something of the order of 25 major fields and perhaps 50 or more subdivisions of these sciences. This is a scientific community and each scientist knows his fellow workers in the same field. Of course all publications are made available to all except in the case of some of our research projects which are classified, and they are released on the basis of the "need-to-know".

Mr. SMITH: Dr. Zimmerman, perhaps at some later stage you could give us the names of the non-military members of the board?

Mr. ZIMMERMAN: I can give you those names now.

I have given you the names of the ex officio members by appointment.

Mr. SMITH: Yes.

Mr. ZIMMERMAN: The members by appointment are: Mr. C. A. Peachey, executive vice-president, Northern Electric Company Limited, Montreal; Doctor J. T. Wilson, professor of geophysics, department of geophysics and director,

the institute of earth sciences, University of Toronto; Doctor J. F. McCreary, dean of the faculty of medicine, University of British Columbia; Doctor Louis-Philippe Bonneau, vice rector, Laval University; Doctor Roger Gaudry, director of research, Ayerst, McKenna and Harrison Limited, Montreal;

Dr. W. R. Trost, dean of graduate studies at Dalhousie, and Dr. R. J. Uffen, principal of the university college of arts and sciences at the University of Western Ontario. There is one other appointed member who, unfortunately, has never been able to attend a board meeting because of an almost fatal accident. He has been in hospital for the last two years. I am speaking of Dr. David L. Thomson, vice principal and dean of the faculty of graduate studies and research at McGill University.

Mr. SMITH: How often does the board meet?

Mr. ZIMMERMAN: Three times a year.

Mr. SMITH: I should just like to preface my question with a short explanation. On this committee—and I think it is not a problem that is confined to this committee—it seems to me the difficulty is not that we are not supplied with classified information to make a decision, but it is that the information that we do get is of such a highly technical nature that it is difficult for a layman to evaluate. I think that the problem is faily common. I notice in the United States they now have a deputy assistant secretary of defense for systems analyses. He was speaking recently and he said:

> Although inevitably some people will resent the application of dispassionate, cold analysis to something as rich and meaningful in tradition as warfare and strategy, there is no sensible alternative to this in the nuclear age.

Now, assuming that the responsibilities of the defence research board were changed, do you have on the board a nucleus of a civilian body which could provide adequate civilian scientific evaluation of the programs of the three services and relate those programs to our budget capabilities?

Mr. ZIMMERMAN: That is precisely the type of studies the operational research corps make. They are fully employed and becoming increasingly so. This has been a body which has grown, and we have never been able to staff it sufficiently. There are about 60 members in the operational research corps. We have never been able to meet the demand for their specialized kind of work.

Mr. SMITH: Do their recommendations relate to budgetary problems?

Mr. ZIMMERMAN: They could make studies related to what is called cost effectiveness.

Mr. SMITH: Have they in fact done that?

Mr. ZIMMERMAN: Yes, in the case of many comparative studies of weapons systems.

Mr. SMITH: How are the studies originated? Are they originated by the minister or by the chiefs of staff?

Mr. ZIMMERMAN: Yes, but normally they make an appearance almost by themselves; they arise out of other studies and out of an obvious need to do a certain study, to analyze a given condition.

Mr. SMITH: Are the results of those studies then brought before the whole board, or do you have an executive committee of the board?

Mr. ZIMMERMAN: No, not necessarily. We have, within the permanent staff of the board a management committee, and I am its chairman.

Mr. SMITH: I see it here on your schedule.

Mr. ZIMMERMAN: It deals with the disposition of the results of these studies. We direct them to the attention of those we feel should know about

them. They go to certain technical directors in the armed services, for example. Our board members are cleared and very welcome to have them if they have the time to study them. However, they are massive, highly technical mathematical approaches to life, and they are not too easy to understand unless you are trained in the particular mathematical analytical techniques that work towards the conclusions at which they arrive.

Mr. SMITH: I do not mean this as a reflection on any member of the board, but in matters of attendance is there a military or civilian preponderance? Who are your most regular attendants?

Mr. ZIMMERMAN: It is hard to say. I usually have a good attendance. Not more than two or three are missing out of the entire board on any given date for any given meeting. In the selection of the board, about half the membership is ex officio, as you will see from that list; the other half we try to select very carefully as between universities and industry on the one hand, and regionally on the other, to get a representation from the length and breadth of the country. We do not always succeed in any given year in doing that, but that is our aim. Whereas in a current year you may not see some single province represented, if you look back at the last list or perhaps in our potential list for the future, you will see that we try to maintain a balance across the country.

Mr. SMITH: Have there ever been any recommendations or suggestions made that there should be a larger permanent membership of the board at a senior level? I see that the only one of your staff who is actually a board member is your chief technical scientist.

Mr. ZIMMERMAN: Our chief scientist, Dr. Field, and our vice chairman. Then, of course, there is Mr. Schmidlin, who is secretary of the board.

Mr. SMITH: Under the present legislation do you not initiate a study on your own of the cost effectiveness? The act says that such duties as relate to research as may be assigned to it. Is that so?

Mr. ZIMMERMAN: I do not understand you.

Mr. SMITH: Could you not start a study of your own relating to some weapons systems?

Mr. ZIMMERMAN: Very definitely we do, a great many.

Mr. SMITH: Suppose we take a new army rifle. If you think that that is not as effective, and that it is going to be more costly than its effectiveness warrants, can you start a study of your own?

Mr. ZIMMERMAN: Absolutely. That is one reason why I have one group under my own control right at my headquarters which is not assigned to the services. They make a substantial number of those studies after we have decided that a given study is worth while. The results of that study, if it is still of great interest, will be made available to the service concerned. For example, if you say, a rifle were to be studied we would certainly give the results to the army if it indicated anything that we thought was worth while.

Mr. SMITH: So that actually your board does provide many of the functions that apparently belong to the systems analyses branch of the American department of defense?

Mr. ZIMMERMAN: Systems analysis is just another name for operational research.

Mr. DEACHMAN: Mr. Zimmerman, on page 3, paragraph (d), at the bottom of the page, deals with basic responsibilities of the board and your interest in Canadian universities and also the research defence interest in Canadian industry. Now, in relation to Canadian universities, the question I want to ask is this: the postgraduate schools at Canadian universities, as you

know, are proportionate to United States universities. We run about a third as many people or a quarter as many people through our graduate schools proportionately as they do in the United States. One of the means of increasing the research potential of Canadian students is through this very field that you have. Because of the financial difficulty of maintaining postgraduate schools they, I feel, have to turn away scientific projects because when you come to them with a research project they say that it is very fine but a number of things are now going to happen: first of all, professors who are engaged in teaching, or research fellows who may be engaged part time in teaching, must be removed from teaching and put on research projects. The next thing that happens is that certain equipment must be involved and that equipment must be maintained. They must be housed, and the building must be maintained. So if you come to them and say: "We have so many dollars for a research project", the university looks at it and sighs and says, "That is very nice, but that would cost us another I do not know how many dollars, and we would just as soon you took it somewhere else because our budget does not enable us to do so." I know of projects which have been refused on these grounds.

So what I wonder is this: what steps are you taking to assist the universities over these financial crises which prevent them today from dealing in research in the way they would want to if they could?

Mr. ZIMMERMAN: I think that my experience is almost exactly the opposite to this case. For example, last year we had a research grant program of $1,890,000; and the fact was that we had applications this year amounting to $2,800,000. We actually have a large enough demand for grants for research to require funds in the amount of one million dollars more than we have available to give. Now, that is a little different from your feeling that we should protect the universities against doing research.

Mr. DEACHMAN: I am not suggesting that. I am saying that research grants should give consideration to the additional costs which the university would incur.

Mr. ZIMMERMAN: Do you mean operating costs?

Mr. DEACHMAN: Operating costs, and the fact that research grants should give consideration to operating costs and to assist post-graduate schools.

Mr. ZIMMERMAN: Well, there are certain rules related to the use of our grants money. We do not allow universities to use them for bricks and mortar. We do not normally pay professors' salaries out of our grants, but a grant is given to a professor in order for him to employ research assistance in the form of under graduates or graduate students on the one hand, and to buy special equipment which is necessary for his research. He may require, for example, a special piece of expensive equipment for a particular research he is going to do. So, he can buy equipment; he may employ research assistants and, of course, contribute to it himself. In that way, apart from the space used, the heat, light, power, and so on, I do not think the university would be put to any other major expense.

Mr. DEACHMAN: I have one more question before we abandon this. University professors and officials who have discussed this question with me are quite in accord with what you are saying. But my second question is in connection with paragraph (*d*) relating to Canadian industry. Here I am concerned with this: if you go to industry, let us say, a specific company, and ask it to undertake a research project, then, at the termination of that research program, should it result in a design which could go into the production stage, you must let a contract for the production, and then, if you require it for military purposes, that contract is open to the whole of industry, so that the laboratory which undertook to carry out the research would have no better chance

at manufacturing this project than would any other industry which is competitive with it. So the inclination on their part tends toward saying, "Well, if we put our research people into fields of our own, in commercial development, or other fields, we would enjoy all the fruits of that when it came to the production of it. But if we do it with you, there is no guarantee that we will get such fruits, because of any special priority being in it; somebody else may in fact enjoy the fruits of our research at the production end". Does this not act as a deterrent to industry to enter into research with you?

Mr. ZIMMERMAN: I think one finds after a successful development takes place in industry that the developing company has a very distinct advantage from the point of view of bidding for production. This is exemplified by the Department of Defence Production, in their production sharing program with which you are perhaps familiar. They found that while nominally Canadian firms were given the right to bid on American jobs, the one who very usually got the job was the American developer of that equipment. So for that very reason D.D.P. said: "This is not good enough. Canadians are not getting the same competitive advantage. Therefore we ought to have a development sharing program and get some of these requirements from the United States into our industries in the development stage. Then our companies will have a real advantage in getting production contracts later on."

This was the reason for the development sharing program which we are largely now operating in the defence field. However, D.D.P. is now inclined to say that while production is all right, you have to get back to the company which does the research, because they are the ones who will get the contract in the end. So all these things are tied together anyway.

All I am trying to say is that the person who has a concept, an idea, who does the work in the laboratory, who goes through with the grinding process of working up to a bread-board model, who does the engineering for production, if he is on his toes at all, or if he has equal production facilities, he certainly will have a better chance of getting a production contract than will anybody else.

Mr. WINCH: I would like to ask a question based on page 3, where half way down the page we read:

> In essence, the activities of the board are governed by the need to fulfil four basic responsibilities:
>
> (*a*) To provide scientific advice to the Minister of National Defence, to the chiefs of staff and to the armed services.
>
> (*b*) To provide for the research needs of the armed services.
>
> (*c*) To contribute to collective security.

Since items (*a*) and (*c*) are two of the four basic responsibilities, and very important ones, I wonder whether I might ask this question. Defencewise and scientificwise we are in partnership with our allies of the western world, among whom I would mention particularly the United States and the United Kingdom. I have had a suspicion for a long time that researchwise and scientificwise classified scientific information is not made available to D.R.B. In relation to the partnership and your responsibility under items (*a*) and (*b*), how serious is the fact that one or other of our partners or allies does not make known to you certain scientific information, and why should it be so?

Mr. ZIMMERMAN: It is really not a fact that they do not make available research information, classified information.

Mr. WINCH: We have discovered that certain scientific information is not made available.

Mr. ZIMMERMAN: That certain information is related to the nuclear field, simply because we are not in the nuclear research business. But we have information which is released to us based on "need to know". In the fields that we are working in, or by demonstrating that we have a need for information, we get it. We keep aprised of the yield effects of nuclear weapons, but we do not need to know the details of their design, for example. So that information is withheld from us and we do not need it. We are not in the business of producing nuclear weapons. But we are interested in the yield effect of weapons.

And on that subject I think it might be very interesting for the committee, if they do not already know of it—to learn that we produced last year a booklet which is published by the emergency measures organization, and which is called "nuclear weapons effects". It might be desirable, Mr. Chairman, to arrange for the members to have this because it has a good deal of specific information which has been culled from the knowledge which has been given to us from United States and British sources.

Mr. WINCH: May I refer you to—

Mr. BREWIN: Before my colleague continues, may I ask whether we might have copies of this.

Mr. HELLYER: Copies will be made available.

The CHAIRMAN: This will be Exhibit No. 2 to our proceedings.

EXHIBIT No. 2: Booklet—Nuclear weapons effects

Mr. WINCH: May I refer the worthy doctor to clause (a):

To provide scientific advice to the Minister of National Defence...

I presume that would naturally mean, in respect of the acquisition of nuclear warheads, information as to actually whether they would have a cooking effect. If, in fulfilment of that, you cannot receive complete classified information of a scientific nature as to whether or not it is true, how do you give advice on that matter?

Mr. ZIMMERMAN: We have that advice.

Mr. WINCH: I understand there is some information on that which you do not have.

Mr. ZIMMERMAN: That is right.

Mr. WINCH: Why? How can you advise the minister if your allies have not supplied you with that information?

Mr. ZIMMERMAN: They have supplied us with all the information we require in order for me to advise the minister.

Mr. WINCH: Even though they have something over and above what they supply you on the same subject?

Mr. ZIMMERMAN: They have some information in a related way to that subject which we do not need to know, having to do with the specific design of the weapon.

Mr. MATHESON: May I go back for a moment to the question raised by Mr. Deachman in respect of paragraph (d). Early this year I heard that some of the top people in the school of practical science at the University of Toronto who were looking toward a scientific career in Canada were advised there were no positions available in Ottawa this year; I do not know whether that was in respect of the national research council or the defence research board. I know this came as a considerable disappointment to them, particularly those persons in the engineering field who subsequently changed their plans and went to the United States. Is this so; are you limited financially so that we are losing some of these people?

Secondly, on the related subject, is it perhaps a fact that some of the universities suffer from precisely the complaint Mr. Deachman raises; that is that in respect of grants under applied research, benefits appear only to be reaped from certain facilities at the research board without the universities being given certain necessary facilities to carry on. I am thinking particularly of a conversation I heard at a board of trustees meeting some considerable period ago at a Canadian university which works very closely with R.M.C. I am wondering, in your experience, whether your answer to Mr. Deachman would be that you are only going to the larger universities like Toronto and McGill?

Mr. ZIMMERMAN: No. We are going to 34 universities across the country, including the service colleges. In fact, we are the only source of funds for the Royal Military College.

To get back to the earlier part of your question relating to the electrical engineers who could not get employment—

Mr. MATHESON: At graduate level.

Mr. ZIMMERMAN: Yes. We do not employ permanently, or even temporarily, anybody under third or fourth year—honours undergraduates and graduates. During the last year we have been circumscribed in our employment because the government austerity program initiated a year or more ago resulted in directives. which required our total staff to waste away by 15 per cent, on the basis that we could replace one in ten—that is, one loss in ten, More recently, that has been alleviated, to replace one in five. But it is intramurally difficult to administer because you do not know where your wastage is going to take place, and if you lose a key scientist in a small research project you have to replace him or the project is no longer viable.

Mr. WINCH: In other words, it is penny wise and pound foolish?

Mr. ZIMMERMAN: No, it has not reached that stage; but, if we were forced to waste without some stop to it we would not be able to operate our present establishments or staff, or buy new equipment without some real rearrangement being carried out.

Mr. MATHESON: Keeping in mind the enormous problem of collecting this type of human talent, is it fair to ask you, in light of your experience over many years, whether this is not absolutely unwarranted economy on our part —and I am referring to the business of cutting back on highly qualified and technical personnel.

Mr. ZIMMERMAN: Whether or not it is unwarranted it is purely a matter of government policy to say what level of defence research they wish carried out. But, I can only add this, that if our funds were cut very substantially we would immediately lose some of our key people, many of our top flight scientists. Perhaps out of 500 there are 50 very good people, and if we lost them it would take a very long time to replace them. I repeat, it would take a very long time to replace them, and the quality of the work would be bound to suffer.

Mr. DEACHMAN: Mr. Chairman, I have a supplementary question. Could you tell us how much you have been cut back? Have you actually been cut back in your research grants as a result of the austerity program?

Mr. ZIMMERMAN: No, we have not been cut back—do you mean in the university grants?

Mr. DEACHMAN: No; I am speaking of your research program. Has your research program been cut back as a result of the austerity program.

Mr. ZIMMERMAN: No. Our total research budget stands at $30,917,000 for this fiscal year; although it has not been cut back we could have used something more.

Mr. DEACHMAN: In reference to the university grants programs, how has that gone over the past few years; has it decreased, increased or been the same?

Mr. ZIMMERMAN: No, it has gradually gone up and it is the same amount, namely $1,890,000, this year as it was last year. When we got into austerity we were just able to hold it even or level with this year. Certainly, in view of the demand of good research projects from universities, we could use at least another $1 million or more in that program.

M. M. LESSARD (*Lac-Saint-Jean*): Dans le domaine de la sécurité collective, qu'est-ce que ce département a développé récemment pour assurer une plus grande protection à la population canadienne, advenant une attaque nucléaire?

Mr. ZIMMERMAN: That is a very difficult question to answer. We have current programs, for example, in research in respect of anti-ICBM defences. This is largely passive defence, because an active defence, while it is technically possible, is terrifically costly and only a country of the size and wealth of the United States could support such an active anti-ICBM system. The United States does have one now in the Nike-Zeus, which has had spectacularly successful trials. They have fired the Nike-Zeus over very long ranges and successfully met simulated ICBM's far out over the Pacific ocean. I think there have been something in the order of nine successful firing trials.

To achieve a 100 per cent point and area defence throughout the United States or the North American continent would require the expenditure of many billions of dollars and this involves the question as to how much luxury of that type we can afford. On the other hand, there are a great many elements in research related to this problem in respect of which we are working through another joint project at our armament establishment in Quebec. This program has relation to the perfection of that type of defensive system.

Mr. LESSARD: Mr. Chairman, I should like to ask a supplementary question. Doctor Zimmerman, my original question had relation to the survival phase of an attack.

Mr. ZIMMERMAN: In respect of survival, we are doing some very interesting work, for example, at our Suffield experimental establishment in Alberta. Some years ago we joined the British for the United Kingdom atomic trials in Australia. At that time, in 1956 or 1957, we took the responsibility from them for measuring heat and blast effects of these weapons trials in Australia. We have done a great deal of measurement and developed a number of techniques which are extremely useful. We had points on a curve to show the effects of blast and heat of these weapons in the atomic range, and it was noted that there were no such points on a similar curve in the high explosive range below nominal weapons, or below kiloton ranges. We then undertook a shock and blast program at Suffield, which has been going on for four or five years, employing only high explosives, without any fissionable materials whatsoever, we first used very small charges down to almost laboratory scale of a few pounds, then working up through a series of trials, using 60 pound charges, 100 pound charges, 500 pound charges, 1,000 pound charges and a one ton charge. In August of 1961 we measured the effects of a 100 ton land based explosion, which was the largest land based explosion we had known of up to that time.

The final part of the program will be an explosion, we hope next summer, of 500 tons. We will then have the curve extrapolated from the kiloton range down to the sub-kiloton range. Part of that exercise—a very large part of it—is related to survival. It tests buildings and structures, ship funnels and aircraft, vehicles and a great number of things that are put out in the desert in what is called the target response area at different distances from ground zero.

It tests the effects of heat and blast. The test items are all instrumented so that for a hundred ton blast such as occurred in 1961, we obtained over 1,000 scientific measurements.

Mr. CHURCHILL: I have a question which I would like to ask supplementary to what was said earlier by Dr. Zimmerman. I may not have heard him quite correctly. He referred to the wasting away of personnel owing to a program of retrenchment of a year ago. My understanding was that that would not apply to scientific personnel, to key scientists. I fought the battle myself on behalf of national research and atomic energy. I would hate to have the impression get abroad that there was to be any wasting away of key scientific personnel in any of our establishments. If there has been, it has been due to some failure of communication on lower levels.

Mr. ZIMMERMAN: Is that a question?

Mr. CHURCHILL: This was my statement. I have a number of questions in the next section.

The CHAIRMAN: It is 12.32, so I think we will have to postpone our meeting until next Tuesday morning, July 23.

Mr. BREWIN: Would you remind us what witnesses we are expecting next Tuesday?

The CHAIRMAN: We are expecting the Secretary of State for External Affairs, but he will have to confirm today if he will be able to come because he is expecting a very important visitor who is due to arrive on Tuesday. Otherwise, we will have to arrange the appearance of another witness.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

(*Page 226*)

Mr. LESSARD (*Lac Saint-Jean*): In the field of collective security, what has the Department developed recently to ensure a greater protection for the people of Canada in the event of a nuclear attack?

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

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SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 8

THURSDAY, JULY 25, 1963

WITNESS:

The Honourable Paul Martin, Secretary of State for External Affairs.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29284-7—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Fairweather,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

THURSDAY, July 25, 1963.
(10)

The Special Committee on Defence met at 10:35 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacLean, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch,—(20).

In attendance: Honourable Paul Martin, Secretary of State for External Affairs; and Mr. Ross Campbell, Assistant Under-Secretary of State for External Affairs.

Also in attendance: A Parliamentary Interpreter and interpreting.

The Chairman presented the Fourth Report of the Subcommittee on Agenda and Procedure as follows:

The Subcommittee agreed to recommend:

1. That the Honourable Paul Martin, Secretary of State for External Affairs, be invited to address the Committee on Thursday, July 25, 1963.
2. That the Honourable Charles M. Drury, Minister of Defence Production, be invited to address the Committee on Tuesday, July 30, 1963.
3. That Professor D. B. Scott, Physicist, and a colleague from the University of Alberta, be called to appear before the Special Committee on Defence, on Thursday, August 1, 1963.

On motion of Mr. Hahn, seconded by Mr. Béchard,

Resolved,—That the Fourth Report of the Subcommittee on Agenda and Procedure, presented this day, be now concurred in.

Mr. Martin was introduced; and he read a prepared statement respecting the work of his department in relation to defence problems.

Agreed,—That questions would not be restricted to any particular section of the statement.

The Secretary of State for External Affairs was questioned on the content of his statement and on related matters.

At 12:30 p.m. the Committee adjourned until 10:30 a.m., Tuesday, July 30, 1963.

E. W. Innes,
Clerk of the Committee.

29284-7—1½

EVIDENCE

THURSDAY, July 25, 1963.

The CHAIRMAN: Order, gentlemen. We have a quorum.

At this time I would like to submit to you the report of the steering subcommittee which met on Wednesday, July 24, 1963, at 12.30 p.m.

The subcommittee agreed to recommend as follows:

(1) That the Hon. Paul Martin, Secretary of State for External Affairs, be invited to address the committee on Thursday, July 25, 1963.
(2) That the Hon. Charles Drury, Minister of Defence Production, be invited to address the committee on Tuesday, July 30, 1963.
(3) That Professor D. B. Scott, physicist, and a colleague from the University of Alberta, be called to appear before the Special Committee on Defence, on Thursday, August 1, 1963.

Would someone move the adoption of the report?

Mr. HAHN: I so move.

Mr. BECHARD: I second the motion.

The CHAIRMAN: It has been moved by Mr. Hahn and seconded by Mr. Bechard that the report be adopted. Is that agreed?

Some hon. MEMBERS: Agreed.

Motion agreed to.

The CHAIRMAN: Gentlemen; this morning we have with us the Minister for External Affairs who will make his presentation and then be available as your witness until 12.30 p.m. I will now call upon Mr. Martin.

Hon. PAUL MARTIN (*Secretary of State for External Affairs*): Mr. Chairman and members of the committee, I welcome the opportunity to outline to you the relationship between the defence policy and the foreign policy of the Canadian government, and the means whereby the necessary co-ordination between the two is sought to be accomplished. The very fact that you have seen fit to invite me to appear before the committee is an indication of your awareness that the foreign and defence policies of this nation are inseparable. Indeed, in the nuclear age this is true of all states, since their foreign and defence policies have but a single objective—the preservation of peace.

Mr. Pearson, the present Prime Minister, speaking before the air force veterans' association in November 1959, aptly described defence as follows:

> . . . defence now means the exercise of wise and far-sighted diplomacy; reliance, not on national strength alone, but on collective policy and action inside a coalition like NATO; keeping our economies strong and free and healthy; helping those underdeveloped countries who are now emerging into the modern age and who will largely determine by the way they do it, whether the future on this planet is to be one of conflict or co-operation. It means also defence of the deepest, highest values of our life and civilization, against those forces of disruption and debasement which challenge and threaten them from within . . .

> . . . defence now is the preventing of wars through the solution of international problems by pacific means, the strengthening of free, democratic society and the promotion of co-operation and friendship between all peoples.

Now, Mr. Chairman, that description, with its accent on the preventive nature of defence policy, is a far cry from the role of armed forces in yesteryears. Gone are the days when there was truth in the maxim that armed forces take over when diplomacy fails. This once hallowed dogma has ceased to have validity today for two principal reasons:

In the first place, major military power is no longer held physically in rear areas to be sent out only when peaceful negotiation fails. Today's system of alliances and their integrated commands together with long-range striking power at constant alert have brought military forces to forward positions on the main fronts of international tension. In the new circumstances of more or less permanent confrontation of major military power, the extent to which co-ordination of foreign and defence policy becomes imperative is obvious.

Secondly, it is no longer possible to rationalize major war as an instrument for the attainment of political ends—and I would like to make a parenthesis here; in the text you have you will find I have made some changes, particularly in the first six pages. Now, may I repeat the second point. Secondly, it is no longer possible to rationalize major war as an instrument for the attainment of political ends, for the traditional concepts of victor and vanquished have been overtaken by technological advances in the art of war. In an age when the principal military powers each possess many times over the destructive power of all the weapons used in all previous wars, and have the means to deliver it so dispersed and so well protected that neither could escape unacceptable damage in a thermonuclear exchange, no matter who should initiate it, the principal purpose of the armed forces of all responsible powers has become one of deterring rather than winning major wars, and of containing small ones by the graduated application of the minimum force needed to restore order. The important developments in recent days which have been taking place in Moscow are evidence that the major nuclear powers at least are beginning to accept the essentials of deterrence as I have described it. By the same token the aims of defence policy become the more clearly identical with the main purpose of foreign policy—the preservation of peace.

There are of course other objectives of foreign policy—to promote trade, to protect national interests abroad, to project a favourable image abroad and the like—but it is self-evident that such objectives can be pursued only in a world free of war.

We saw in the second World War how all other interests had to be set aside and subordinated to the one end—the restoration of peace. But think how much more imperative is the need to preserve that peace in an era when meaningful victory would elude even the strongest powers. My colleague the Minister of National Defence in his statement on June 27 stated that defence policy was an extension of foreign policy, and that is true in the sense that national external objectives no longer can be determined, as they were in earlier periods of history, by the degree of military force that could be brought to bear. I prefer, however, to look upon foreign and defence policies—and indeed, foreign economic policy as well—all as inseparable elements in the conduct of Canada's external relations. Indeed, NATO itself offers a striking example of the extent to which the foreign and defence policies of the entire western world are indissolubly linked, for it is in the NATO council in permanent session and from time to time in ministerial session) that the defence

policies which guide the vast apparatus of the alliance are continuously harmonized with the foreign policy objectives of the alliance itself.

I must first outline what I regard as the main factors which determine the foreign policy of an established middle power such as Canada. I believe that to be an honest appraisal of where Canada stands in a world in which there are two super powers, a handful of what might be called great powers—those that have recognized world responsibilities or have pretensions to world influence, and at the other end of the scale a vast array of newly independent and economically underdeveloped countries.

We have no need to pursue certain aims peculiar to super and great powers, and others that animate the less fortunate countries. We do not have to support a vast network of international alliances or pursue expansionist policies in respect of territory or resources. Our aims are less finite, less tangible and in some ways more difficult to define.

Our foreign policy, like that of most other countries, is a product of many fixed factors which condition our responses to the shifting international scene — factors such as our history, our legal traditions, our resources, our racial composition and our geographical location.

Historically, we are a country which evolved non-violently from colony to nation—a background which has given us a strong belief in independence and orderly ending of colonial rule and a preference for evolution over revolution as the method. It has given us strong ties with two major European powers, Britain and France, and, as others have followed our constitutional example, a belief in the commonwealth as an institution. Our history has made us internationally minded from the date of our birth nearly one hundred years ago, conscious always of being a member of a world wide grouping of peace loving states.

In our traditions we have inherited British precepts of law and parliamentary government blended with the French system of codification which have made us instinctive and strong advocates of the rule of law on an international scale. These legacies have affected our attitude towards observance of treaties, and other instruments such as the international court of justice for regulating relations between states in an orderly and civilized way, and above all have made us strong advocates of the United Nations, the main vehicle through which the international family of nations is striving for the second time, to give expression to the universal desire for an ordered and peaceful world.

In resources, we are well enough blessed that we need have no external territorial ambitions. Indeed, the fact that we have productive capacity in excess of the needs of our population has made us world traders with a profound interest in the freest possible international exchange of goods under sensible international regulation of tariff levels and conservation measures. The size of the excess of our resources over our needs has enhanced our international influence as a major world trader.

Our geographical location in the northern and physically less hospitable half of this continent has probably condemned us in perpetuity to a comparatively small population in relation to territory and perhaps in relation to our neighbour. It has at the same time deprived us of all neighbours but one, and that one the most powerful nation on earth. While other nations face problems of relations with a multiplicity of neighbours, often hostile, we are more fortunate and in truth, because of the disparity in size, Canada could not subsist in freedom adjacent to a hostile United States. Friendly co-operation with our closest neighbour and largest trading partner is a basic requirement of Canadian foreign policy, both for economic and security reason. At the same time, we are a political entity, both in cultural composition and traditions of

government. The objective in our relations with the United States must always be to reconcile the preservation of those interests which are the essence of our sovereign individuality with the need for friendly co-operation in an interdependent continent and world.

Finally, and perhaps more important, our cultural makeup exerts a profound effect on our foreign policy. With our two basic cultures, to which many new influences have been added through immigration, we have enduring ties of blood and language with Europe which causes us instinctively to look across the Atlantic to our cultural origins. Domestically our own bi-culturalism has given us tolerance and an ability to compromise and adjust. It is this national experience which has given Canada a fundamental belief in the effectiveness of mediation, negotiation and patient accommodation in the international field.

All of these factors have combined to make Canada a law-abiding international nation, with a strong instinct to see the relations between states regulated in the same orderly way that our internal affairs are run. Despite an excellent record in war we are internationally recognized as a peaceful state. The fact that others do recognize these qualities in us in part prescribes our role in international affairs, for we are often sought out to perform duties where fair mindedness and an absence of international ambition are the desired criteria.

These then, in broad outline, are the factors constantly affecting our external attitude both politically and militarily. But there are other factors, more transitory in nature which of necessity exert great influence upon us. By these I mean those major international forces currently at work which determine the circumstances in which Canada must play out its international role. In the post-war period I identify three such dominant factors.

(1) the breakdown of the cooperation of the wartime allies and the emergence in its place of a power struggle between the conflicting ideologies of international communism and western democracy;

(2) what I would call the nuclear equipoise—the development by two powers of the ability to wipe out civilization. As I have indicated, this development is in the process of revolutionizing the role of war as an instrument of policy;

(3) what Prime Minister Nehru called "the revolution of rising expectations". This embraces not only the vast movement towards independence which has marked the decline of the colonial era but also the ever more insistent demands of less developed nations for a higher standard of living.

It may not be immediately apparent how all of these factors influence our defence policy, but I believe all the members will see how they bear on our foreign policy, from which our defence posture is inseparable.

I should like to briefly state, without any particular order of priority, some of the main aspects of Canadian foreign policy as they have developed over the last ten to fifteen years. I then propose to describe the interdepartmental machinery used by the departments of External Affairs and National Defence to cooperate in carrying out the policies of the government.

In the knowledge that Canada could not alone defend itself and in face of the Soviet threat that developed after world war II, Canada has subscribed to the principle of collective security; hence we became a charter member of the North Atlantic Treaty Organization and we have cooperated with the U.S.A. in the defence of North America. Canada has in addition been a firm supporter

of the United Nations and as international peace-keeping machinery has developed both inside and outside the U.N., we have taken a full share in providing the necessary forces to carry out this international responsibility. We have always believed in the vital necessity of reducing and eliminating the means of waging war and we have become increasingly concerned about the trend towards an unrestricted arms race; for this reason successive Canadian governments have played an active part in the search for meaningful agreements in the fields of disarmament, arms control and nuclear testing. As a senior member of the commonwealth, we have maintained close relations with its newer members and as part of our policy of helping these new countries we have worked out with certain of them arrangements for technical military training and aid. This is a formidable list of responsibilities and I would ask you to remember that Canada is not a major power and that what we are able to do is necessarily limited by our financial and manpower resources.

It is in these areas of U.S.-Canadian defence cooperation, NATO, international peace-keeping, disarmament and commonwealth aid that there is a close working relationship between the departments of National Defence and External Affairs. Before describing how this works, I should like to say a brief word about the specific responsibility of External Affairs in the defence field. Ultimate responsibility for defence policy rests with the cabinet as the executive authority of government for all decisions relating to defence questions. There is also the cabinet defence committee which considers defence questions and reports to the cabinet on major matters of defence policy. The Prime Minister acts as chairman of this committee and both the Minister of National Defence and myself are members of it. The Department of External Affairs, through myself as Secretary of State for External Affairs, has general responsibility for advising the government and implementing action, where necessary, on the foreign policy implications of defence arrangements. Specifically, the Department of External Affairs

(1) coordinates and advises on the preparation of international defence agreements

(2) coordinates and advises on the implementation of certain specific defence agreements

(3) advises on the effects of Canadian defence policy generally as it relates to other governments.

To carry out these responsibilities within the department, we have defence liaison divisions which, in consultation with the political and functional divisions of the department, deal with NATO matters, Canada-U.S. defence problems, coordination of intelligence, international peace-keeping both under U.N. auspices and otherwise and technical military assistance to newly independent countries. A separate disarmament division is responsible for liaison with the Department of National Defence and for coordination of instructions to Canada's disarmament delegation. These responsibilities are coordinated through an assistant under-secretary of state for external affairs responsible to me through the under-secretary.

If Canada is to have foreign and defence policy commensurate with its national requirements and capabilities, the government must be able to work from a given and agreed set of facts. For the defence department of a country to base policies on one set of facts and the foreign office of that country to base policies on another is bound to lead to utter confusion and it has been the practice of Canadian governments particularly since the end of world war II to ensure that foreign and defence policy are based on agreed intelligence. Agreed intelligence and intelligence policy are the responsibility of interdepartmental committees on which sit representatives of the armed services,

defence research board, the Royal Canadian Mounted Police, and the Department of External Affairs. The chairmanship of these committees is provided by the Department of External Affairs. Further details on this aspect of cooperation are of necessity classified but I can tell you that it works well.

I turn now to a description of the machinery of interdepartmental cooperation in the various areas where Canada has specific defence and foreign policy commitments.

The highest authority in NATO is the council which is organized to meet at the level of ministers or permanent representatives. Ministerial meetings occur usually twice a year, the most recent being in Ottawa but permanent representatives usually meet on a regular weekly basis and otherwise as often as circumstances dictate. The permanent delegates in Paris speak for their governments in the NATO council and the Canadian NATO delegation is in the charge of a senior member of the Department of External Affairs with the rank of ambassador, at present Mr. George Ignatieff. He has serving under him a senior military adviser, a number of officers from the Department of External Affairs as well as representatives from other departments dealing with such matters as defence production, the financial aspects of Canadian defence commitments to NATO, emergency planning and scientific cooperation and research.

Important matters of military policy that have been approved by the military committee of NATO come before the council from time to time and instructions to our NATO delegation on such questions require close coordination between National Defence and External Affairs. The council as the supreme body of the alliance is itself concerned with strategic policy and overall defence planning and, in recent years particularly, the council has concerned itself with the problems that arise from operational planning and control of the nuclear forces available to the alliance. At the Ottawa meeting the NATO ministers directed the council in permanent session to undertake further studies of the inter-related questions of strategy, force requirements and the resources available to meet them, and the council is now beginning this major review. Canadian views on these politico-military questions are sent to the NATO delegation regularly in the form of telegraphic instructions. The instructions themselves are the product of consultation between the Department of External Affairs and the chairman of the chiefs of staff who is responsible in the Department of National Defence for advising the minister on policies relating to NATO.

To carry out the day-to-day work of the alliance, there are numerous NATO committees and the provision of instructions to the Canadian delegates to these committees requires close interdepartmental cooperation in Ottawa. Examples that come to mind out of the twenty odd such committees that exist are the annual review committee, the armaments committee, the science committee, the infrastructure and military budget committees. The general rule in Ottawa is that the department or service primarily concerned is responsible for drafting instructions to the delegation and the Department of External Affairs is responsible for coordination and ensuring that the instructions are compatible with Canadian foreign policy before despatching them to our delegation. The foreign policies of the member states are of course harmonized to the greatest possible extent through continuous consultation in the permanent council.

Another important aspect of Canada's NATO program is mutual aid. Since 1950 Canada has provided over 1¾ billion dollars to member nations of NATO in the form of transfers of equipment from production or service stocks, aircrew training in Canada, and financial contributions to NATO common infrastructure and military budgets. The responsibility for providing the

aid rests with the Department of National Defence and the policy questions relating to who should get what aid and the negotiation of the arrangements under which the aid is to be provided are matters on which the Department of External Affairs advises.

Canadian co-operation with the United States in the defence of North America has acquired added significance because of our unique geographic position, placing on Canada a responsibility to help to protect the U.S. nuclear deterrent forces which are the final guarantor of the security of the western alliance. As the house has been informed, we are now negotiating an agreement with the United States to make available nuclear warheads to make effective the weapons systems already acquired by the Canadian armed forces. The Department of External Affairs has primary responsibility for negotiating such an agreement, although naturally we rely for expert advice on the Department of National Defence. In the negotiation of defence agreements and where consultation on the implementation of agreements on policy questions arise, the normal diplomatic channels between the Department of External Affairs and the embassy in Washington or between the department and the U.S. embassy here are available and are often heavily engaged in such matters.

In addition, the Department of External Affairs is represented on those intergovernmental bodies on defence which deal with more than the purely military aspects of defence questions. One such body is the ministerial committee on joint defence. In 1958 the United States and Canada agreed that the importance and complexity of interdependent defence relations made it essential to supplement existing channels for consultation and to provide for a periodic review at the ministerial level. It was envisaged that this review would include not only military questions but also the political and economic aspects of joint defence problems. The committee consists on the U.S. side of the secretaries of state, defence and the treasury and, on the Canadian side, of the ministers of External Affairs, National Defence and Finance. The last meeting of this committee was held in 1960 but, as the Prime Minister and President Kennedy announced at Hyannis Port, a meeting will be held in the latter part of this year probably, but the date has not been fixed.

I do hope—if I may say by way of parenthesis—that this committee of ministers from both countries in this particular field would be able to meet sometime around the early part of December. And I might add that the other committee of ministers from both countries dealing with economic and trade matters, I hope would meet sometime between the 8th and the 25th of September or, if not then, sometime—I would hope—between the 28th of September and the early part of October.

Supplementing the ministerial committee is the permanent joint board on defence which has been in existence since the Ogdensburg declaration of August 1940. The board comprises both civilian and military representatives and thus permits open and frank presentation on a thrice yearly basis of the civilian and military viewpoints of both countries on current defence questions. The board comprises a Canadian and a U.S. section. The chairman of the Canadian section is Mr. Dana L. Wilgress, a distinguished Canadian public servant who, before he retired from the Department of External Affairs, was Canada's permanent representative to NATO. In addition, the vice-chiefs of staff of the three services are members and there is also a member and secretary provided by the Department of External Affairs. For some years representatives of the Departments of Transport and defence production have attended board meetings. Where it is desirable, each section may have in attendance for particular meetings representatives of other government departments. Over its 23 years of existence, practically all of the important joint defence measures

taken since 1940 were originally discussed in the board and many of them resulted from the board's recommendations, and made by the board.

The board is a wholly advisory body, and does not have the authority to enforce decisions or to take implementing action on substantive matters.

Disarmament and defence are sides of the same coin in that they are alternative routes to national security. It is evident that the requirements of our national defence have an important bearing on the positions we take in international discussions on disarmament. In the long term, the alternative to disarmament would be increased competition in armaments and ever-larger military budgets, without any lasting guarantee of peace and mutual security. It is for this reason that Canada must continue to work for the adoption of a program of comprehensive disarmament under effective international control. We believe that the eighteen nation disarmament committee provides a satisfactory forum for discussing specific disarmament proposals, and that Canada—as a member of that committee—can best contribute to maintaining progress in these discussions by assisting in the formulation of realistic western proposals.

At the same time we have to recognize that until there has been a substantial degree of actual disarmament—with a parallel increase in the peace-keeping capabilities of the United Nations—Canadian security will depend primarily on collective defence within NATO and under NORAD. But just as it is important to ensure that our national policies on defence and disarmamment are compatible with one another, it is equally necessary that a similar balance of aims be achieved in the western alliance as a whole—and Canada can, I believe, help to bring this about in the course of regular consultations as we do within the north Atlantic council.

I need hardly point out to members of the committee how important it is for our activities in these two closely related fields to be fully and effectively co-ordinated between the various government departments concerned.

The disarmament division of external affairs maintains regular contact with the defence research board and the directorate of strategic studies of the Department of National Defence on research into the technical aspects of disarmament as well as on disarmament policy generally. General E. L. M. Burns is the adviser to the Canadian government on disarmament and has responsibility for the direction of general operations and research proects as well as being head of the Canadian delegation to the eighteen nation disarmament conference in Geneva, whose sessions will shortly be resumed. The disarmament delegation under General Burns consists of officers from the Department of External Affairs and a military adviser from National Defence. In Ottawa it is the function of the disarmament division and the directorate of strategic studies to assist General Burns in carrying out his responsibility as adviser on disarmament to the government.

We have over the years assumed a variety of international peace-keeping responsibilities. I know that my colleague, Mr. Hellyer, mentioned these in his statement, and I would like to amplify them. We took part in the United Nations action in Korea and in the United Nations force in west New Guinea and, as you will have learned from the chiefs of staff, Canadian armed forces personnel at this time are serving on the Jordan and Syrian borders, the Gaza strip, the Congo, whose operations are soon coming to an end, the international commissions in Laos, Viet Nam and Cambodia, Kashmir and the Yemen.

Co-operation in these operations between the departments of External Affairs and National Defence is essential but formal advance planning for them is very difficult. We can never know I suppose when a request will be received from the United Nations nor for what type of personnel. My colleague, the Minister of National Defence, has already mentioned the army battalion which has been earmarked for United Nations service since 1956. Yet it has

never been asked for and, instead, we have provided a reconnaissance squadron, administrative troops and RCAF personnel for the United Nations emergency force, in Gaza, observers for Kashmir, Palestine and Indo-China, specialized air force personnel for the Congo and the Yemen and signallers for the Congo. Operations in Viet Nam, Laos and Cambodia are, of course, not United Nations operations.

Let me describe what happens when a request is received from the secretary-general of the United Nations, as it recently was in the case of Yemen, for Canadian help in a peace-keeping operation. Because of the experience that has now been built up, the request itself will be fairly specific for the secretary-general and his military advisers will have discussed what Canada might be able to provide with the Canadian delegation in New York to which is attached a military adviser. On receiving the request, a joint submission from the Minister of National Defence and myself may be made to cabinet asking for government approval to provide the required personnel and equipment for the operation. If cabinet agrees, the Department of National Defence is responsible for selecting the appropriate personnel and equipment and sending them to the area concerned while external affairs is responsible for negotiating conditions of service, making any necessary arrangements with the country or countries to which the service personnel will be posted and providing any diplomatic assistance that may be necessary on the spot through the appropriate mission.

In United Nations peace-keeping operations policy direction is given by the secretary-general, sometimes assisted, as in the case of the Congo, by an advisory committee representing the contributing powers. Canada is represented on the Congo advisory committee by the Canadian permanent delegation to the United Nations. In the case of the Indo-China commissions, which do not come under the United Nations, instructions regarding implementation of the cease-fire agreements are sent from external affairs to the three Canadian commissioners.

We have always been interested in the evolution of the various ad hoc UN operations into more permanent peace-keeping machinery but we recognize that this is still some years away. Meanwhile, the best we can do is to be adequately prepared and sufficiently flexible to meet a UN request with the minimum of delay. In international peace-keeping, no two cases are the same and close co-operation between civilian and military departments is the only answer. What is the same in all cases, however, is the calibre of the Canadian service personnel and the excellent job they do even under extremely difficult circumstances, as is the case in Laos and in Yemen. One of the prime reasons that Canada has been asked time and again to help in these problems is because of the high professional standards and ready adaptability of the members of the Canadian armed services, and I should like to pay my tribute to them. As the chief of the general staff has already told you, they make excellent ambassadors for Canada. Another reason for our frequent selection for this task is that by tacit consent the great powers usually do not participate and the UN secretary-general looks to the ranks of the broadly respected middle powers to fulfil this function.

The Commonwealth

To assist newer members of the commonwealth in establishing a well trained nucleus from which they can build their armed forces to guarantee their own independence, we have undertaken a certain amount of military training. This training can take place here in Canada or in the commonwealth country concerned. The most ambitious program in Canada is the training of Nigerian army, navy and air force cadets, as well as some technical personnel. Nigeria formally asked Canada for training aid in 1961 and the arrangements under

which Canadian aid is provided were formalized in a technical assistance agreement on military training signed in Lagos this year. Similar training has been given to personnel from Trinidad and Tobago and we expect arrangements to be made in the near future for the training of cadets from Ghana; and I have discussed only recently with representatives of other governments in Africa similar processes for them.

In June 1961, the Canadian government agreed to a request from Ghana to dispatch a team of approximately 30 officers and men to assist the training of the officer corps and technicians of Ghana's armed forces. This team arrived in late 1961 and now serves at the military academy and training school, the air force training centre and the air force flying training school. The Canadian armed forces training team is led by a senior Canadian officer who acts both as liaison officer between the team and the Ghanaian authorities and as military adviser to the Canadian high commissioner in Accra.

The only equipment assistance that has been given to commonwealth countries is the aid that has been provided by Canada to India to assist that country in meeting the threat that has developed from China on the northern border. Otherwise, Canadian exports of arms are effected by commercial transactions tightly controlled and licensed to ensure that the arms are not sold to countries in areas where tension exists.

I have dealt at some length with the machinery of co-operation between the Department of External Affairs and Department of National Defence because I want to make clear to the committee the close interrelationship that has developed and will continue to develop between foreign and defence policy, and to point up how necessary is close co-operation between our military and civilian authorities. A prime example of this interrelationship is the National Defence College. This college was established after world war II to give officers of the Canadian armed services, members of civilian government departments and from time to time representatives from key industries an opportunity to work together in examining global political, military and economic developments. The students at the National Defence College are expected to hold senior positions in later years in government departments and in the armed services, and there is no doubt that the broadening experience they receive at the National Defence College and the chance to work together make them more useful in their future careers. The college has a commandant drawn from the armed services and a directing staff made up of representatives from national defence and external affairs. The Department of External Affairs is responsible for arranging, through the Canadian diplomatic missions abroad, for National Defence College to pay visits to various parts of the world as part of its course of study.

I should like to add that this morning before coming here I spent some time with the members of the NATO Defence College who are here in Canada as they have been in other NATO-member countries. This organization is predicated somewhat on the experience of our own National Defence College. It similarly hopes to emulate the Imperial Defence College. It is made up of senior officers who come from all of the NATO countries and who are in Canada to learn about Canada, its problems, its foreign and its defence policy.

Before I conclude my statement I wish to say something to the Committee about the concern I have had for some time past about the need to improve the co-ordination and planning of government foreign, economic and defence policy. May I remind you of what I said in another capacity in the House of Commons last January 24:

> One striking fact it seems to me in international affairs today is the interrelatedness of a nation's defence policy, its foreign economic policy and its over-all policy. These three areas which in the past we

> have tended to look upon separately, now must be considered all together. Indeed, the continued nature of this interrelatedness has major implications, as I see it, for our own foreign policy, particularly in the area of planning and co-ordinating of our own efforts and our own policies. Perhaps we should be considering some alterations. Do we have over-all planning and co-ordination of effort in the government at the present time which gives its total attention to a particular problem in external relations and is continually casting its eye up and down the radar screen looking for problems in areas where Canada can exert an influence? The diplomatic influence and effectiveness of a nation is a total process, a composite whole, in which our political conduct, the state of our alliances, the amount of foreign assistance which we give, our military power, our domestic economic situation, operate all together.

The Canadian government is now committed to a national review of defence policy and to a NATO defence review which will require the direct collaboration between the departments of External Affairs, Finance and National Defence. My colleagues and I are now examining ways and means of improving interdepartmental co-operation. Neither foreign policy nor defence policy can remain static in the nuclear age and we must always be searching for improvements to the policies and the ways they are carried out. As I said in January:

> We need to be constantly re-examining our foreign policy objectives, constantly querying the means by which these objectives are carried out. Let us not exaggerate our achievement, but let us bear in mind that in this difficult period there must be stated goals of foreign policy carefully adhered to, respected by all branches of the government, the defence department as well as the Department of External Affairs.

It has not been difficult throughout most of the postwar period to define the main goals of Canadian foreign policy. We have been living under a massive threat from militant communism in circumstances of cold war which robbed the United Nations of its ability to perform its main peace-keeping operations under article 43 of the charter. Clearly our first duty has been to help maintain the peace through collective security arrangements, and this we have done through playing our full part in NATO and NORAD consistent with our resources. It represents our contribution to the deterrent which has successfully kept a precarious peace while time and internal developments in the communist world could work towards a more stable basis for international relations.

In this same period of dangerous confrontation between major military alliances, we have worked steadfastly to reduce and ultimately to bring under firm control the means for waging annihilating major wars. This we have done through our active participation in New York and in Geneva in the work of successive disarmament conferences, recognizing that there was no ultimate security in an unrestricted arms race and that balanced, phased disarmament was an alternative and less costly route to the same end. Our support for an end of nuclear testing under adequate safeguards and for limitations on the dissemination of nuclear weapons should be seen as respectively qualitative and quantitative controls aimed at reducing war-making capacity.

At the same time, and in this same period, there has been an urgent need to improve the international means of dealing with limited wars and regional disputes, and otherwise developing the means for the peaceful settlement of potentially dangerous conflicts. Here our support for the United Nations both in its mediation functions and in its peace-keeping roles has been the main vehicle for Canadian action.

It has been reasonably obvious up to now that the main emphasis in our foreign and defence policies had to be on practical measures of collective security since it would have been foolhardy indeed to rely excessively on the fragile international experiment in international peace-keeping.

But the nature of the threat is in transition. Under the umbrella of mutual deterrence, the major nations have been groping towards a more civilized relationship. The contest will go on, but its arena will be increasingly in the ideological and trade spheres, with much attention being paid to winning the support of less developed countries. In our anxiety to make our best contribution to international peace and stability, the West must not overlook the second major force of instability in the world—the gap between the "have" and "have not" nations, which unhappily is paralleled also by the division of the world along colour lines. Here the commonwealth is a major instrument for peace at our ready disposal, and should be cherished and fostered, particularly through technical assistance and aid programs.

The new phase on which we may be embarking shortly may offer new opportunities for developing the international peace-keeping machinery envisaged in the charter to replace efforts in the field which have so far had to be accomplished by ad hoc improvisation. The problem for a country like Canada will be to decide how much of our limited military resources to put into the deterrent forces which will have to be maintained for a long time to come and how much to devote to developing international machinery for the preservation of peace, conscious that such machinery probably represents the character of the future.

The CHAIRMAN: Thank you, Mr. Minister.

Gentlemen, I listened carefully to the statement of the Minister and endeavoured to see if it could be divided into two or three parts in order that we could limit our questions to different sections. However, because of the limited time available this morning, perhaps members of the committee would prefer to start questioning on the complete report rather than by sections. Gentlemen, which would you prefer to do? Would you prefer to proceed by sections or to take the whole document at once?

Mr. GROOS: All at once.

The CHAIRMAN: All at once?

Some hon. MEMBERS: All at once.

Mr. GROOS: Mr. Chairman, apropos of this business of questioning, I am not a member of the steering committee and I am a little bit unhappy about the way in which the rules of questioning are being applied. For example, there are a number of questions which I think would apply to specifics and to topical matters which would not be allowed if we were going to ask questions in connection with this whole paper. I have listened to a number of papers from the chiefs of staff and now this very interesting one from the Minister of External Affairs. However, they are mainly papers of organization and contain generalization matters of policy. I had hoped I would be allowed to ask some of the questions which I have in mind at this time because I think they would be very valuable in the guidance of this committee. For instance, the questions which I want to put to the chiefs of staff will have to wait until next year because the questions I wanted to put to them did not deal with matters in the paper. I would hope you would permit me to ask a question which does not arise out of this paper. I have two or three questions and the first question I want to put to the Minister of External Affairs is this: one of the causes of the potential divisions within the western alliance today is this matter of the western response to foreign acts of aggression. At one time the United States laid down very clearly the total nuclear immediate response. They now seem to be leaning toward a limited flexible response. Any response that is made will

involve a Canadian effort. I note that the German people are not very much in favour apparently of this new idea of limited flexible response. I should like to ask the minister, since this seems to me to be a matter of foreign policy and not just defence policy, what is Canada's attitude toward a limited flexible military response to foreign aggression? Do we agree with this, or are we in favour of an all-out immediate response?

Mr. MARTIN (*Essex East*): This is a very difficult question to answer, but as your question has been put in a general way I would say that we do favour that type of response. The very nature of your question is one that has the same objection that you find in these formal statements. It requires a great deal of delineation and presentation of factors which are implicit but not explicit in your question. I have given the answer to your question.

Mr. GROOS: My follow-up question is much shorter. I wonder whether I could have the minister's comments in regard to a recent situation which has developed. I have in mind the recent actions of France and General de Gaulle's insistence upon an independent line of action based upon his independent nuclear force. As I understand it, this situation is going to be dangerous to the NATO alliance because of the possibility of France's ability to precipitate some nuclear exchange or nuclear conflict, and yet they are not in a position to conclude what they may start. Would the minister care to comment in this regard?

Mr. MARTIN (*Essex East*): I think that the position taken by France must be understood in the light of the fact that the NATO alliance is one of free nations. It seems to me that, having in mind that fact, we will appreciate that the extent of unity in NATO is perhaps much greater than popular comment from time to time would seem to indicate. I do not think one can emphasize the fact too much that NATO is an alliance of free nations wherein countries exercise independent foreign policy as well as domestic policy, and the implications of that freedom are apparent. I should like to emphasize that there is great exaggeration concerning the disarray that is attributed to NATO at the present time. I would remind the committee of the statement made by General de Gaulle in Athens, not long ago—as a matter of fact, at the very time we were meeting here in this building at the recent NATO ministerial meeting—when he referred to France's adherence to the basic purposes and principles of NATO. Obviously there are bound to be problems, but the contribution made by France to NATO is very considerable, and I am sure that that contribution will increase.

Mr. MCMILLAN: Is France committed to a nuclear defence in the event of an attack even though she does not allow nuclear arms to be stored on her soil?

Mr. MARTIN (*Essex East*): France is a separate nuclear force in herself. She is one of the four countries with a nuclear force. When I say she is a nuclear force, one must recognize that the extent of her nuclear capacity is one that is in the stage of continuous development.

M. MARCEL LESSARD (*Lac-Saint-Jean*): Monsieur le président, je ne sais pas si l'honorable secrétaire d'État aux Affaires extérieures (M. Martin) doit nous dire—je comprends, évidemment, qu'il est difficile pour le Canada de se prononcer, il n'a pas à se prononcer, il n'a aucun rôle à jouer . . .

M. le PRÉSIDENT: Plus lentement, s'il vous plaît, monsieur Lessard? Est-ce qu'on comprend? Pour l'interprétation, voulez-vous reposer votre question, monsieur Lessard?

M. LESSARD (*Lac-Saint-Jean*): M. Martin peut-il nous dire pourquoi la France n'a pas été invitée à cette conférence de Moscou, parce que si on se réunit à Moscou pour discuter des bases d'une entente visant à bannir les

essais nucléaires, je crois que tous les pays qui ont un potentiel de production nucléaire devraient être invités à cette conférence. On a tenu une conférence à Moscou et la France n'y a pas participé. Maintenant, on va probablement signer une entente à laquelle la France ne sera pas partie. En somme, on ne sera pas beaucoup plus avancé qu'on l'était avant, puisque, avant, nous étions la France, l'Angleterre et les États-Unis d'un côté, avec les Russes de l'autre. Maintenant, nous allons être les États-Unis, l'Angleterre et les Russes d'un côté, avec la France de l'autre. Pourquoi, à votre avis, la France n'a-t-elle pas été invitée à cette conférence?

L'hon. PAUL MARTIN (*secrétaire d'État aux Affaires extérieures*): Ce n'est pas une question d'invitation, c'est une question de participation. La France a décidé qu'elle ne voulait pas participer, pas dans ces discussions particulières, mais dans les discussions antérieures. Ce n'est pas une question d'invitation, c'est une question qui relève du programme de la France elle-même.

M. LESSARD (*Lac-Saint-Jean*): C'est la France elle-même!

L'hon. M. MARTIN: Nous allons examiner avec grand intérêt la déclaration que le général De Gaulle fera lundi prochain.

M. le PRÉSIDENT: Monsieur Lessard, si vous avez une autre question sur le même point, continuez.

M. LESSARD (*Lac-Saint-Jean*): Le secrétaire d'État aux Affaires extérieures peut-il nous dire, étant donné qu'il a spécifié que maintenant la politique étrangère est étroitement liée à la politique de défense, s'il croit que, prochainement, on va considérer que la politique étrangère et la politique de défense sont aussi liées avec la politique du commerce extérieur, parce que la politique du commerce extérieur a une portée très grande, à mon sens, sur le développement et les problèmes qui peuvent survenir, et je crois même que tous les conflits antérieurs ont originé des problèmes économiques des pays.

L'hon. M. MARTIN: Certainement, il y a une application, pas seulement en ce qui concerne la défense et le commerce, mais pour tout ce qui touche les départements d'action d'un gouvernement ou d'une nation, certainement. Comme preuve de ce que je dis, je vous mentionne que, chez nous, au ministère des Affaires extérieures, vous avons une decision du communes où M. A. E. Ritchie, notre sous-secrétaire, s'occupe des problèmes économiques, des problèmes sociaux et des problèmes du commerce avec les autres nations. Cela dépend aussi de la manière dont le gouvernement se comporte dans le domaine domestique.

The CHAIRMAN: Before recognizing Mr. Matheson, I want to say a word. As you know, I am taking down names of members as they indicate to me they want to speak. It was agreed at an earlier meeting that if you have a supplementary question to ask following a question asked by one of the members, you just have to say "supplementary question", so I would recognize you immediately. Otherwise, I pass to the second name I have on the list.

Mr. MATHESON: You spoke on several occasions of the relationship between the defence policy and the foreign policy, and that you hoped to see a growing coordination between the two. Elsewhere in your paper you spoke of Canada playing a full part in NATO and NORAD consistent with our resources. During the deliberations which we have already had in this defence committee it became obvious that our contribution to NATO, in a military sense and computed on the basis of our gross national product, is very nearly at the bottom of this list.

Mr. MARTIN: Would you mind repeating that?

Mr. MATHESON: From evidence we have already received—and I forgot the witness—it is clear that our contribution to the military in NATO, com-

puted on the basis of our gross national product, is very nearly at the bottom of the list. I have read NATO publications which indicate that our foreign aid to underdeveloped countries, both NATO Europe and NATO North America, appears to indicate—and I am referring now to the reports for the year 1960—that in this area of external affairs our contribution is very nearly at the bottom of the list. Do you feel, sir, from your general experience of Canada's participation, that we have been playing anything like our full part either in the defence or in the foreign aid aspects of this over-all external affairs policy?

Mr. MARTIN: With regard to the first part of your question, I do not believe that the contribution a nation makes to NATO depends upon the extent of the gross national product. All I can say is that we have lived up to the commitments that are measured by our expenditures, with the exception of the nuclear role which does not necessarily involve a question of economics.

Now, with regard to external aid, I can only say, Mr. Matheson, that we are now giving careful review to our external aid policy in the light of our capacity, our domestic obligations, and the need which we believe exists in the world for increasing attention by the more fortunate nations to the developing countries.

Mr. SMITH: Mr. Chairman, just as a matter of accuracy, although the point is not very important, Canada, according to Air Marshal Miller's evidence, is not nearly at the bottom of the list. On page 61 of volume 3 of the committee hearings the list is given, and I think you will find Canada is exactly in the middle or average rather than at the bottom of the list.

Mr. MARTIN: My point is that these statistics may or may not be true, but this is not necessarily the important factor. The question is: are we making the contribution to NATO that is expected of us and are we living up to our commitments, with the qualification that I made?

Mr. BREWIN: May I ask a supplementary question?

The CHAIRMAN: Mr. Matheson is not through.

Mr. MATHESON: This final question will be a brief supplementary question. I believe, from what we have seen already, that the tendency has been in certain areas for these nations, our allies, within NATO to increase relatively their contribution as a proportion of the gross national product. In our case this has represented a substantial decline. Is this a tendency that as Secretary of State for External Affairs you consider reasonable in the light of our geography and our obligations, or is it something that we should re-examine?

Mr. MARTIN: I think our duty is to live up to the commitments. We might make a very inefficient contribution if we acted otherwise, if we overstepped the measure of the commitments demanded of us. That is why it would be difficult, it seems to me, in the case of a country that is living up to its commitments, to be overly concerned about whether or not it is spending all that its resources might enable it to spend. The important thing is to do an efficient job in accordance with the plan and in accordance with the contributions demanded of us.

Mr. BREWIN: Mr. Chairman, apropos of what the minister has said about our contribution to external aid, I would like to ask him this question: I have in front of me the figures put out by the dominion bureau of statistics for 1960.

Mr. MARTIN: Are these the ones mentioned by Mr. Knowles yesterday?

Mr. BREWIN: By the dominion bureau of statistics. According to this list our contribution to defence was $1,640 million. Our contribution to international assistance was $68 million. I would like to ask the minister, in the light of the things he said in his statement to us and in the light of the answer he gave to Mr. Matheson, whether he does not think there is a serious imbalance or a serious lack of balance between the two forms of contribution to security.

Mr. MARTIN: I should like to answer your question, Mr. Brewin, by saying that apart from the validity of those statistics in the particular context, none of us I am sure in this room is pleased with the fact that we are spending more money on defence than we are in assisting underdeveloped countries. Indeed the whole effort in the disarmament debate and in the disarmament forum is designed I would hope—and certainly this is the policy of Canada—to try to bring about, within conditions of security, a reduction in the conventional and nuclear arms to a point where we might hope to transfer expenditures into other areas, as you have just mentioned.

I know that in 1954, when I was a member of the subcommittee on disarmament, we put forward ideas to our colleagues from France, Great Britain, the Soviet union and the United States—a plan in support of one that had been put forward earlier by France—that for every dollar saved in defence a proportionate amount would be set aside to assist underdeveloped countries. However, we have not been able to do that, and the reason is that we have lived in a world, since the end of the war in particular, where our freedom and our integrity have been challenged in a way that demanded of us the expenditure of colossal sums of money in the establishment of defence forces without which I am sure our peace could not have been maintained.

That is the situation, and the moment we can reach a stage when we can transfer military expenditures into peaceful pursuits we will all be very pleased. This is the objective of the foreign policy of this country. I hope that the discussions that have been taking place in Moscow for the last ten days with regard to a partial ban on nuclear testing, will provide a basis for a more successful give and take in the disarmament discussions in the eighteen-power committee. It remains to be seen if that will be the case. We have had overtures made before, but we hope that this time there may be a very substantial advance. If there is, then we can give increasing attention to the problem which you quite properly projected before us this morning.

Mr. DEACHMAN: May I assume from what the Secretary of State for External Affairs has said that it is basic philosophy that assistance in the development of less fortunate countries is in itself a powerful factor in encouraging peace?

Mr. MARTIN: Oh, undoubtedly. I agree with some of the implications of Mr. Lessard's question, when he said that the conflict is a product of economic discontent and the absence of economic advantage. Undoubtedly a way to promote peace in the world, among other ways, is to provide for an improvement in the standard of life of peoples in the world who do not enjoy our economic advantage. Any nation that does not recognize this is not recognizing one of the factors which will provide for an orderly arrangement among the nations of the world.

We had here last week one of the most impressive men I have met in a long time, the president of Tanganyika, a man who has been a real leader of African unity, and who has been a vital factor in the federation between Tanganyika, Uganda, and Kenya, which may come into being at the end of this year. He told me—and he told the Prime Minister—that in his country of 10,000,000 people there were only 500 doctors. That statistic alone speaks for itself.

I, myself, have seen a country where there were one and a half million people and only four doctors, and only one hospital. It must be obvious that as long as these conditions prevail in the world, we cannot rest and we cannot be assured that we have laid down conditions for the peace that we have in our more orderly communities.

Mr. DEACHMAN: Mr. Chairman, the minister's address this morning made reference to a number of committees, and these are committees which inter-

lock with other government departments, and in some cases are international committees involving the United Nations or NATO. I wonder, as part of the information before us, or as an appendix to our proceedings, whether we might be given a diagram which perhaps the departments of External Affairs and National Defence might prepare, a box diagram, indicating what these committees are, who their personnel are, and what their function is? I wonder if that could be done?

Mr. MARTIN: We will be glad to provide you with a diagram; but I would like to give some consideration to the question of the personnel, because there are some implications in that.

Mr. DEACHMAN: And when I say personnel, I mean this: would it give us some indication of the fact that representatives at various levels of the departments of National Defence and of External Affairs, or whoever it was, were sent to this committee, and what the purposes of the committee would be?

Mr. MARTIN: I would wish to consult my colleague the Minister of National Defence; but subject to that, we will do our best.

Mr. BREWIN: I have in mind a question which is different from anything that has been mentioned. It arises only out of the minister's statement. The minister referred at page 14 to the fact that we are now in the process of negotiating an agreement with the United States to make available nuclear warheads. I do not want to delve into secrets, but I think it is important for this defence committee to know the extent of our commitments for the future in respect of that matter.

I may say that I cherish here an article by the Minister of National Defence in which he made this statement:

> One of the questions which bothers many sincere people is this: will not the fulfillment of our commitments now make it impossible for us to pursue anything but a nuclear role in the future? The answer in my opinion is a resounding no.

Then the minister goes on to say that despite his views that we are bound by existing commitments to assume the nuclear role, he does not think that that binds us in the future. Now, at present the minister, the Secretary of State for External Affairs, answering a question which I asked in the house, said that we would be committed by NATO processes for the nuclear role. The thing I would like to know is the extent of that commitment. How far does it bind us in the future, and how far would this committee be free to recommend disengagement from commitment for the future from the nuclear role. I would welcome clarification on that point.

The CHAIRMAN: Would Mr. Brewin give the date of the article?

Mr. BREWIN: The date is January 25, of this year and it appears in *The Varsity Weekend Review*.

Mr. MARTIN: Would you mind stating your question with characteristic precision?

Mr. BREWIN: Thank you. I shall try to do so, and I hope the minister will answer it with his characteristic precision.

Mr. MARTIN: I won't say that.

Mr. BREWIN: How far are we committed in the future—I am not talking about the present—but how far are we committed in the future to a nuclear role in NATO?

Mr. MARTIN: Well, I would like to remind you that in 1957 the nuclear role of NATO was determined in principle as reported to the Canadian parliament by the Prime Minister of the day. Our commitment in respect of the

negotiations to which you made reference a few moments ago is in respect of these weapons systems which create that commitment. The evidence therefore consists in the NATO meeting of 1957, the meetings in NATO itself, and decisions of the Canadian government.

It is to be found in Canadian replies and comments under the NATO annual review procedure, statements made in the Canada-United States ministerial committee on joint defence, in records and discussions of the permanent joint board on defence, in documents which have to be read in their entirety, and in the sequence, of course, in which they were written. These show clearly that over a period of more than four years the government made certain operational nuclear commitments. The equipping of Canadian forces with appropriate nuclear systems was the demonstrable proof. And the logic of this policy was the ultimate arming of these delivery systems with their nuclear ammunition. No alternative arrangements were made by NATO to meet the situation which would have arisen if Canada had failed to live up to its commitments. Nowhere is there an indication that the Canadian government of the day made any reservations with regard to the arming in due course of the nuclear weapons systems it had acquired, or with respect to the discharge of the operational role to which the forces were assigned. Public pronouncement by government spokesmen of that period confirmed the private record.

I do not think I can go any further than that.

Mr. BREWIN: Mr. Chairman, I appreciate what the minister has said. It is consistent with what he has said before, but he has not dealt with the point I am trying to make. What is the termination of those commitments? I think the committee wants to know how far we are bound in the future by these commitments; at what point would we be free in the future to recommend a different role and still live with the commitment?

Mr. MARTIN: I do not think I can go beyond what I have already said. If you can foresee the future, I would like to know it myself. Nobody can tell what the future is going to be. The present commitment depends, I suppose, upon the life of the present weapons systems; it would depend also upon the review being made by NATO itself, and on the nature of the threat. These are circumstances which no human being, I think, can really foresee. It is not really possible to answer your question except in the general way in which I have done it.

Mr. BREWIN: I may perhaps put a supplementary question in this way: whether the minister agrees with—

Mr. MARTIN: Mr. Brewin, you and I know one another very well. I think you are too wise to think you are going to interrogate me with success along these lines. I believe you know you would be wasting your time. I would suggest that you base your questions not on a newspaper article, but on something which is standard text.

I have before me, for instance, a public document in respect of the meetings of December, 1957, from which I will read two statements which directly touch on this question. This is the attitude which NATO itself takes with regard to the future about which you have been speculating. It says:

> As long as the Soviet union persists in this attitude, we have no alternative but to remain vigilant and to look to our defences. We are therefore resolved to achieve the most effective pattern of NATO military defensive strength, taking into account the most recent developments in weapons and techniques.
>
> To this end, NATO has decided to establish stocks of nuclear warheads, which will be readily available for the defence of the alliance in case of need. In view of the present Soviet policies in the field of nuclear

> weapons, the council has decided that intermediate range ballistic missiles will have to be put at the disposal of the Supreme Allied Commander Europe.

These were the difficulties, in part, raised at the meeting to which I made reference, the NATO ministerial meeting of December, 1957. By the way, this was a meeting of heads of governments; it was not merely a meeting of foreign ministers but rather of heads of governments.

Mr. BREWIN: The minister is quite right in saying I know him well enough to know the difficulty involved.

Mr. MARTIN: I hope you will say favourably enough.

Mr. BREWIN: I have one final question. I am quoting from a source which the minister will think is responsible, his colleague, the Minister of National Defence. To the question "will the fulfilment of our commitments now make it possible to follow anything but a nuclear role in the future", his colleague gave an answer, a resounding "no". I would like to know whether this minister agrees with that in the light of his present knowledge. Will the fulfilment of our commitments now make it possible to follow anything but a nuclear role in the future?

Mr. MARTIN: I do not think the Minister of National Defence's resounding "no" is inconsistent with what I said. I took a longer time simply to answer.

Mr. MACLEAN: I take it, from what the Secretary of State for External Affairs is saying, that we are not committed at the present time to replace any nuclear arms delivery vehicles when they become obsolete with nuclear arms delivery vehicles.

Mr. MARTIN: I cannot go any further than what I have already said.

Mr. PATTERSON: Mr. Chairman, if my memory serves me correctly, I believe that the present Prime Minister on some occasions indicated that the present government felt obligated to fulfil commitments in the nuclear field that had been previously entered into. However, he also indicated that the present government would seek to negotiate a non-nuclear role for Canadian forces. Now, perhaps that was NATO or Canada, or possibly both. The question I would like to ask is this: up to the present has any attempt been made to negotiate this non-nuclear role to which the now Prime Minister made reference?

Mr. MARTIN: Well, I do not think I can answer your question any better than to refer to what I said myself on May 27, 1963. I said:

> I want to make perfectly clear that Canada has undertaken no new commitments at the meeting just concluded. It is, however, the policy of this government to take the steps needed to make it possible for the Canadian forces to discharge the role accepted for them by the previous government. This was as long ago as 1959. That role would not disappear if Canada failed to carry it out; all that would happen would be that some other member or members of the alliance would have to shoulder the obligation in our place.
>
> The kind of forces Canada agreed to contribute were to meet part of an established NATO military requirement, and I am sure that no hon. member of this house would wish Canada to be placed in the position where it would be foisting upon others a task voluntarily assumed by Canada through the former government as part of the collective defence effort of the alliance. I stress the word "voluntarily" because the military contributions to meet agreed force requirements were assumed

as a result of bilateral discussions between the NATO military authorities and individual member states, and not all of them saw fit to undertake a nuclear role.

That appears at page 305 of *Hansard*.

Mr. PATTERSON: I understand the position as outlined there. However, on the other hand, as I stated before, I believe the present Prime Minister indicated his readiness to negotiate a non-nuclear role even though he felt at the moment constrained to fulfil this commitment. My question was: has any attempt been made to negotiate a non-nuclear role for Canadian forces?

Mr. MARTIN: This is such a vital matter that I am not anxious to speak without making sure that we have the position of the head of government when it is taken apart from the text. I will allow your paraphrasing of what the Prime Minister said to stand without any comment. I do not say that it is wrong; but this is such an important matter that I would not make my own paraphrasing without having before me the precise text itself. However, in answer to the last question you just put, I can only repeat that NATO itself is undertaking a review and this review is paralleling the review that is being made in Canada by the Minister of National Defence and those under his authority.

Mr. LLOYD: Mr. Chairman, I have a supplementary question.

From the comments made this morning I gather that this sort of simple conclusion, that there were certain considerations which impelled Canada in 1957 to undertake a nuclear weapons role in NATO and other proceedings and actions of representatives of this government at different times in the years since 1957, has not altered sufficiently to warrant a change from the position then taken. My question to the minister is this. Has the Department of External Affairs any reason to believe that considerations which impelled Canada to take its part in NATO in the use of nuclear weapons have changed, or have these considerations been re-examined recently? In other words, are they under the process of examination, and is there a possibility that the considerations which impelled us in 1957 have changed—that is, the significance of it may have changed at this time?

Mr. MARTIN: Well, I have indicated that there was a review being made by NATO; there is a review being made by the Department of National Defence, and I cannot add anything more to it than that, in view of the fact that there were commitments made, and the full and proper answer to your question would depend upon the events of the future.

Mr. LLOYD: I have a supplementary question. Would your answer not be that the considerations which impelled the policy of 1957 still remain the same?

Mr. MARTIN: Well, that is the declared policy of the government of Canada, as I indicated a moment ago, based on commitments undertaken by its predecessor.

M. LESSARD (*Lac-Saint-Jean*): Une question supplémentaire, monsieur le président, sur le même sujet. Est-ce que, à la lumière des engagements ou considérations, qui ont été pris ou faites de 1957 à 1959, pour procurer des armements nucléaires aux forces canadiennes de l'OTAN—ces engagements ayant été pris, basés sur des facteurs, des raisons précises—le ministre croit, ayant pris connaissance de ces faits, que le gouvernement canadien était justifié, à ce moment-là, d'entreprendre un rôle nucléaire pour le Canada?

M. le PRÉSIDENT: Un instant, s'il vous plaît...

The CHAIRMAN: Questions being asked by Mr. Brewin relate to the future and not to the past, but the discussions now are being directed toward past

situations. At the beginning of the sessions of this committee I made it quite clear that it was my hope that we would not discuss political decisions made in the past. I do not think this type of questioning will help us in any way in our deliberations, and I would appreciate very much if members would refrain from the pursuit of such lines of questioning. If members have in mind subjects along the lines of the questioning being pursued, such as; may we commit ourselves for the future and how long, or can we foresee the time when we can revert to conventional armaments, which attempt to discover previous political decisions of government as to certain commitments, I do hope that those members will respect the hope to which I have just referred. I do not feel that we will accomplish anything by discussing decisions such as those revealed by the question asked by Mr. Lloyd. This committee has been doing good work and it is my hope that we can continue to achieve good results if at all possible, and I would ask Mr. Lessard whether he would withdraw his question.

Mr. LESSARD: Yes, Mr. Chairman.

The CHAIRMAN: Merci.

Mr. MARTIN (*Essex East*): Mr. Chairman, would you allow me to simply say to Mr. Lloyd, as apparently he is under some misconception, that a decision that any NATO country takes, is of course its own decision, but that these very vital decisions are taken as well in consultation with their NATO partners in the light of their appreciation of the situation.

Mr. LLOYD: Mr. Chairman, I should like to ask a question supplementary to that statement. What I meant by the phrase "consideration would be taken" has reference to a free decision taken by a member country, and that this consideration is part of the whole consideration which finally results in a position taken. It would seem to me, Mr. Chairman, that the logical question arising from this conclusion would be, in this year 1963 in the light of our desire to remove ourselves from a nuclear role whenever it is possible to do so, as expressed by the Prime Minister, must we review those past considerations? This apparently is being undertaken, and the answer to Mr. Brewin's question would be that until those considerations alter we are committed to this role.

Mr. MARTIN (*Essex East*): No, I would not agree with the manner in which you are stating the situation. I would not disagree with what you state, but I would think that your suggested answer does not take into account the factors I had in mind when I replied to Mr. Brewin.

Mr. HAHN: Mr. Chairman, the question I wished to ask the minister has regard to an entirely different subject and, I am afraid, is an equally controversial one, but one which we should perhaps not overlook.

Mr. MARTIN (*Essex East*): Are you referring to the Montreal fair?

Mr. HAHN: Our defence or security approach appears to be directed toward protecting ourselves militarily, if we can, against our established potential enemy, Russia, while at the same time trying to work toward agreements on disarmament with this potential enemy as well as with certain underdeveloped countries which may some day, if we ignore them, become potential enemies. We deal, negotiate and plan aid programs in respect of these countries, but there is one potential enemy, China, with which we do not really seem to negotiate. I should like to ask the minister what are his views regarding the approach that should be taken in this direction because of the potential danger which may result if we ignore China.

Mr. MARTIN (*Essex East*): Mr. Hahn, this is an important question and I assure you it is not being ignored. One of the difficulties in this field is that the most successful diplomacy often times, certainly in stages of consideration

or negotiation, must inevitably be secret, otherwise you destroy the ultimate result of the policy or the end result of the negotiation—not that there is now any negotiation in this particular area. However, because there is not public mention made of all the developments and other questions does not mean that these questions are not being considered.

What I am seeking to say is that if you were to give the developments at all times, you would destroy the validity of the study or consideration and its results. Now, the great dialogue that has been under way between the two chief exponents in the communist camp in Moscow in recent days does seem to present the communist world with a very fundamental break. I cannot profess to be a student of this problem and I can only pass to you my judgment based on my appreciation of the material that is presented to me from our press and others all over the world. It would be dangerous, in my judgment, for us to draw wrong conclusions from the differences that prevail between Moscow on the one hand and Peking on the other. If the differences mean that there is a closer relationship between the Soviet union and the West—and we must admit that there still is a great gap between the two, the result is that we will still be confronted, as you have said, with that great monolithic mass in Asia, with its tremendous population and, seemingly, on the basis of its declared views of nuclear war, the world will be presented with a great threat. We should, it seems to me, be examining carefully in countries like our own the advantages of the kind of intercourse that in the ten last years particularly we have developed with communist countries, the cultural exchanges, greater access to the territory of the other, the maintenance of diplomatic missions—and I would not want that to be taken as meaning that we have any formulation in that regard because that would be an entirely wrong conclusion—but we will have to give consideration undoubtedly, if we are going to avoid war, to the methods and means by which we provide for communication with this tremendous force in the world which now has had a difference with the Soviet Union.

It would be wrong to draw conclusions because this is something that has to be carefully considered in the light of context. But it is well to raise the subject and it is well for us to be concerned. John XXIII it seems to me faced this with beneficial results when, in his last encyclical, one of the great documents of our time, he spoke of this problem, and asked us to recognize the positive features—even in those systems which are, in our judgment, ruthless and alien. This encyclical was of course preceded by a visit of Chairman Khrushchev's son-in-law. This visit was followed by the important address of the President of the United States at the American university and Chairman Khrushchev's reaction to this declaration—these are all factors and statements and situations which I think deserve careful study.

I say all this only to indicate to you, Mr. Hahn, because of your question, that it is receiving our attention.

The CHAIRMAN: It is now 12:30. The committee stands adjourned until Tuesday morning, July 30.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

(*Page 243*)

M. Marcel LESSARD (*Lac-Saint-Jean*): Mr. Chairman, I do not know whether the honourable Secretary of State for External Affairs (Mr. Martin) is going to tell us—I understand, of course, that it is difficult for Canada to express an opinion, we do not have to, we have no part to play . . .

The CHAIRMAN: Will you speak more slowly please, Mr. Lessard? Can everyone understand? Will you ask your question again, Mr. Lessard, for the sake of the interpreters?

Mr. LESSARD (*Lac-Saint-Jean*): Could Mr. Martin tell us why France was not invited to the Moscow conference, because if a meeting is held in Moscow to discuss the bases of an agreement to do away with nuclear tests, I think all the countries that have potential nuclear production should be invited to that meeting. A meeting was held in Moscow and France did not take part in it. Now an agreement is probably going to be signed and France will not be a party to it. As a matter of fact, we shall not be much further ahead than we were, as before we had France, England and the United States together on one side, and the Russians on the other. Now we are going to have the United States, England and the Russians on one side and France on the other. In your opinion, why wasn't France invited to that conference?

Hon. Paul MARTIN (*Secretary of State for External Affairs*): It is not a matter of being invited, it is a matter of participating. France decided she did not want to take part in these particular discussions but only in those which will take place later. It is not a matter of being invited, it is a matter that has to do with France's own program.

Mr. LESSARD (*Lac-Saint-Jean*): With France's own program!

Mr. MARTIN: We shall study General De Gaulle's statement next Monday with the greatest interest.

The CHAIRMAN: Mr. Lessard if you have another question in the same connection you may continue.

Mr. LESSARD (*Lac-Saint-Jean*): Could the Secretary of State for External Affairs tell us, since he has specified that foreign policy is now closely tied in with defence policy, whether he believes that in a short while it will be considered that foreign policy and defence policy are also tied in with foreign trade policy, because, in my opinion, our foreign trade policy has a considerable bearing on development and the problems which may arise, and I even think that all the preceding conflicts originated with the economic problems of the countries involved.

Mr. MARTIN: It certainly applies, not only as far as defence and trade are concerned but in everything that affects the active departments of a government or a nation, it certainly does. In support of what I have just said I would mention that in our department, in the Department of External Affairs, we have a trade division where Mr. A. E. Ritchie, our Under Secretary, deals with economic problems, social problems and problems concerning our trade with other countries. It also depends on the way the government proceeds in the domestic field.

* * *

(*Page 250*)

Mr. LESSARD (*Lac-Saint-Jean*): I have another question on the same subject, Mr. Chairman. In the light of our commitments or considerations arrived

at from 1957 to 1959 to provide the Canadian forces with NATO with nuclear arms—such commitments being based on specific factors, or reasons—does the Minister believe, now that he is aware of these facts, that the Canadian government was justified in undertaking a nuclear role for Canada at that time?

The CHAIRMAN: Just a moment, please ...

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 9

TUESDAY, JULY 30, 1963

WITNESS:

The Honourable Charles M. Drury, Minister of Defence Production.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29286-2—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, July 30, 1963.
(11)

The Special Committee on Defence met at 10:30 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch—(23).

In attendance: The Honourable Charles M. Drury, Minister of Defence Production; Mr. G. W. Hunter, Deputy Minister of Defence Production; and Mr. W. H. Huck, Assistant Deputy Minister.

Also in attendance: A Parliamentary Interpreter and interpreting.

The Minister of Defence Production was called; and read a prepared statement respecting the duties and operations of his Department. During the reading of that statement, copies of the Department's Annual Report, 1961-62, were distributed to Members of the Committee.

Mr. Drury was questioned on the contents of his statement and on related matters.

A copy of a statement by Paul H. Nitze, Assistant Secretary of Defence, U.S.A., was tabled, as requested by Mr. Brewin on July 9, 1963. The said statement is identified as *Exhibit No. 3.*

At 12:30 p.m. the Committee adjourned until 10:30 a.m. on Thursday, August 1, 1963.

E. W. Innes,
Clerk of the Committee.

29286-2—1½

EVIDENCE

TUESDAY, July 30, 1963.

The CHAIRMAN: The meeting will come to order. This morning we have with us Mr. Drury, Minister of the Department of Defence Production. He will, as all our witnesses, introduce his statement, and then he will be available for questioning.

Hon. C. M. DRURY (*Minister of Defence Production*): Mr. Chairman, there will be a document circulated which I will try to read very carefully. For those who wish them, texts in French have been prepared.

Mr. Chairman, members of the committee, I welcome this opportunity to outline to this important parliamentary committee the role of the Department of Defence Production. As members of the committee will be aware, as a member of the new government I have been in this position a relatively short space of time, and indeed as I look around there are probably some members of the committee who know more about the Department of Defence Production than I do. I have however, been able to learn one thing which I am glad to report to the committee, and that is that in my view I have inherited a very efficient department indeed.

This department—D.D.P.—has been described as the "purchasing agent" of the Department of National Defence. The Department of Defence Production is responsible for the procurement of goods and services for Canada's armed forces, and also the defence research board. The Department of National Defence tells us what it needs, and D.D.P. is responsible for obtaining the items.

However, D.D.P. is more than a purchasing agent. In addition to my purchasing responsibilities, I am responsible, under section 11 of the Defence Production Act, for organizing and mobilizing the resources of Canada to meet the current and prospective needs for defence. This task involves two main aspects. The first is the development and maintenance of production capabilities (i.e. proper facilities, skilled labour, engineering experience and technical knowledge) to meet the needs of the armed forces. The second is to ensure the availability of the materials that are required to carry out the defence production program.

The Department of Defence Production is the department which not only buys defence supplies and equipment, but is an organization that fosters the production of defence supplies which are not in general use in the Canadian economy, where such domestic production appears practicable. It even assumes the role of "salesman" when, along with other departments, it is concerned with the supply of Canadian defence materiel to NATO and other allied countries.

However, it is as "purchasing agent" for Canada's armed forces that D.D.P. is probably best known to you.

As I have mentioned, D.D.P. is responsible for the procurement of those goods and services which the armed forces require for their own maintenance and for the defence of Canada.

Defence Construction (1951) Limited, a crown company which reports to parliament through me, is responsible for all major defence construction projects.

Although the department, in its present form and under its present name, was established by an act of parliament (the Defence Production Act) in 1951, it represents a continuing defence procurement policy which dates back to the outbreak of world war II. At that time the Canadian government decided that the procurement of goods and services required for defence purposes would be under the control of a separate civilian organization, staffed by people who, through experience, had become experts in the purchasing field. This permits the Department of National Defence to concentrate on military functions and, through unified buying procedures, tends to reduce costs and bring the taxpayer the best possible value for the dollars that are spent on defence materiel. It is my view that, by having procurement handled by trained and expert civilian personnel, our defence purchasing will be as efficient and as economic as possible.

The principle of civilian procurement cannot operate at full efficiency without a clearly defined division of authority, and a completely co-operative relationship between the departments of defence production and national defence. In my view, both these conditions exist. We buy the goods and services that the Department of National Defence advises that it needs, and buy only after that department has formally asked us to do so.

As the Department of National Defence determines the need, the same department prescribes the specifications and delivery requirements that are to be met. D.N.D. also carries out inspection of the goods and indicates the inspection procedures by which an article's acceptability is to be established. D.N.D. determines what is needed, when and where; our responsibility is to fill those needs at the minimum cost, consistent with the need to develop and maintain Canada's defence production facilities.

The great variety of items we are called upon to procure and the large sums of money required to carry out this procurement are impressive. From April 1, 1951, the date of the establishment of our department, to December 31, 1962, over $10.2 billion has been spent against contracts for goods, construction, and services for the Department of National Defence. In calendar year 1962, expenditures on Canadian defence contracts amounted to $606 million on behalf of D.N.D. and $8.9 million on behalf of my department's programs in support of defence industry. Expenditures relating to contracts awarded through D.D.P. on behalf of foreign governments, largely the United States, and on Canadian external aid, brought total expenditures to $764.6 millions.

One can readily appreciate that we are responsible for large scale contracting and therefore, every possible precaution must be taken to insure that the cost of defence supplies is no higher than it should be.

It is departmental policy to buy, whenever possible, at firm prices, arrived at as a result of invitations to tender issued to known sources, who have shown evidence of ability to do the work. The department does not advertise its requirements. One of the reasons for this, apart from cases where classified matters are involved, is the problem of reaching suppliers, who are located from Newfoundland to British Columbia. Instead, the department maintains records known as "source lists", on which are entered the names and addresses of potential

suppliers. These lists are compiled under various commodity headings and, as each requirement arises, invitations to tender are sent to firms whose names appear on the source list for the needed items.

These lists are in no way restrictive. It is departmental policy to place on these lists the names of all Canadian suppliers who have indicated a desire to be listed, and, as I have already mentioned, have submitted evidence of ability to fulfill contracts.

Procurement on a firm price basis, established through competitive bidding, is the basic departmental policy. However, there are occasions when this method of procurement is either not possible, or is impractical; in such instances prices must be established by some form of negotiations. Reasons for negotiation include:

(1) lack of competing sources of supply,

(2) lack of, or indefinite nature of, specifications: and

(3) proprietary rights.

Fixed price contracts, either on the usual basis of competitive tendering or by negotiation, do not cover all methods of contracting, although they are the most common. In some cases, where precise contractual prices cannot be determined in advance, a target price contract is considered. This involves the negotiation of a target or estimated cost of the work to be done, with provision for a profit to the contractor made up of (i) a fixed fee, usually expressed as a percentage of the target estimate; (ii) an incentive bonus consisting of a share of any savings between the target, and the actual costs: (iii) an overall ceiling for the total of the fee, plus bonus. Penalty conditions may be included to provide for failure to meet contract terms.

A different technique is adopted where the volume of business cannot be closely estimated at the time of negotiations. This is frequently the case with repair and overhaul work, and research and development requirements, where the eventual volume of work to be done is not pre-determinable, or where the allocation of work to the contractor through the period of the contract is made on an intermittent basis. In these cases it may be necessary to negotiate a "cost-plus-fixed-fee" contract, with a minimum and maximum profit position which will provide protection to both parties.

The least desirable type of contract, "cost-plus-a-percentage-of-costs", has been virtually eliminated. As the contractor and the department gain experience, contracting techniques become more sophisticated so that, more and more, "cost-plus" types of contracts have been replaced by target and firm price type contracts.

I would like to reiterate that every effort is made to insure that the Canadian taxpayers are not paying more than is necessary for any defence item—and that, where possible, the contractor is given an incentive continually to reduce costs.

As mentioned earlier, the department has a number of very important responsibilities in addition to that of procuring defence materiel. Under the Defence Production Act, the minister is responsible for developing and maintaining the productive resources needed in Canada to support our defence

production program. This responsibility has always influenced our department's procurement action. We always look to Canadian companies for the supplies needed for national defence, and we continually examine the requirements of the services to see how such needs can contribute to the creation and extension of Canadian skills and facilities.

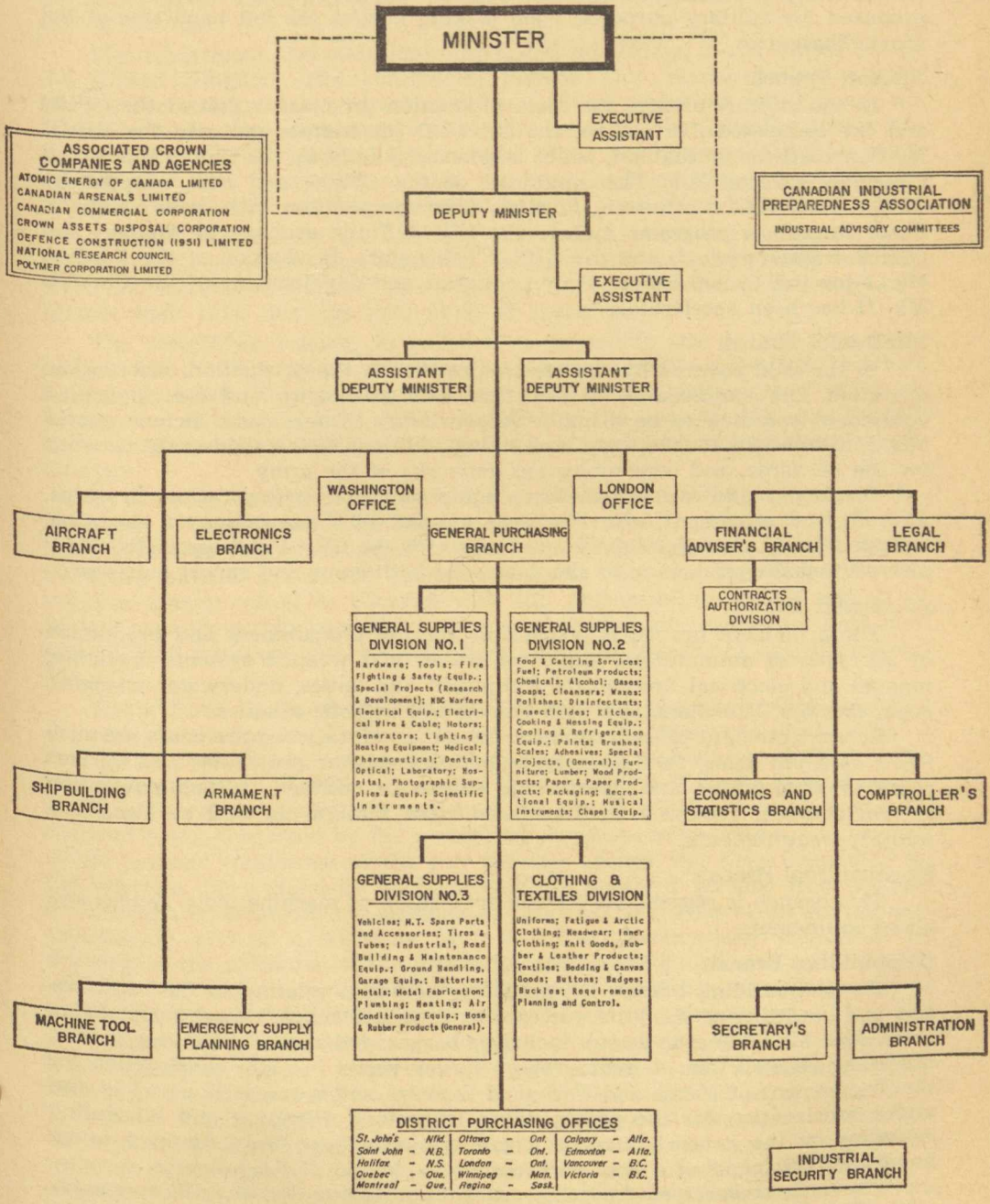
It is not possible for Canadian capabilities to extend over the entire range of military technology. Consequently where Canada does not possess facilities and capabilities or where it does not make economic sense to create facilities, we find it desirable to purchase from other countries.

This philosophy has been accentuated today because the growing complexity of certain of the new weapon systems is such that, for the limited requirements of the Canadian forces, production in Canada would involve prohibitive costs. In order to compensate for these conditions, D.D.P. encourages Canadian firms to participate in development and production sharing arrangements with the United States and to sell equipment to NATO and other allied countries. Later, I shall deal at some length with this aspect of the department's work.

At this time I would like to discuss the organizational structure of our department, and in this connection I shall refer to the organization chart, copies of which have been distributed and which follows:

DEPARTMENT of DEFENCE PRODUCTION

ORGANIZATION as at MAY 1, 1963



Our department is composed of 14 main branches, each branch under a Director. The branches fall into three groups, six purchasing or procurement branches, seven supporting or service branches, and the emergency supplies planning branch.

Five of the procurement branches are called "production" branches, because they are concerned primarily with supplies which must be specially produced for military purposes. I am looking now at the left hand side of the chart. These are:

Aircraft Branch

In the aircraft branch, the main production program is that of the CF104 and the associated J79 engine, the CF104-D jet trainer and also the F104G MAP aircraft for mutual aid, which is financed jointly by the United States and Canadian governments. The similarity of the CF104, and that adopted by certain other NATO countries, involves close co-operation with these countries. Other important programs include the CT114 Tutor primary jet trainer, and CL41R trainer project, and the CHS-2 helicopters. Production of the Caribou Mk. I for the United States army continues and development of the Caribou Mk. II has been accelerated.

Electronics Branch

In the field covered by the electronics branch the production, installation, operation, and maintenance of detection, data processing, and communication equipment continue to be a major responsibility. These items include shore-based installations for the navy, continuing additions to the air defence network for the air force, and communication networks of the army.

Electronic and communications equipment for incorporation in ships, aircraft, and armament, also represent a substantial proportion of electronic branch activity. A major item is electronics for the CF104 and associated MAP aircraft and the production of simulators for both home and export purposes.

Armament Branch

The armament branch is responsible for the procurement and production of all types of ammunition, explosive stores, and weapon systems, including manual and electrical fire control equipment and optics, underwater weapons, guns, mortars, launchers, and both guided and ballistic missiles.

In production, at present, to meet Canadian military requirements are such items as small arms, torpedoes, antisubmarine mortar projectiles and various types of ammunition and pyrotechnic stores. In addition, a tank navigation system is being produced in Canada to meet foreign, as well as Canadian, military requirements.

Machine Tool Branch

This branch is responsible for the acquisition of machine tools, gauges and allied equipment.

Shipbuilding Branch

The shipbuilding branch is completing activities relating to the construction and outfitting of six destroyer escorts. A tanker supply vessel is also being completed. Miscellaneous vessels including barges, and a standard diving tender, are under construction. A hydrographic survey vessel is under construction for the Department of Mines and Technical Surveys and a research vessel is also under construction for the pacific naval laboratory. Planning and scheduling activities on the general purpose frigate program have been confined to 'in house' activity pending a firm decision on the future of the program.

The sixth procurement branch,—general purchasing,—is in a different category. This branch, through a headquarters organization in Ottawa, and 14 district offices from Victoria, B.C. to St. Johns, Newfoundland, purchases supplies which generally are produced to commercial standards, or with only

minor deviations from such standards. The branch also places contracts for various services such as laundering, snow removal, etc. Purchases made by this branch include such items as petroleum products, clothing and footwear, food, and mechanical transport. The district offices place contracts with suppliers in their own areas, for supplies of a local or urgent nature required by local units of the services. These demands include fresh food, building materials, and special services.

The department also maintains offices, and sub-offices, in the United States, the United Kingdom, and continental Europe. Our representatives outside Canada perform a number of varied duties such as procuring requirements not available in Canada, processing local requirements for the Canadian forces stationed in Europe, carrying out liaison work other governments, assisting in the development and production sharing program, and assisting in matters relating to the sale of Canadian equipment to NATO and other friendly countries.

The advisory and service branches of our department are: administration, comptroller's, economics and statistics, financial adviser's, industrial security, legal, and secretary's branches. Here again, with the exception of the secretary's branch, their titles describe their fields of operation.

The secretary's branch, in addition to providing the normal secretarial services for the department, maintains the departmental source lists, to which I referred earlier. This division also prepares and distributes copies of tender documents, after they have been drafted by the appropriate procurement branch, and is responsible for the handling of tenders at departmental headquarters.

In 1960, an emergency supply planning branch was established in the department, to be responsible for the planning and other peacetime arrangements necessary to permit a war supplies agency to be brought into existence, immediately should a national emergency occur. Broadly speaking the war supplies agency would be charged with full responsibility for all aspects of control over the production, distribution, and pricing, of supplies for both civil and military purposes with the exception of certain aspects of agriculture and fishing.

An interim organizational structure for the war supplies agency, designed to meet anticipated supply requirements during the first few weeks after a major attack on this continent, has been developed and approved. Within the overall organization of the war supplies agency, there will be national, regional zonal, and local components in conformity with the system of emergency government being developed by the emergency measures organization. The staffing of the national component of the war supplies agency, has been completed by the selection, on a stand-by basis, of suitably qualified persons from various government departments and agencies in Ottawa. The staffing of the ten regional components, also on a stand-by basis, has been substantially completed by drawing on the personnel of the provincial governments, business and industry, and the field staff of various federal departments and agencies. A beginning has been made on the recuiting of zonal, and local components.

In order to provide a basis on which the war supplies agency could make a post-attack assessment of surviving supply resources, the emergency supply planning branch has initiated a research program, designed to produce comprehensive inventory data on major stocks of essential commodities, and related production facilities, normally available in the country. This research program is necessarily long-term in character, but substantial benefits have already been achieved with respect to the collection and processing of data on stocks of food and petroleum products, and a number of essential materials. Methods have been developed in co-operation with the army, and the emergency measures organization, for evaluating surviving resources after attack.

I would now like to discuss the Canada-United States defence production sharing program.

Defence economic co-operation between Canada and the United States started during world war II and has been expressed formally in such joint agreements as the 1941 Hyde Park declaration and the 1950 statement of principles for economic co-operation. The greater integration of North American air defence, and the vastly increased complexity of modern weapon systems, have given further emphasis and direction to this economic co-operation. From the recognition that it would be extremely difficult for countries the size of Canada in future to undertake alone the development and production of certain major weapon systems, there flowed a need for greater co-operation in development and production of military supplies.

Since Canada has always relied on United States sources for a substantial portion of our defence equipment procurement, it was obvious that any further diversion of production from Canadian to United States industry had to take into account the Canadian industrial defence development and production base. This base represents a large investment of Canadian technical and managerial capabilities and is a valuable asset in support of North American defence.

Canada-United States discussions of these issues led to the implementation of the defence production sharing program. This program, in essence, aims at optimum utilization of the Canadian and United States defence industrial capability by providing equal opportunity for Canadian industry to compete with United States industry on the basis of price, delivery and technical competence to meet North American defence requirements.

The broad objectives of Canada-United States defence production sharing were mutually agreed to be:

(*a*) to increase participation by Canadian industry in the production and support of North American weapons and equipment, and

(*b*) to co-ordinate the defence requirements, development, production and procurement of the two countries in order to achieve the best use of their respective production resources for common defence in line with the concept of interdependence and the integration of military arrangements.

Sustained effort in the past four years, not only by Canadian and United States government and service officers, but also by Canadian and United States defence contractors, has resulted in such major achievements as the exemption of Canadian defence material from the provisions of the Buy American Act, the duty-free entry of such material into the U.S.A., and increasing response of Canadian industry to United States defence procurement opportunities. Defence development and production sharing ramifications have become widespread throughout Canadian industry and a large proportion of Canadian R&D capability is oriented towards United States and mutual defence requirements. I shall deal more fully with the research and development aspect later in this statement.

It might be interesting to refer to the DDP annual report where some statistics on the production sharing program can be found on page 28. I think copies of this document have been distributed to members of the committee. Note that in 1962, $254.3 million worth of United States defence production sharing business was placed with Canadian industry. This was a 78 per cent increase over 1961, due largely to contracts for Caribou aircraft and a contribution by the United States to the joint Canada-United States F-104G aircraft program. The total United States defence production sharing business in this country during the four years of the program is $605.9 million.

On the other hand, Canadian defence production sharing business in the United States amounted to $127.4 million in 1962, bringing the total for the four years of the program to $526.2 million. Thus, in 1962 United States defence production sharing business in Canada exceeded corresponding Canadian business in the United States by $126.9 million. While the balance of production sharing business between Canada and the United States had been $47.2 million in favour of the United States at the beginning of 1962, it had at least temporarily reversed by the end of the year to $79.7 million in Canada's favour.

The classes of contracts included in the defence production sharing group are applied research and development, pre-production, production, licence agreements and technical assistance, installation (other than construction), and repair, overhaul and modification. The production sharing figures do not include contracts for "off-the-shelf" general procurement, construction, basic raw materials, fuels and lubricants, and services such as transportation, rentals and maintenance of fixed installations.

Over 300 Canadian companies have received contracts since this program began, and the achievements of some of these companies is a clear indication that participation in the United States defence market is of outstanding benefit. I feel that Canadian industry deserves great credit for its efforts in this regard.

The increase in contract values is one method of measuring our progress—another is to look at the opportunities afforded Canadian firms.

Again referring to the annual report pages 29 and 30 you will note that in the prime contract area United States inquiries to Canadian industry rose from 5,786 in 1961 to 8,290 in 1962, and responses by Canadian companies rose from 1,799 to 2,384. Prime contracts placed by the United States government with Canadian commercial corporation rose from 830 to 1,088, having a total value of $176.5 million. In the subcontract area, solicitations rose from 2,524 in 1961 to 3,108 in 1962, and responses rose from 1,986 to 2,624. Subcontracts received by Canadian firms increased from 1,111 to 1,769, valued at $76.5 million. Other prime contracts received directly from the United States government by Canadian industry and other institutions totalled $1.3 million.

I should like now to discuss development sharing which is the key to future production sharing success. Dr. Zimmerman in his appearance before this committee, as reported at page 223 of the Minutes of Proceedings and Evidence, touched on the importance of having Canadian companies in on the ground floor—the development stage—of future weapons.

Canadian industry successes in selling into the United States defence market have, significantly, come mainly in those areas where Canada had accumulated knowledge and unique capabilities as a result of past Canadian government and industry developments in fields such as electronics, anti-submarine warfare and STOL aircraft. Notable have been sales of Caribou aircraft to the United States army.

Both the Canadian and United States governments have recognized that Canada's ability to participate in future defence industrial production programs would be lost without continuing research and development projects in Canada, and the future role of Canadian defence industry would therefore be confined to the production of more simple items of military hardware. As a consequence, our ability to contribute to equipment programs for the defence of North America would be seriously weakened.

Since 1959 substantial sums have been provided to assist Canadian companies to undertake development projects for both United States and other allied programs. As a result of this action, a significant amount of R&D work has been stimulated in Canadian industry. Since 1959 Canadian government contracts, totalling about $27.9 million, have been placed with Canadian companies. We now estimate that 130 development projects valued at $66 millions

have been initiated, with funding divided between the government, Canadian industry and other governments. Substantial development is being carried out in such areas as V/STOL aircraft, airborne doppler navigation aids, gas turbine engines, surface vehicles, sounding rockets and anti-submarine warfare equipment. I believe there is a greatly increased awareness in Canadian industry of the need to undertake research and development activities.

As Dr. Zimmerman noted our departmental efforts in the development field are co-ordinated with the defence industrial research program, which was initiated in 1961 by the defence research board. This program represents another step forward in our efforts to maintain Canadian scientific skills, and to ensure that the results of government defence research are made available to Canadian industry so that our industry can participate more effectively in the development and supply of defence equipments needed by the United States and other allies.

In concluding my remarks on production and development sharing, I want to emphasize to the committee the great degree of importance that is attached to this program of cooperation by ourselves and by the United States government. I refer the committee to my report to the house on June 7 (*Hansard* page 769) following my meeting with the United States secretary of defence.

I feel this is of sufficient significance that it bears rereading, and I quote:

> Our meeting was held in a spirit of great cordiality and reaffirmed positively the intention of both our countries to continue to support a defence production sharing program. Assurances were given that the difficulties experienced by both countries in respect of balance of payments problems should not be allowed to interfere with the continuation and enlargement of this program.
>
> It was recognized that both countries have balance of payments problems. However, it was agreed that such problems must not interfere with our joint production sharing objectives. The maintenance of a general balance in our reciprocal cross-border procurement of equipment seems the best answer to concern at the drain on foreign exchange reserves through such procurement.
>
> To this end it was agreed that production sharing will not be limited by the so-called balance of payments directives issued by the secretary of defence of the United States, and that full consideration will be given to all qualified Canadian sources.
>
> The house will appreciate that the trend of increasing costs and complexity for military equipment emphasizes the necessity for joint research, development and production in line with the agreed NATO concept of interdependence for our common defence.
>
> For the future, as in the past, Canada expects to procure from United States defence industry those items which it does not make economic sense to try to produce in Canada. In return we look to continuing opportunities for Canadian industry to supply United States defence requirements where Canadian companies can compete on the basis of price, quality and delivery.

I should like now to turn to the department's role in the NATO program of cooperation in research, development and production.

The same circumstances; i.e. integration of military arrangements, combined with increasing cost and complexity of weapons, which promoted Canada-United States production sharing, led the NATO defence ministers to institute a program of cooperation in the research development and production of defence

equipment requirements among the NATO allies. My department has co-ordinated Canada's activities in regard to this program, and has provided the Canadian representative on the NATO armaments committee which administers the program.

As noted on page 31 of the department's annual report, Canada has submitted for consideration by the NATO groups a number of projects in the fields of vertical and short take-off and landing (V/STOL) aircraft, mobile weapon locators, vehicle navigation equipment, sonar equipment, personnel carriers, anti-tank weapons, anti-personnel land mines, airborne communication equipment, aircraft engines, telephone terminal equipment and data handling equipment. Of major interest were the Canadian aircraft industry's submissions of design studies for medium range transport and strike reconnaissance aircraft in the V/STOL class.

Mr. LLOYD: It would be very helpful if we could have a description of V/STOL.

Mr. DRURY: There is STOL, which is just the simple short take-off and landing, and the "V" is a further refinement which incorporates vertical take-off as well.

Canadian electronics companies have submitted design proposals on data handling equipment for small ships. Other projects of potential interest to the Canadian armament industry are under active consideration. There has been a broadening of the exchange of information on national reseach, development and production programs.

In December 1962, the NATO defence ministers concurred in the report of a senior group recommending major changes to expedite the progress of the program. As a result within my department a strengthening of the management group assigned to this task is now in progress and we look for a substantial increase in activity.

The increased activities within NATO have resulted in a number of countries expressing interest in Canadian defence equipment. Canadian industry has been encouraged to participate in supplying the defence needs of European and other countries in such areas as aircraft flight simulators, navigation aids and engine spares. Visits and the exchange of information with countries at government and industry levels have proved of mutual benefit.

The services of Canadian Commercial Corporation continue to be made available to foreign governments and companies wishing to buy in Canada and the department continues to assist Canadian industry in seeking opportunities to develop and produce defence equipment for other countries. In addition to procurement offices in Europe and representation on the NATO delegation, the department maintains defence production attaches in Britain, France and the Federal Republic of Germany.

The volume of business in the overseas area does not approach that between Canada and the United States, but it is still significant. You will note on page 32 of the department's annual report, some 50 Canadian firms received defence prime contracts and subcontracts, amounting to $45.1 million in 1962, from 40 overseas NATO and other countries (excluding the United States). The Canadian government and Canadian industry ordered defence goods and services from overseas suppliers amounting to some $28.5 million during the same period.

To conclude let me reiterate that the responsibilities of the Minister of Defence Production are first, to procure the goods and services required by the Department of National Defence, and secondly, to ensure that the necessary production capacity and materials are available to support the defence production program. Out of these arises the responsibility for defence development

and production sharing with the United States, for defence production export activities with other allied countries, and for armament co-operation within NATO.

The increasing tendency toward complexity and high costs in weapons make it mandatory that every avenue of co-operation with our allies must be explored in an effort to keep costs within reason. But at the same time we cannot overlook the benefit to the Canadian economy of the performance in Canada of the research, development and production associated with advanced defence technology.

Thank you, Mr. Chairman.

The CHAIRMAN: I have divided this statement roughly into four parts. If members will question in the order of that division I think our discussions will be facilitated.

I have divided this statement into the following parts: Pages one to five, which are of a general nature; pages five to eight, which relate to the organization of the department; pages eight to thirteen, which deal with the Canada-United States defence production sharing programs, and pages thirteen to fifteen, which deal with co-operation with NATO members.

Mr. WINCH: Mr. Chairman, on page 3 there is reference to negotiations and problems which exist in this regard. I should like to ask the minister what the problem is in respect of negotiations, particularly regarding class three, proprietary rights?

Mr. DRURY: In some instances, Mr. Chairman, there are either components or major elements of weapons systems which have been developed as a consequence of purely private endeavour and initiative. In these cases the corporation or, in some instances, the individuals, own the proprietary rights to these particular items. If that item is needed by the Department of National Defence, only the man who owns the proprietary rights can supply it.

Mr. WINCH: May I ask if it naturally follows that the individuals or companies, to which you have referred, are all in our western defence alliance, whether it be the United States or a NATO country and, are you therefore saying that the cost to Canada is affected by a profit motive on the part of the individual or company within our western alliance and that we have to suffer because of this situation?

Mr. DRURY: I do not think there is any question but that we have to pay, but I do not necessarily agree that we have to suffer. This particular question of proprietary rights relates much more to the method of contracting and its effect on items mainly other than armament, in respect of which in most cases the proprietary rights are in the hands of the governments. To take, however, a very small case, if you yourself wished to buy a Chevrolet motor car you could buy this only from General Motors. General Motors has the proprietary rights in respect of Chevrolet motor cars. If you want to buy a Chevrolet motor car you must pay the price that is asked by General Motors. General Motors represents the only source of supply for Chevrolet motor cars.

Mr. WINCH: So there is an element of profit before security involved?

Some Hon. MEMBERS: Oh, oh.

Mr. GRANGER: Mr. Chairman, at page one in paragraph 4 of the minister's statement appears the following statement:

> The Department of Defence Production is the department which not only buys defence supplies and equipment, but is an organization that fosters the production of defence supplies which are not in general use in the Canadian economy, where such domestic production appears practicable.

That reference to the fostering of the production of defence supplies, I assume, means that the Department of Defence Production does not operate its own factories, but fosters the production by Canadian factories of the materials required if they are not in general production? Am I right in that assumption?

Mr. DRURY: That is correct. When a demand is received from the Department of National Defence for an item not in current civilian use, there exists the choice of arranging to manufacture this item in Canada or purchasing it outside Canada, if such can be done. The preference, as has been stated here, is to arrange for the production of this needed and different item in Canada as a first choice.

Mr. GRANGER: Thank you.

Mr. DEACHMAN: Mr. Chairman, there are three points of criticism to be found in the Glassco report in relation to the Department of Defence Production. These criticisms are: 1, that procurement takes too long; 2, that the department has no standards and tends to fly by the seat of its pants; and 3, that its inventory is not well handled and that this is costly to the country.

I wonder whether the minister would comment in respect of these three criticisms? Such comment might, of course, take the rest of the session.

Mr. DRURY: Generally speaking the statement that procurement takes too long is always true in any circumstances. To arrive at a condition where everyone would agree that it does not take too long would be a millenium.

By reason of the nature of military forces they of necessity always require military equipment and material yesterday. As you well know, it has been said that an item is obsolete before it comes off the drawing board, so that one is, in this restricted limited sense, always buying obsolete equipment. The longer it takes to procure an item the more obsolete it becomes. There is, therefore, the technological necessity of procuring these items as rapidly as possible.

In some instances the Department of Defence Production has contributed to these delays. We are conscious of the fact that in some areas improvements can be made and, indeed, are being made.

There are a number of recommendations that Mr. Glassco has suggested for improving this. A number of them already have been implemented and others are now under study, as they involve other government departments besides ourselves, with a view to implementation.

In terms of your question relating to standards, as I pointed out in my statement here, the standards—and this really means the specifications—are determined not by the Department of Defence Production but by the Department of National Defence. With a view to achieving a common set of specifications for common user items, we work very closely with the Department of National Defence to try to bring this about.

Thirdly, in relation to this question of inventory, I do not remember the specific criticism.

Mr. DEACHMAN: I refer to volume II, page 136 of the Glassco report. There are several criticisms levied at inventory handling. In some cases they say that inventory, as far back as the early days of world war II, is still held in stock although it does not necessarily need to be held in stock now. They also criticize the number of items being held, and contend that safe inventory levels could be set below this.

Mr. DRURY: Well now, I should point out that the Department of Defence Production does not have an inventory of this type. It is the purchasing agent for the Department of National Defence, and the Department of National Defence, following inspection for quality, then takes delivery. The Department of

National Defence does the warehousing, the holding and the controlling of inventory. These remarks are directed not at the operation of the Department of Defence Production but at the current practices of the Department of National Defence.

Mr. DEACHMAN: May I ask a question bearing on that? If the Department of Defence Production is in no way responsible for the quantity of materials which may be ordered by the Department of National Defence, then you could not comment on that. What I mean is that, given an order from the Department of National Defence on certain quantities of materials, you would not be in a position, as minister, to comment upon that order. Is that correct?

Mr. DRURY: One could comment if there appeared to be something wrong with the quantity involved. We certainly would do that. However, this would be purely helpful advice. The responsibility for determining the quantities rests with the Department of National Defence, and comment would be just comment.

Mr. DEACHMAN: You do not make any reference to inventory yourself at the department?

Mr. DRURY: No, because we keep no record or check on stocks or consumption.

Mr. WINCH: I should like to comment on this very question, sir. I have had the privilege of being a member of the previous defence committee as well as the estimates and public accounts committees. Evidence was given before our previous defence committee as well as the estimates and public accounts committes that supplies which had been bought are under no circumstances to be used up for 20 or 30 years. Does that mean—and I know you were not minister then—that you agreed to the purchase because it came through, and although you cannot use the purchases for 20 or 30 years you buy them anyway?

Mr. DRURY: That is correct.

Mr. WINCH: You have no check as to whether they are required or not? If you spend a few million dollars on things that cannot be used, you still have to approve them if the Department of National Defence tells you to buy them?

Mr. DRURY: That is so.

Mr. LAMBERT: One of your predecessors is reputed to have said that if the Department of National Defence raises a requirement for gold plated pianos, we have no alternative but to go and get them. I realize the difficulties here, that the Department of National Defence is charged with getting its own equipment; in other words figuring out its own equipment and requirements, and that you are a purchasing agency and not a second defence department with a veto on defence policy. However, surely there is still an area in which you do have some fairly strong persuasion in that if you feel that, on the basis of inventory control, the requirement that is being raised by the Department of National Defence is seriously out of line, you will advise them that this is not necessary and that you can have better inventory control and thereby eliminate large purchases at one time, or vice versa, that they can raise a large requirement and get quantity discounts or better prices for quantity purchases.

In any event, you did say that you have no inventory. If I recall it correctly, in 1960 there was an indication that the Department of National Defence had taken out of inventory large quantities of textile materials. Is this principle still in force, that you do maintain some textile materials and others under inventory controls and only charge them out to national defence?

Mr. DRURY: The large stocks of cloth which were bought and held by the Department of Defence Production against anticipated or estimated future

demands by one or the other of the three services was undertaken at a time when, if you recollect, wool was in very short supply. We are now in the process of gradually handing back to the Department of National Defence the remainder of these stocks of textile materials.

Mr. WINCH: Then you do have an inventory?

Mr. DRURY: We have a disappearing inventory. I stand corrected on that.

Mr. LAMBERT: Is this only in the area of textile materials, or are there others where you are holding stocks?

Mr. DRURY: We have a limited number of strategic materials, mostly in the metals field, which were procured, as I recollect, about the time of the Korean war and which have been held as a government stockpile against a possible future emergency.

Mr. LAMBERT: Can you give us detailed information in regard to this—if it is in the non-strategic or non-classified area—and if it is a continuing policy of the department to examine the field of strategic materials and enter the field of stockpiling?

Mr. DRURY: I will have to take advice on that.

Mr. WINCH: In other words, can we have an inventory?

Mr. DRURY: I will try to get a list of what we have.

Mr. LAMBERT: I do not mean now, I mean at some future time.

Mr. DRURY: As I say, this policy of stockpiling strategic materials was initiated at the time of the Korean war. Since then the department has been disposing of these and it is not now in the business of acquiring and holding stockpiles of strategic materials.

Mr. WINCH: Can you get an inventory of what you have and what is being held? Could you tell us what stock-piling you have under your inventory?

Mr. DRURY: I can give you a list as of the end of the last fiscal year, March 31, 1962. Raw quartz to the value of about $6 million; raw quartz is needed for the production of optical instruments which are largely produced in Canada for the military forces by Canadian Arsenals; tin to the value of $4,600,000, roughly. You will find cobalt, $1.3 million; antimony, $700,000; nitroguanidine, $143,000; activated carbon, $86,000; hexachlorethane, $30,000; and some ammunition components to the value, roughly, of $500,000.

Mr. WINCH: What about textiles, clothing, shoes, underwear, and sox?

Mr. DRURY: We have no finished clothing; we do not hold this; it is textiles for making up into clothing. I regret to say at the moment that I cannot give you precisely what the textile holdings are, but they are very modest.

Mr. WINCH: Could you give us an approximation?

Mr. DRURY: Oh, I am sorry. I now find that we have no textiles.

Mr. LAMBERT: It is still the continuing policy of the department that it is free to move into these areas of stockpiling if it deems it fit?

Mr. DRURY: There is statutory authority to do this, if it was government policy so to do.

Mr. LAMBERT: Based on government policy?

Mr. DRURY: Yes.

Mr. LAMBERT: Have you military reasons, or would you have economic reasons as well?

Mr. DRURY: The basis of the Defence Production Act is a military one. There would have to be quite obviously some military connotation to stockpiling under the Defence Production Act. It would have to be what might be strategic material. I do not think we could justify stockpiling non-strategic items, although in the larger strategic sense almost everything could be so classified—wheat even might be regarded as a strategic basic food.

Mr. WINCH: You have not given us any information because of any classified reasons?

Mr. DRURY: No.

The CHAIRMAN: Have you any questions, Mr. Lloyd?

Mr. LLOYD: I think my question has been clarified. But I gather from the minister's remarks that there are occasions when you might stockpile, or may have a stockpile of strategic material for use by manufacturers. But in general, is it not true that you do not stockpile the end products available for immediate military use. Is that about it?

Mr. DRURY: The only exception to this that comes to my mind at the moment is the holding of finished ammunition by Canadian Arsenals as the manufacturer. Canadian Arsenals, a crown corporation, may manufacture ammunition at what to it is a satisfactory economic production rate and run; and this may not exactly meet the consumption rates or needs of the armed forces. But the economies to be achieved, having regard to an economic rate of production, more than offset the cost of holding these inventories.

Mr. LLOYD: This brings me back to the question of policy. There must be some liaison between what the Department of Defence Production feels to be its immediate future needs, and the Department of National Defence in establishing the volume of production that it will receive from suppliers. There must be some liaison somewhere; there must be some collective wisdom exercised on volume because of economic factors and the costs that come into play.

Mr. DRURY: Well, with respect to whether we would comment or are prepared to comment on a national defence statement or demand raised with the department, I was trying to outline in essence that the department had no right to comment, and that the responsibility is that of National Defence, to establish the legal position. But in fact, as one will readily appreciate in respect of all of these things, there is a continuous exchange of information between the Department of Defence Production and the Department of National Defence in relation to their present and future possible requirements. The dialogue at all levels is a continuing one; and manifestly the department of National Defence is greatly interested to know what are the relative costs exactly of a particular item with respect to alternative items, and the relative costs to different rates of delivery or timing of deliveries, and it is up to the Department of Defence Production to have this and provide this for national defence. This is but one of the flows or exchanges of information.

Mr. LLOYD: When you are operating on a cost plus contract, it seems to me that this liaison would have to be in effect.

Mr. DRURY: Well, not only in that area, but also in other areas.

Mr. LLOYD: I do not mean as an exclusive reason, but as one of the reasons. On page 3 of your statement you say:

> Procurement on a firm price basis, established through competitive bidding, is the basic departmental policy. However, there are occasions when this method of procurement is either not possible, or is impractical; in such instances prices must be established by some form of negotiations. Reasons for negotiation include (1) lack of competing sources of supply, (2) lack of, or indefinite nature of, specifications; and . . .

How do you go about awarding contracts in Canada under these rules, for example, in the case of shipbuilding?

Mr. DRURY: There are, I suppose, in general two categories of shipbuilding; one is the case of a unique vessel; there is only one of its kind required; for example, we have a hydrographic vessel which is unique, and there is only one of them. At any rate, there is only one of this kind of thing.

Then there is another type where there are a number of generally similar vessels to be constructed. The Department of Defence Production in the case of the unique vessel consults with the Canadian maritime commission to secure their advice as to where, in terms of the general interest of the Canadian economy and the ability to meet considerations of cost and timing, this contract should best be placed. This is where there are inadequate specifications.

However, where there are, in the case of the unique vessel, complete specifications, frequently an invitation to tender is issued to the shipyards capable of building, and an award of the contract is made to the lowest tenderer.

Mr. WINCH: What is the profit you allow on your cost plus under item three on page four?

Mr. DRURY: The—

Mr. WINCH: Or T & M as we know it in the construction industry.

Mr. DRURY: I am not sure I know what that means.

Mr. WINCH: Time and material plus profit. On page 3 and also in paragraph 2 on page 4 you have your cost plus. On a cost plus basis what is the profit that you allow on the contracts that come under your jurisdiction?

Mr. DRURY: The basic rate of allowable profit is 7½ per cent.

Mr. WINCH: What is the maximum?

Mr. DRURY: We are not currently allowing anything above that; that is the maximum now. Under the kind of negotiated contract outlined here, where a target price is established and included in this target price is a profit rate of 7½ per cent, there will be in addition to this a willingness to share provided in the profit achieved by doing the work at less than target price. If the contractor is able to do the work at $100,000 less or save $100,000 on the target price, then this profit will be shared between him and the purchaser, the government, as an incentive.

Mr. WINCH: On what basis?

Mr. DRURY: Normally it is two-thirds of the saving to the government and one-third to the contractor.

M. le PRÉSIDENT: Monsieur Lessard, vous avez une question à poser?

M. MARCEL LESSARD (*Lac Saint-Jean*): C'est une question très courte, à laquelle d'ailleurs je demanderais une réponse très courte.

Le ministre pourrait-il me dire si l'aluminium est encore considéré comme un matériel stratégique, et si oui, le gouvernement en a-t-il encore en stock et combien?

L'hon. C. M. DRURY (*Ministre de la Production de défense*): Dans le moment, le gouvernement ne considère pas l'aluminium comme matériel stratégique. Il n'en a pas en main et il n'a pas l'intention d'en obtenir.

Mr. SMITH: On a point of order, before I ask my question, would you mind identifying the two officials who are here with Mr. Drury, please?

Mr. DRURY: Mr. Hunter is the deputy minister.

The CHAIRMAN: Mr. G. W. Hunter, the Deputy Minister and Mr. W. H. Huck, the Assistant Deputy Minister.

Mr. SMITH: On the matter of cost plus contracts and the 7½ per cent profit margin which is allowed,—

Mr. DRURY: May be allowed.

Mr. SMITH: —in addition to that, is there not a certain percentage of the overhead of the cost of our yards, relating this cost plus to ship-building at the moment, taken into consideration in evaluating the payment?

Mr. DRURY: In accounting terms, overhead is an element of cost and cost is allowed. In this type of work, as I understand it, the costs are computed. The costs which are directly and easily measurable are the total costs of labour and materiels which go into the work. Then, in relation to this the task of administering this labour and securing these materiels, some administrative apparatus is needed and has to be paid for. This, then, in terms of the size of the contract to the whole of the operation, is negotiated as a percentage added on top of the cost and time.

Mr. SMITH: Included in that negotiated factor there would be the use of machines and cranes and equipment related to it.

Mr. DRURY: That is correct.

Mr. SMITH: I have heard the claim made by shipbuilders that a yard fortunate enough to get a cost plus contract was able to be much more competitive on its next commercial bid, or ought to be much more competitive on its next commercial bid.

Mr. DRURY: When you say a commercial bid, do you mean if they are successful in negotiating a high overhead rate, then they have a little bit of a cushion perhaps.

Mr. SMITH: Would become competitive.

Mr. DRURY: That is true, and that is common practice.

Mr. SMITH: In the shipbuilding program that comes within the scope of the department of defence production and, as a matter of fact probably within the maritime commission even where there are bids, is it not right that the main factor is the economic conditions and the labour conditions in the area where the various shipyards are situated?

Mr. DRURY: Let us put it this way; this certainly is one of the considerations—

Mr. SMITH: One of the main ones.

Mr. DRURY: —which will influence this. A serious endeavour is made by the maritime commission, I am satisfied, to try to be fair—if I may use this term—about these allocations to see that there is not an unwarranted preference given to one or another area.

Mr. SMITH: Is it not felt that a certain number of shipyards in Canada must be kept in being?

Mr. DRURY: That is correct.

Mr. BALDWIN: My question has degenerated into a supplementary question by reason of enlargement of the original subject matter. Paragraph 2 on page 3 says:

> It is departmental policy to buy, whenever possible, at firm prices, arrived at as a result of invitations to tender issued to known sources...

Would the minister give us, in terms of dollars or percentage, the relationship between the amount on an invitation to tender basis and that on a different basis?

Mr. DRURY: These have been worked out. I regret to say we do not have them here at the moment. I would be glad to see that you get them. I am also glad to say my information is that the vast majority is at a firm price.

The CHAIRMAN: Do you have a supplementary question, Mr. Deachman?

Mr. DEACHMAN: Before we leave this subject, I would like to make a comment. It seems to me there does not appear to be a formal cabinet subcommittee or organization which deals with liaison in this enormous field of purchasing and inventory control which can affect the economy of the country. It seems to have been revealed here that there is a weakness in the defence purchasing and inventory handling mechanism at this level. I wonder if consideration has been given to putting this on a more formal basis where there would be better liaison among the various departments concerned and where these things could be given the expert scrutiny of economists and others who could advise the cabinet in respect of the economic effect of this, distribution of contracts over the country, and so on. It seems to reveal a weakness in the defence production and defence department structure.

Mr. DRURY: That is an opinion.

Mr. DEACHMAN: That is an opinion.

The CHAIRMAN: Mr. Hahn, do you still wish to ask a question?

Mr. DRURY: That is an opinion I do not share.

Mr. HAHN: I would like to go into the implication of the sentence at the bottom of the second paragraph of the first page wherein it states:

> The Department of National Defence tells us what it needs, and D.D.P. is responsible for obtaining the items.

As I read that sentence, if it means exactly what it says, the Department of National Defence decides upon its requirements without prior consultation with the Department of National Production. It would seem to me that it is vital when selecting roles that the Department of National Defence must take into consideration the ability of our industry in this country to produce some of the hardware. Is there consultation and liaison between the two departments before the Department of National Defence decides upon hardware? Does the Department of National Defence examine alternatives of hardware based on recommendations of your department about the ability of the Canadian manufacturer?

Mr. DRURY: Obviously, the first step in determining or deciding what equipment is needed is the selection of roles and the selection of roles is a matter really for the government as a whole. This is one of the major aspects of government policy and this is what this committee is devoting some attention to. When the roles have been selected this, to a large degree, determines the kind of hardware that is going to be needed. There are a number of options available for carrying out this role—and when I say options I mean options available to the armed forces,—and these are explored in so far as their economic aspects are concerned; they are thoroughly explored by the Department of Defence Production at the request of the Department of National Defence, and we do provide them with price availability of a whole variety of alternatives.

Mr. DEACHMAN: Does the information which your department has at its fingertips play a part in selecting the role which determines the hardware?

Mr. DRURY: It should and I am confident it does. The Department of National Defence, like everyone else, has a budget where economics do play a large part and I expect are going to play a larger part. These considerations you mentioned are important and, in my view, become increasingly important.

The CHAIRMAN: Mr. McMillan, have you a question?

Mr. MCMILLAN: I was looking over the report of defence production as of last March and I see there were bales of surplus crown assets in the amount of $9.6 million, strategic materials sales in the amount of $2.3 million, and I note that the cost of selling these materials was $2 million. Why should that be?

Mr. DRURY: I must take a look at this. Are you referring to appendix G?

Mr. MCMILLAN: Yes.

Mr. DRURY: It says strategic material cost of sales in the amount of $2,078,763 whereas the sales came to $2 million—

The CHAIRMAN: What page is this, Mr. McMillan?

Mr. MCMILLAN: That is on page 62.

Mr. DRURY: The cost of sales is not the administrative cost but the cost of the material which was sold; this means that the Department paid $2 million for the strategic materials and sold them for $2,319,000, and the difference between the purchase price and the selling price is $240,000, shown on the right side.

Mr. MCMILLAN: The minister referred to the integration of weapons systems in the first three pages; what progress is being made toward the standardization of weapons in NATO from small arms up? Do you keep that in mind in your purchasing?

Mr. DRURY: Of course, our main preoccupation is to try and secure the economic advantages arising out of standardization and this has been one of the proclaimed objectives of the North Atlantic Treaty Organization. The success or progress toward it has been very satisfactory in some fields and almost nonexistent in others. The hard facts of the matter are that where a nation's national security is concerned they are hesitant about relying on either inventions or weaponry designed by other nations; secondly, they are likewise hesitant about relying on supplies of ammunitions or arms, which they regard as vital to themselves, in the hands of another country. This calls for a measure of mutual confidence and trust, which has been increasing and improving over the years, and perhaps the highest degree has been reached in the alliance between the United States and Canada.

Mr. MCMILLAN: But there are different types of small arms, for instance the rifle being used by different countries in the western hemisphere?

Mr. DRURY: Yes. The one most common or which has the highest degree of commonalty is the FM, a Belgian design; but, this has not been adopted by the United States, which is the largest single consumer, nor by the Italians, who have a weapon of their own. However, Canada, Belgium, the United Kingdom, and I am not sure who else offhand, have adopted this particular weapon. The means of production are not concentrated in one country but do exist in a number of countries. Perhaps this has been the most widespread of the examples of commonalty.

Mr. CHURCHILL: I have two questions in connection with this first section, the first of which is a simple one in connection with page three. You mentioned that Canadian suppliers who wished to be placed on the list could have that opportunity. From time to time members are asked by firms how to get on the list and I would appreciate it if you would set out the steps to be followed. Is it just a matter of a firm writing into the department and is that then followed by an investigation by officials?

Mr. DRURY: The easiest, most direct and fastest way to accomplish this is to write to the department. Following the receipt of such a letter an investigation is made by officials in respect of the capacity and ability of the

applicant company to perform the job in which they have indicated interest. The first step in this investigation is the sending out to the company a fairly comprehensive questionnaire to be filled in by them and returned. This forms the basis of the first assessment. If the information on this form is encouraging there is a physical inspection made of the premises by departmental officials.

Mr. CHURCHILL: My second question relates to the statement appearing at the top of page three of the minister's report, that in 1962 the total expenditures through the department amounted to $764,600,000, and that the Department of Defence Production has an opportunity to stimulate industrial development across Canada. I wonder whether we could obtain a breakdown by the five major areas of Canada, that is: British Columbia, the prairie provinces, Ontario, Quebec and the Atlantic provinces, as to how this money is spent?

Mr. DRURY: We do not have such a breakdown with us but one can be obtained and we will be glad to do that for you.

Mr. BREWIN: Mr. Chairman, I should like to ask a question following along the lines of the questions asked by Mr. Hahn.

Mr. DRURY: Perhaps I might just elaborate a little in respect of Mr. Churchill's question.

In what detail do you wish this breakdown to appear, Mr. Churchill? The easy way of preparing such a breakdown would be to list the contracts by companies, providing an indication of the companies receiving contracts. There is a record of this breakdown in existence. However, it would require a considerable amount of effort to discover where the companies in fact spent the money received. A company with a head office in Montreal could possibly get a contract to produce something, in the amount of $5 million. That company may spend $2 million in Vancouver with a subcontractor, $1 million in Halifax with their own branch plant and the remainder in the United States. It would require a great deal of research to discover just exactly how much each of those companies farmed out to subcontractors Most defence prime contracts, as you well know, are farmed out in the form of subcontracts.

Mr. CHURCHILL: I do not want a breakdown which would involve a great deal of detailed research in this regard. I would be satisfied with even a rough estimate on a percentage distribution basis.

Mr. DRURY: Perhaps a reasonable estimate then would satisfy you?

Mr. CHURCHILL: Yes.

Mr. DRURY: Thank you, sir.

Mr. CHURCHILL: I would be satisfied perhaps with an approximation. I am not sure whether this would involve an approximation or an estimate.

Mr. BREWIN: Mr. Chairman, I wonder whether I could be permitted to preface my question by saying that the minister in his role as a private member on the 14th of December made a statement in the house during a motion for supply, which dealt with a good many of the problems facing this committee, and which I found extremely helpful to the consideration of all the problems of this committee. However, I do not intend to attempt to range completely over the field that he covered then, because it is much broader than the present field of discussion. I thought I should like to make that preliminary comment because I want to refer to what he said then which I think is relevant to this subject covered in the first five pages of his present statement.

In this context he was discussing the various items or considerations that should be taken into account in respect of the role that Canada might be

expected to play in defence and military affairs. The third item, among a number of others he mentioned was, and I quote from page 2682 of *Hansard* of December 4, 1962:

> —we should seek military functions which are geared more closely to our industrial economy and which, certainly in large part, lend themselves to research activities within our industrial complex.

The minister went on to elaborate on that particular statement.

The question I should like to ask is—and I appreciate that the minister has told us that the determination of military requirements and military roles is for other departments and the cabinet as a whole to make—does his department advise either the government or the Department of National Defence in respect of military functions which might be geared more closely to the industrial economy and research activities within our industrial complex? Is such an advisory capacity part of the function of the Department of Defence Production, or is such a function exercised by his department?

Mr. DRURY: It is part of the function of this department, and will be a preoccupation of the Department of Industry, quite naturally, to provide me with intelligent advice in this matter, and it will be up to me as the minister of the departments of industry and defence production to see that these considerations are kept in mind when the cabinet is deliberating on these questions involving the roles and functions of the armed forces.

Mr. BREWIN: Mr. Chairman, may I follow-up that question by asking the minister, and I appreciate that there is advice that can be given to the cabinet which cannot be given to a committee of this sort, whether it is possible for the minister to elaborate in respect of this particular statement, giving this committee the benefit of his views and the views of his department regarding this particular subject? As I understand, it is one of our duties to advise the government, in a different sense, in respect of this very problem. I think this committee could be greatly aided by the minister informing us as to the various alternative roles which fit in under the heading of military functions geared more closely to our industrial economy.

Mr. DRURY: In itself this is a very large, complex and detailed subject. As yet the Department of Industry has not been organized to produce, in a considered way, specifics elaborating upon, or giving effect to this view. This would be, I would hope, one of the early tasks of the Department of Industry.

Mr. BREWIN: I do not know whether we will have received this information at a time when we are still exercising whatever advisory role we may have, but I should think it would be very relevant to the deliberations of this committee.

Mr. DRURY: I should think that the possession of this information would be helpful, but I am sure that neither the chairman nor the members of this committee would like me to deliver opinions off the top of my head in respect of this particular topic.

Mr. BREWIN: Mr. Chairman, perhaps through you I might ask the minister to consider this and suggest that if he could produce some opinion in this regard it would be helpful to our considerations within this area at some later date.

Mr. LLOYD: Mr. Chairman, I wonder whether there might be a little broader definition of the relationship of government to industry, as a result of the creation of the Department of Industry, coupled with the existence of the Department of Defence Production and, perhaps, whether there would be more new liaison in existence.

The CHAIRMAN: Would you speak a little louder? We cannot hear you at this end of the room.

Mr. LLOYD: I am sorry, Mr. Chairman. I was trying to say, Mr. Chairman, that we now have a Department of Industry and the minister and his officials will be concerned with the progress of industry generally in Canada, particularly in regard to creating the kind of economic weather which will enable industry to flourish. In making such an attempt the minister is bound to have a look at the role played by the Department of Defence Production, because there probably will be some overlapping in this area. Perhaps we might obtain some kind of a forecast as to how these two departments will operate in relation to each other in this field.

Mr. DRURY: The forecast is that they will operate very well together. It is a fact that these two departments have a common minister.

Mr. WINCH: Common or uncommon?

Mr. ASSELIN (*Notre-Dame-de-Grâce*): High class.

Mr. DRURY: They will have quarters physically situated right longside each other. The officials of the Department of Defence Production will be in close and intimate contact with the officials of the Department of Industry. I suggest there will be a closer working liaison between these two departments of government than any other two.

Mr. LLOYD: There are 1,520 employees in this department staff according to the report, and I would presume that there would be some concern about overlapping of duties.

Mr. DRURY: Overlapping or duplication?

Mr. PATTERSON: Could I ask a supplementary question? I wonder if this would be in order, but I would like to ask if any consideration has been given to the formation of just one ministry with the Department of Defence Production as one section of that ministry, rather than having two distinct ministries?

Mr. DRURY: The function of the Department of Industry, I think, is quite clear to most members of the committee. It has been debated at some length in the house. The Department of Defence Production is currently engaged in a study with a view to converting itself into a general procurement agency for all of the goods and services required by the Canadian government. In this sense it would become a department not of defence production or defence supply but a department of supply. It has been exercising up to the present, in relation to defence industry, a function of adviser to the government in respect of the fostering of the economic health of defence industry. It has been doing two things up to the present: one is acquiring supplies for the Department of National Defence at the lowest possible price, and at the same time acting in relation to defence industry in a way that the Department of Industry will behave in relation to the manufacturing industry as a whole, namely as an agency to promote its economic growth and health.

During the next year one would hope to sort out these overlapping functions and have an agency of the government emerge which would be concerned with purely purchasing functions, such as warehousing, distribution and inventory problems for all of the goods and services required by the government. We hope that the promotional or fostering functions now carried out by the Department of Defence Production in relation to defence industry would tend to reside rather more in the department now called the Department of Industry.

There are a mixture of functions being carried out by these two departments which will be modified and lead to the modification of both the Department of Industry and the Department of Defence Production as they are presently constituted. It would be imprudent of me to try to give you a blueprint of what it is going to be. This has got to be thought through and brought about in an orderly and evolutionary way.

Mr. MacLEAN: Mr. Chairman, I want to ask a general question on the government purchasing policy. The minister said, at the bottom of page 4:

> We always look to Canadian Companies for the supplies needed for national defence, and we continually examine the requirements of the services to see how such needs can contribute to the creation and extension of Canadian skills and facilities.

It would seem that there are two objectives, both of which are rather worthy. One is to be as self-sufficient as possible in defence requirements. The other is to purchase material as economically as possible. It is obvious that these two objectives would be only compatible where the Canadian supplier would be the most efficient supplier.

At page 5 of the minister's statement he says:

> Consequently where Canada does not possess facilities and capabilities or where it does not make economic sense to create facilities, we find it desirable to purchase from other countries.

What I would like to know is where does the balance lie? Surely there must be some cases where a Canadian producer is almost competitive with a foreign producer but is not quite. Is it government policy under those circumstances to accept a slightly higher cost for the Canadian product? In other words, at what price differential, in the view of the government, is it no longer economic sense to create these facilities and to buy in Canada, and so on? What amount of subsidy—if I may use that term, and it is probably not the right one to express it—or what price differential will the department accept in order to have a Canadian supplier rather than a foreign supplier of goods?

Mr. DRURY: I think I would be misleading the committee if I were to convey the impression that this was just a question of the mechanical application of a factor and a particular price differential. The question of whether or not to establish a Canadian source depends, to some extent, upon an assessment of the continuing economic health and economic viability of that source as a source. There is no purpose, really, in paying a premium—any kind of a premium—on a one shot basis which is going to produce a rise in activity and then this to be followed by an equal decline. One really has to look at the eventual development of this kind of source when one comes to a conclusion as to whether any kind of preference or any kind of premium should be paid.

Where it does look as if there is a future possibility of a continuing economic competitiveness, then a modest premium—I suggest a premium in excess of 10 per cent would be immodest—on a get started basis would be justified.

Mr. WINCH: May I ask a supplementary question?

Mr. MacLEAN: I have a supplementary question as well.

The CHAIRMAN: Very well, Mr. MacLean.

Mr. MacLEAN: What about the situation where the Canadian source of supply exists; and let us take some commodity such as steel, where there may be a differential of from 10 to 15 per cent between the Canadian price and that perhaps of Japanese or German steel. What premium is acceptable under these circumstances in order to have a Canadian supply?

Mr. DRURY: Up to 10 per cent.

Mr. MacLEAN: In that case does the Department of National Defence have to bear this extra cost from its own estimates, and if so, how can they estimate their requirements when they presumably do not know in advance whether the item required is to be procured from the lowest cost source, or from a Canadian source which may be more costly? Is this extra cost borne by the Department of National Defence without prior consultation?

Mr. DRURY: It is borne by the Department of National Defence, but I cannot conceive of an instance where there would not be prior consultation.

Mr. WINCH: Mr. Chairman, may I refer to page 4 of the statement where it says:

> We always look to Canadian companies for the supplies needed for national defence, and we continually examine the requirements of the services to see how such needs can contribute to the creation and extension of Canadian skills and facilities.

Then I would like to tie that in with the last paragraph on page 1:

> As I have mentioned, D.D.P. is responsible for the procurement of those goods and services which the armed forces require for their own maintenance and for the defence of Canada.

In view of the question asked by Mr. MacLean and the answer of the minister, can the minister tell us, having reference to the last sentence on page 4 and the last paragraph on page 1, why, when Canada spends hundreds of millions of dollars a year to maintain armed forces in Europe under NATO your department does not handle the purchase of food requirements for our forces in Europe? I ask that question because I have had the privilege of visiting all the Canadian armed forces establishments in France and Germany. I discovered that all purchases are not made by your department. They are made by the British ordnance. I can tell you that less than 5 per cent of all the food supplied to our armed forces in Europe is of Canadian products, and this is not aiding our facilities. Most of it comes from the United States and South Africa. Why is this the policy in view of your own two statements?

Mr. DRURY: I am not sure that buying Canadian food is going to lead to the development of any particular Canadian skills in the defence field.

Mr. WINCH: Nor facilities?

Mr. DRURY: I think what I had in mind in the statement about the development of Canadian skills was rather more technological.

Mr. WINCH: How about page 1, the last paragraph?

Mr. DRURY: The last paragraph there does not mention skills.

Mr. WINCH: No; the procurement of goods and services for our Canadian forces. When we have hundreds of millions of pounds of cheddar cheese in Ontario, why should our forces get this from South Africa? Why should all our canned chicken, turkey and fish for our troops in Europe come from the United States?

Mr. TEMPLE: Canada has on hand approximately 1½ million pounds of cheddar cheese.

Mr. WINCH: I am from Vancouver. Bellingham is 40 miles away and all the canned salmon comes from there. We also have poultry production, but all the canned turkey comes from Pennsylvania, Florida and California. In view of what you say here about procurement for our services, why is that the situation?

Mr. DRURY: Frankly, I cannot answer you in detail. I would imagine that the question of relative costs would have a lot to do with it.

Mr. WINCH: Can we not compete in the matter of supplying our own forces?

Mr. DRURY: In cost terms I would suspect there may be some difficulty about this.

Mr. WINCH: Even though we subsidize it.

Mr. DRURY: This is something I would be glad to look into.

The CHAIRMAN: Thank you, gentlemen. It is now half past twelve and the meeting stands adjourned until Thursday morning at half past ten.

Mr. MATHESON: Mr. Chairman—

The CHAIRMAN: I am sorry, Mr. Matheson, the meeting is adjourned.

THE FOLLOWING IS AN ENGLISH TRANSLATION OF THE DELIBERATIONS CARRIED ON IN FRENCH ON THIS DAY:

Special Committee on Defence

(*Page 273*)

The CHAIRMAN: Mr. Lessard, you want to ask a question?

Mr. MARCEL LESSARD *(Lake St. John)*: I have a very short question which I would like to be very briefly answered.

Could the Minister tell me if aluminum is still considered a strategic material and, if so, does the Government have some in stock and how much?

Hon. C. M. DRURY (*Minister of Defence Production*): At the present time, the government does not consider aluminum a strategic material. None of it is kept in stock and there is no intention of stockpiling it.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 10

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THURSDAY, AUGUST 1, 1963

WITNESSES:

Dr. D. B. Scott, Dr. L. E. Trainor, and Dr. J. T. Sample, all Physicists at the University of Alberta.

From the Defence Research Board: Dr. J. E. Keyston, Vice-Chairman; and Dr. G. S. Field, Chief Scientist.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29376-1—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

THURSDAY, August 1, 1963.
(12)

The Special Committee on Defence met at 10:35 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present:—Messrs. Asselin *(Notre-Dame-de-Grâce)*, Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Lessard *(Lac-Saint-Jean)*, Lloyd, MacLean, Martineau, Matheson, McMillan, Sauvé, Smith, Temple—(20).

In attendance:—Dr. D. B. Scott, Dr. L. E. Trainor, and Dr. J. T. Sample, all Physicists at the University of Alberta. *From The Defence Research Board:* Dr. J. E. Keyston, Vice Chairman, and Dr. G. S. Field, Chief Scientist.

Also in attendance: A Parliamentary Interpreter.

The Chairman indicated the Committee's willingness to receive written submissions from persons or organizations *(See this Day's Evidence)*.

The Chairman introduced Drs. Scott, Trainor and Sample; and he indicated that Dr. Keyston and Dr. Field would be called later to comment on Dr. Scott's presentation and to be questioned by members of the Committee.

Dr. Scott read a brief prepared statement, respecting Nuclear Weapons. He expanded on his statement, using a blackboard to illustrate certain points.

Dr. Keyston commented on the statement presented by the Physicists from Edmonton, Alberta.

The five witnesses were questioned respecting Nuclear Weapons, Bomarcs and related matters.

Moved by Mr. Asselin *(Notre-Dame-de-Grâce)*, seconded by Mr. Temple,—

That this Committee pay reasonable living and travelling expenses incurred by Professor D. B. Scott, Dr. L. E. Trainor and Dr. J. T. Sample, by reason of their appearance before this committee; and that a per diem allowance be made to Professor Scott, Dr. Trainor and Dr. Sample, for Wednesday and Thursday, July 31st, 1963, and August 1st, 1963, (as provided in Standing Order 69(2)).

The said motion was adopted *unanimously*.

At 1:00 p.m. Committee adjourned to the call of the Chair.

E. W. Innes,
Clerk of the Committee.

29376-1—1½

EVIDENCE

THURSDAY, August 1, 1963.

The CHAIRMAN: Gentlemen, we now have a quorum. The meeting will come to order.

Before we proceed with this morning's business, I would like, on behalf of the Steering Subcommittee to make an announcement. The committee will be pleased to receive written papers or submissions with respect to defence and defence matters. Persons or organizations wishing to make such written representations are requested to send *forty* copies in English, where possible, and *fifteen* copies in French of their statements to the Clerk of the Special Committee on Defence, House of Commons, Ottawa. These submissions are to be accompanied by a brief outline of the background and qualifications of the persons or groups making such presentations.

This morning three physicists from the University of Alberta, Dr. Scott, Dr. Trainor, and Dr. Sample have been called to appear before us to discuss their scientific views. They are here to make representations concerning their scientific views of certain problems relating to defence. We do not expect them to discuss their political views, and I would expect that members of the committee would also limit themselves to questioning these witnesses on scientific matters.

After representations by Mr. Scott, Mr. Trainor, and Mr. Sample, I shall call upon Dr. Keyston, vice-chairman of the Defence Research Board, and Dr. Field, who you already know, since he has appeared as a witness. He is the chief scientist of the Defence Research Board. Dr. Keyston and Dr. Field will make comments.

Accordingly, Mr. Scott, Mr. Trainor, Mr. Sample, Dr. Keyston and Dr. Field will be your witnesses, and I would expect—and I insist—that you limit your questioning to the scientific problem with which these people are all familiar.

Now will Mr. Scott, Mr. Trainor, and Mr. Sample please come up to the head table.

Mr. Scott, on behalf of the eight physicists of the University of Alberta, will read a prepared, written statement which will now be distributed to members of the committee. Mr. Scott?

Mr. D. B. SCOTT, (*Physicist, University of Alberta*): Mr. Chairman, may I apologize to you and to members of the committee, first of all for having failed in our bicultural duty in not having rendered into French as well as into English what we have distributed before you. We are so accustomed to having our friends in French Canada speak English as well as French that, without arrogance we have failed to speak French ourselves.

Mr. Chairman, if I may, I would like to read into the record the statement that we have placed before you. But before I do so, may I say that the three of us here, as well as those whose names are to be found on the second page of this statement, are all professors in the department of physics at the University of Alberta in Edmonton.

Mr. Chairman, members of the committee,

It is a privilege for me and my colleagues to have this opportunity to present to you our viewpoint on a certain question concerning the effectiveness of the Bomarc, armed with a nuclear warhead, as a defense against manned

bombers carrying hydrogen bombs. With your permission, I shall read this brief statement into the records since it summarizes our point of view and, perhaps, provides a basis for questions.

Before raising the question itself, let me say just a few words about motivation. You have all seen a document signed by eight physicists from the University of Alberta and entitled, "Some Scientists Look at the Question of Nuclear Weapons for Canada". Our motivation in drawing up this document was pure and simple. We felt that a certain claim, which we shall discuss in a moment, regarding the effectiveness of the Bomarc was very greatly exaggerated in the press and that the Canadian public was entitled to know something of the grave doubts which many scientists seemed to have on this claim. We attempted to set down a few simple facts about nuclear weapons and Bomarcs which would help dispel some popular misconceptions concerning them.

Let me now turn to the question which we are concerned about here. The statement has been repeatedly made in the public press that, if a Bomarc nuclear warhead were exploded in the vicinity of an attacking enemy bomber armed with a hydrogen bomb, the neutrons released from fission of the Bomarc warhead would in some way de-activate the hydrogen bomb so that bomb and bomber would either disintegrate or crash harmlessly over the area of collision.

Now we attempted to understand this statement and failed. We admit that under certain favourable conditions the neutron flux could, indeed, destroy the firing mechanism of the H-bomb or at least reduce the efficiency of the explosion by causing a partial or asymmetric misfire. But this is not an interesting question. One has to deal with the fact that the enemy will attempt to present unfavourable conditions. In our view, it is relatively simple, as these things go, for the enemy to design his offensive H-bomb so that it will automatically detonate in the vicinity of a nuclear explosion.

Now I wish to emphasize that none of us is a weapons expert and none of us has pretensions in that direction. But weaponry does involve some basic scientific principles with which we are familiar, and in the present case, the claims made for the Bomarc seem clearly to ignore or misrepresent some of these principles. I need hardly remind the committee that the decision to protect the H-bomb against the Bomarc lies with the enemy, and not with us. President Kennedy's chief scientific adviser on nuclear weapons, Professor Hans Bethe, has made this point repeatedly, that the initiative and advantages lie with the offensive. We believe that in the present case it is a relatively straightforward matter for the enemy, if he chooses to do so, to insure that his offensive H-bombs will explode if subjected to nuclear attack by the Bomarc.

We would also like to emphasize that we have no special sources of information that are not available to any member of the committee or the public. Naturally, our familiarity with some of the scientific and technological literature makes the task of ferreting out information much less difficult for us, but the information which we have used is contained in a variety of scientific periodicals and books, e.g. in the McGraw-Hill book, *Nucleonics Fundamentals,* which was written by Dr. David Hoisington, professor at the United States naval postgraduate school.

We have not made long and detailed calculations on the design of nuclear weapons, but we have satisfied ourselves on the basis of reliable estimates and on others of magnitude, that our point of view is correct.

We have deliberately avoided in this brief statement explicit discussion of the scientific principles which we feel support our point of view. We are, however, happy and willing to discuss them at some length and to answer questions if the members of the committee so desire.

This brief is presented by me, Mr. Chairman, on behalf of Drs. D. D. Betts, D. W. Braben, H. R. Krouse, F. D. Manchester, H. Schiff, L. E. H. Trainor, S. B. Woods, and also on behalf of Dr. J. T. Sample who is with us and whose name is not among those listed on the brief.

Now, Mr. Chairman, if I may I would ask that I be allowed, before questions are asked by the committee, to make a statement using the blackboard as is the custom of university professors.

The CHAIRMAN: Dr. Scott will now use the blackboard to make his demonstration before I call in the other witnesses this morning, Dr. Keyston and Dr. Field.

Mr. SCOTT: Mr. Chairman, we have been given to understand that an important fundamental in the issue before us is that attached to a nuclear weapon in an attacking aircraft would be what is called a "dead man" switch. We suppose this is done for at least one of two reasons: first, the enemy would not wish to have a dud land on the ground lest it be examined and some of the things which they hope to withhold from general knowledge would then become available. Second, we suppose that the enemy would have dispatched the bomb with the expectation of having it used and therefore, even though not over the prime target, an explosion would be desirable on the part of the enemy.

We are told, therefore, that for these or other reasons they have thoughtfully attached to the bomb a dead man switch which perhaps would be pressure sensitive and respond at a certain altitude where the pressure was appropriate, thus activating a switch, detonating the bomb and causing an explosion.

Having agreed to this, then it seems obvious that the problem of destroying an enemy aircraft is complicated by the fact that what is really important is de-activation of the bomb and destruction of the aircraft is unimportant. If this be true, then one must consider the following simple problem which we do not consider crucial to our argument.

There would be a range, let us say, of R_1, with the attacking aircraft at the centre, within which an explosion of a Bomarc would destroy the aircraft. There would be another range, let us say R_2, in which the bomb load contained in the aircraft would be de-activated and would be cooked. Let us suppose that R_2 is bigger than R_1. If this is so, then the bomb load has been destroyed and in some cases in this overlapping area the aircraft has not been destroyed. This is all right; nobody cares; this is fine. Let us suppose, however, that the ranges have been interchanged and R_2 is the range of destruction of the aircraft and R_1 the range of de-activation of the bomb. It is quite clear that in this range the aircraft has been destroyed and the bomb in here has not. Then, of course, the dead man switch on the falling bomb in the aircraft which has been destroyed will cause the bomb to explode. This we regard as not very significant because it could be in the upper atmosphere, say 40,000 feet, where the amount of air present is so limited that a pressure wave from the explosion would simply not be formed and the aircraft would not be destroyed at all. So, we do not regard this as anything more than mildly disturbing.

We then sought to understand what it meant by the cooking process. As you know, it is said that the explosion of a nuclear weapon near a hydrogen bomb will cook it so that it will fail to explode. In order to understand how this might happen we have had to think in terms of a model of a hydrogen bomb which I now draw for you in a very rough fashion.

There is, first of all, a spherical shell which is hollow, composed of either plutonium, or one of the three isotopes of uranium. This is an atomic bomb as properly conceived, to which I shall return presently. Surrounding this in

some form is some chemical explosive such as TNT whose function I will explain in a moment. Surrounding the TNT is a layer of lithium deuteride which is required for the fusion explosion. Surrounding this, then, if this is one kind of bomb, would be a layer of ordinary uranium. There is then plutonium which I shall call Pu. in the form of a shell. Around plutonium is TNT, or some chemical explosive. Next is the lithium deuteride and, finally, natural uranium. This is the fission-fusion-fission bomb.

What happens is roughly as follows. The TNT is caused to explode. This causes the plutonium which is inside it to implode, to collapse upon itself. Having done so, then the plutonium, although the same mass, occupies a smaller volume; it is then a critical mass and it then explodes. All that is required to detonate an atomic bomb is that the mass of uranium or plutonium shall be in a critical form. Then the neutrons which are released by the explosion of the atomic bomb in the centre interact at appropriate temperature with the lithium deuteride, which is the third layer, causing a fusion reaction which releases more neutrons which are partly absorbed by the uranium outer casing which is then caused to explode fissionwise, and then this is the fission-fusion-fission bomb. This is the bomb in the attacking aircraft. Our Bomarc simply is an atomic bomb which contains none of this lithium deuteride and outer casing of uranium; it is plutonium or one of the isotopes of uranium. When an atomic bomb is exploded, the Bomarc I am talking about now, it releases gamma rays, neutrons, fission fragments, heat, light and a wide spectrum of wavelengths in the electromagnetic spectrum; in order that this should de-activate a hydrogen bomb something from the Bomarc must reach the bomb in the attacking aircraft—that is some signal or other—and we have sought to decide what it could be that would cook this bomb. We have decided it cannot be the gamma radiation, which would penetrate the aircraft and certainly reach the bomb; this could not do anything that we could recognize as cooking. The fission fragments would not penetrate the aircraft and, therefore, could not reach the bomb. The light from the explosion would reach the aircraft but it would not enter it and, therefore, could not affect the bomb.

The only thing which could, (a) reach the aircraft, penetrate the exterior of the aircraft, reach to the bomb and get into the guts of the bomb and do something upon arriving is the beam of neutrons—and there is no argument about that. Having decided that, we estimated the Bomarc would be—and let us take plenty—a 100 kiloton weapon. We did this not because we know the size of the Bomarc—we do not,—and 100 kilotons may be too big; but if it is too big it has too many neutrons rather than too few, and we want plenty to accomplish the cooking process. So, we have given ground in the direction of probably a larger weapon than a Bomarc is. We have therefore a beam of neutrons which will be able to penetrate to the bomb and be absorbed in the various layers of the bomb itself. The absorption in the plutonium is what is important because upon being absorbed in the plutonium fission of the plutonium will occur induced by the neutrons that have been absorbed. This causes a release of energy which appears largely in the form of heat; therefore, the temperature of the plutonium goes up because of the absorption of the neutrons from the Bomarc weapon which exploded nearby. This temperature rise can be calculated—and we have done it. We have done this as a function of distance of the bomb from the exploding Bomarc. Allow me to make it clear; we have imagined that on a graph, at the origin, the Bomarc has exploded. Some distance away—and we plot distance in this direction—from the explosion of the Bomarc there is a hydrogen bomb in the attacking aircraft. Now, it is quite obvious that the farther the bomb is away from the Bomarc the less effective will be what it is the Bomarc is supposed to do to it; that is to say, the temperature rise, I claim, for the plutonium will be less and less the

farther away one is from the Bomarc. So, you will not be surprised when I draw a curve which looks something like this showing the temperature rise of the plutonium, solely as a result of absorption of neutrons, causing fission in it.

On this graph I put several temperatures; the first one is the temperature of the melting point of TNT, namely 80 degrees centigrade; the next one is the explosion temperature of TNT, 240 degrees; then, somewhat higher, is the melting temperature of plutonium, which is 640 degrees, and a little bit higher than that is the melting point of lithium deuteride, which is 680 degrees. Now, the claim is made that, by virtue of the increase in temperature, a distortion occurs in the bomb trigger at the atomic bomb level. This either means one or both of two things, that the plutonium itself is melted and distorted in such a way that the explosion of the TNT following this is ineffective in reducing it to critical size because of the asymmetry introduced by the destruction of its shape, or, which is more likely, that the loss of shape by the TNT itself will be such as, when it explodes, to do so asymmetrically, and hence again not cause the plutonium to collapse upon itself and form a critical mass. It is obvious from the melting point of plutonium and the explosion temperature of TNT that the first of those two is completely impossible. The second possibility then is that the TNT now has to lose shape and the temperature at which this occurs is going to happen before the melting point of plutonium is reached; it will happen at the temperature of 80 degrees. If the bomb is at zero degrees in the aircraft, and it is conceivably below that, then an 80 degree rise of temperature will bring it up to 80 degrees and, therefore, the TNT will melt and lose shape by running back into a puddle, unless one supposes that in the design of the bomb someone has thoughtfully encapsulated the TNT in a material whose melting point is substantially above that of TNT and in which it could quite happily be in a molten state.

There is no loss of shape because the TNT has nowhere to go being tightly encased in something of a higher melting point.

Having reached this point, we decided that the loss of shape of either the TNT or the plutonium was simply not capable of cooking a bomb. This will not happen.

I have gone through this rough outline of what we have done as part one of a two part presentation to you. Let me emphasize what I have attempted to do. I have tried to explain to you the grounds roughly on which we claim a Bomarc cannot cook a hydrogen bomb, a claim which has been made before you.

If I might now, Mr. Chairman, I would like to proceed with part two of my presentation. It begins with the statement that we do not really care whether the Bomarc will do what is claimed for it because we do not think it will have a chance to do it. Let me explain what I want to say.

We must concede, as we pointed out in our written statement, which I have just read to you, that the enemy are designing these hydrogen bombs and not us. We could design a hydrogen bomb which we could cook by means of a Bomarc. As we pointed out, this question is totally uninteresting.

The question is, with all the conceivable designs of hydrogen bombs and under conditions of use will a Bomarc then do what is claimed for it or not? The answer to this, we believe, is unequivocally, no. Let me point out to you that of the events which take place upon the explosion of a hydrogen bomb, the release of an enormous amount of gamma radiation is one. I have already talked about the neutrons which have been released and which reach the aircraft and penetrate the bomb, and so on.

Gamma rays travel at the speed of light. Neutrons travel at different speeds depending upon their energy but roughly 10 per cent of the speed of light. Thus it happens that arriving at the enemy aircraft and its bomb

load will be the gamma ray beam first, before the neutrons have had a chance to get there, and several millionths of a second in adcanve. When one says a millionth of a second it may seem like a short time, but I would remind you that one speaks in electronics and the operation for example of a digital computer in thousands of millionths of seconds, so I would ask you to notice that a millionth of a second is really quite a long time. Roughly one hundred of these millionths of a second is the lead of the gamma rays over the neutrons.

I am, let us suppose, a moderately clever member of the enemy, I have designed a bomb which, by virtue of the dead man's switch which I claim to have put on it, I mean to go off; I mean this thing not to fall to the ground harmlessly. I, therefore, thoughtfully put on something which detects the arrival of the gamma rays and which then triggers the device which detonates the bomb. With one hundred microseconds—one hundred millionths of a second—in which to do this and I need only about ten, there is lots of time to detonate the bomb by means of a gamma ray sensing device attached to the triggering mechanism.

Mr. Chairman, I claim that it is irrelevant, in our presentation, whether or not a Bomarc would cook a hydrogen bomb if given a chance to do so because I claim it will not have this chance. It will not have a chance because the cooking of a bomb has to be done with neutrons, and long before the neutrons have got there some device like a gamma ray sensor will explode it. It therefore follows that we have indeed assisted the enemy in the operation of his own dead man switch by the explosion of a Bomarc if he is just thoughful enough to do that which I have just suggested. It would take a pretty stupid—perhaps I should not use that word—member of the enemy not to think of what I have just suggested to you.

There are other ways in which this could be done but I do not really care how many other ways there are, all I need is just one. I have explained that one way.

With these remarks, Mr. Chairman, I conclude my presentation.

The CHAIRMAN: I will now call upon Dr. Keyston, vice-chairman of the Defence Research Board to make a comment in respect of the presentation of Mr. Scott.

Dr. J. E. KEYSTON (*Vice Chairman, Defence Research Board*): Mr. Chairman, gentlemen, before we cope with any specific technical questions I would like to make a couple of brief comments.

Those of us who have the duty of advising government on the effect an exploding nuclear-tipped Bomarc would have on an H-bomb carried in a manned bomber are confident that there is a high probability of the bomb being rendered relatively harmless by processes for which the term "cooking" has been coined. This includes such bombs as we know are around at present and such modifications of them as we see practical in the immediate future. In saying we are confident of this we are giving advice to government with a high sense of responsibility. Our confidence derives not simply from such classified information as the United States of America entrusts to us regarding the effects of nuclear explosions—

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Chairman, may I interrupt on a point of procedure? I wonder whether Dr. Keyston has copies of this statement?

Mr. KEYSTON: I will hand a copy of this to the secretary but I have nothing to distribute now. I would have given this presentation without notes had I not felt it important to get this on the record.

The CHAIRMAN: Please proceed.

Mr. KEYSTON: Our confidence in so advising the government derives not simply from such classified information as the United States of America entrusts to us regarding the effects of nuclear explosions but also from the extensive experience D.R.B. scientists have had in the specialized fields of explosive chemistry, explosive physics and armament design. No points Dr. Scott and his colleagues have raised lessens our confidence in our responsible assertions, and indeed it would be surprising if this were otherwise since Dr. Scott and his colleagues have not the advantage either of our classified information or of our depth and breadth of relevant specialist experience in the fields I have mentioned.

There is one further point. All Canadian governments have shown concern to discourage the spread of know-how on H-bomb design and manufacture to other countries, including Canada. We in Canada do not want to know the full details of the inside of the H-bomb and we in D.R.B. have not sought to obtain more than the minimum information needed to assess with confidence the nature of H-bomb effects. But this information goes a way beyond anything it would be in the public interest to divulge and for this reason there must be a severe limit to what we can say firmly is or is not a feature of the inside of an H-bomb. A document has been distributed which includes these points we can publicize that are most germane in our view in indicating where Dr. Scott and his friends are wrong in the conclusions they reached.

The CHAIRMAN: Members of the committee will be recognized in the traditional order, and the first name I have on my list is Mr. Matheson.

Mr. MATHESON: Dr. Scott, before the diagram was erased from the board which you produced, it represented, I take it, your idea of the hydrogen bomb consisting of an empty centre, a ring of fissionable metal plutonium, another ring which you called an ordinary explosive, TNT, and then another ring of lithium deuteride and a ring of natural uranium, with a final ring or a steel jacket, or a cobalt alloy jacket?

Mr. SCOTT: I did not mention the cobalt steel jacket.

Mr. MATHESON: Dr. Scott, would you tell me whether you or your colleagues have any knowledge that there is a ring of ordinary explosive such as TNT in an enemy bomb or even in a bomb of our ally, the United States, or is this statement purely based on conjecture on your part?

Mr. SCOTT: Mr. Chairman, it is generally conceded in the literature and a variety of books including the one I mentioned that this is the case. One has to have some means of taking a piece of plutonium which, at the time it is mounted in the bomb, is not critical and rendering it into a critical shape.

Mr. MATHESON: I quite appreciate what you have described as the necessary function of something like TNT. My question is whether you have any assurance that it is an ordinary explosive like TNT or anything quite like that? Have you any real knowledge in this area?

Mr. SCOTT: I have not, as Dr. Keyston has said and I have also said, access to information of this kind.

Mr. MATHESON: Following that, still in the earlier part of your presentation, do I take it that you have said some considerable stress on the melting points of both plutonium, at I think 1100 degrees Fahrenheit, and TNT at 464 degrees Fahrenheit, with respect to this cooking argument?

Mr. SCOTT: This is one of the points I did make, sir.

Mr. MATHESON: Do I take it then that you are telling us that the means by which you fire the plutonium is simply a heat operation with respect to what you have called ordinary TNT and plutonium?

Mr. SCOTT: Yes.

Mr. MATHESON: Has it occurred to you that there might be other devices or ways of having a process of this character take place other than simply comparative heat? This would in effect render your conclusion unlikely.

Mr. SCOTT: Basic principles are basic principles. You cannot get around them.

Mr. MATHESON: So you conceive of no other way of firing plutonium except by a heat process on what you call ordinary TNT?

Mr. SCOTT: Some means of collapsing the shell on to itself to form a critical mass.

Mr. TRAINOR: I might comment on that. As far as firing a bomb is concerned, it is not a heat process which will fire it, if a heat process causes the TNT to go off. As far as bringing a bomb into an explosive situation is concerned, you want to collapse the shell of plutonium in the shortest possible time in order to cause an explosion. You want these things to happen quickly. The best method that one can conceive of in any reasonable scientific atmosphere that we could think about is a chemical explosion. Chemical explosions are very rapid; they take place in the order of micro-seconds, a few millionths of a second, which is the time we are talking about.

Mr. MATHESON: I suppose, doctor, that you have no facilities at the university of Alberta allowing you to make experiments with respect to explosions?

Mr. TRAINOR: We went very extensively through literature on explosions, and I have a thick brief prepared by one of the members of our group from scientific information on properties of these explosives. The committee will appreciate there are all sorts of explosives. We used T.N.T. just as an example. There are explosives much more sensitive to heat than T.N.T. A designer of a bomb has a great deal of flexibility in how he wishes to detonate and what explosive to use; for instance, he might use R.D.X. instead of T.N.T.

Mr. MATHESON: Assuming it is T.N.T., that would be melting at 464 degrees Fahrenheit, can you not conceive—I am taking your own argument with respect to the cooking process—of a device which would in effect destroy the T.N.T., with the result that actually when it was being destroyed there was no firing of the plutonium?

Mr. SCOTT: I can think of ways in which, if you attempted this, we might put something in the T.N.T. to activate it in order to encourage it to explode.

Mr. MATHESON: May I ask you this question on the same point: can you not, as a scientist, conceive of a result to the plutonium, which has nothing to do with simply a heat reaction, which destroys its firing capacity by virtue of the explosion of the Voodoo or Bomarc weapon?

Mr. SCOTT: No; emphatically no.

Mr. MATHESON: You say, sir, it is impossible?

Mr. SCOTT: There are physical principles which I would have to claim were being violated?

Mr. MATHESON: Yes, but on the whole basis of your assumption—I am not talking about the second fusion process—I am talking about the basic process of the implosion of the fissionable metal, plutonium, on the empty centre—can you not conceive of ways in which the fissionable metal plutonium could be rendered harmless as a result of an explosion, perhaps changing its shape, form or altering its structure in some fashion which provides precisely the cooking process, outside of the argument which you have given us?

Mr. SCOTT: No. I did say that if the cooking process did successfully take place it would be a result either of a change of shape of the plutonium on the one hand or a change of shape of the chemical explosive on the other hand, or

both. If one does have, by some means or other, a change of shape of the plutonium which could occur only as a result of having melted it, then it is certainly conceivable that if the bomb exploded it would do so at a lower energy than was originally designed for it, provided something else had not happened before all this was taking place. This is what I said at the end of my part 1, that I am not really too concerned about whether or not I am right in part 1, although I claim to be. It is what happens in part 2 that is all done and finished with before anything of what we are talking about has a chance to begin.

Mr. MATHESON: You are talking about speed of gamma rays as being somewhat faster than neutrons.

Mr. SCOTT: Ten times faster.

Mr. MATHESON: But before we leave that other point, are you saying that you and your colleagues are sure that there is no way of rendering the plutonium in a form of asymmetry so that it would not fire, or are you in a position to even conjecture on this highly technical matter?

Mr. SCOTT: Yes.

Mr. MATHESON: You are sure of this point, and you are supported by literature on this matter?

Mr. SCOTT: Yes.

Mr. MATHESON: Have you indicated these conclusions to our defence research board, this special information you have?

Mr. SCOTT: Not explicitly.

Mr. MATHESON: Do you not think you should?

Mr. SCOTT: We would be happy to. They have it now.

Mr. LLOYD: But heretofore you have not done it.

Mr. SCOTT: That is correct.

The CHAIRMAN: Mr. Keyston, do you wish to say anything?

Mr. KEYSTON: I would like very quickly to go to the board, but we have made the point, already in the information we distributed on this matter of the explosion of T.N.T., or whatever it might be. Mr. Scott drew a ring, which is plutonium or whatever material it might be, and around it T.N.T. Now he made a strong point with the temperature diagrams that this "T.N.T." material here must get heated to the explosion point before this "plutonium" material could be heated to the point of substantial deformation. The fact is that if this material is constrained in here as he suggests, it cannot run when it gets to the melting point, but does in fact explode. It is not however true that the explosion brought about by heating does effectively actuate the inside material. It is not a way of activating this central material to explode the "T.N.T." by bringing its temperature to explosion.

Mr. FAIRWEATHER: Can you tell us what is?

Mr. KEYSTON: I cannot. I can tell you categorically—subject to denial by no one who knows the practical features of the design that the heating of this—let us concede that this was heated to explosion before this would be heated to distortion, does not produce any nuclear exploision. This is an illustration of how theory or principles not associated with some real practical experience in this kind of explosive technology can lead one astray quite severely.

Mr. CHURCHILL: Has anyone in Canada had any practical experience with these nuclear explosions? We have had no nuclear tests in Canada.

Mr. KEYSTON: We have experience in explosive technology which coupled, as I have said already, with such classified information on effects as we have

from the United States, leads us to say what I have just said with complete confidence and assurance.

The CHAIRMAN: I recognize Mr. Trainor.

Mr. TRAINOR: May I go to the board?

The CHAIRMAN: Please.

Mr. TRAINOR: On the question of complete confidence I would like to disagree with Mr. Keyston, because there is never such a thing as complete confidence when you deal in scientific matters. This applies to everyone. I have to accept on the basis of certain methods which he is using, that such a situation would be impossible. Let me point out a type of thing one can think about. Suppose you have a neutron particle entering here. Neutrons coming from the Bomarc explosion would enter the bomb material causing fusion and heating of this plutonium. If a cooking process is to take place, there must be some sort of change in the temperature of these materials, and particularly plutonium, a lot of heating has to occur. But if plutonium can heat here, you can say it would heat also out here. Let us suppose the designer of an enemy weapon sought to put a small piece of plutonium up here and put it into contact with explosives which are detonators, and which are highly sensitive to heat. These things certainly exist, and we can give you figures on such detonators from the literature. After all, it is the detonator which causes the explosion of the TNT, and we have looked up the time it takes for these explosions to occur, and it is in the order of a few microseconds.

So once you start heating here, you heat here also, and the plutonium is close to melting, so that you have these things occurring very rapidly, compared to the normal heating process. This is something which one cannot quarrel with, in the sense that you can look at the time of heat transfer. This type of experiment has been done very extensively. A lot of these things are known to the weapons experts, and to people who have worked with just these materials, because they have the same physical properties which can be used in the laboratory every day. If we could not predict them, we would be blowing ourselves up in the laboratory. Dr. Sample would have died a long time ago if he had not been very confident of certain calculations. I mention this as one type of counter device which the enemy might use.

Mr. KEYSTON: That is a type of device which would not set off a bomb.

The CHAIRMAN: Mr. Groos, is your question along the same line?

Mr. GROOS: I think we are all wide open now.

The CHAIRMAN: Mr. Scott mentioned that he had two parts, and Mr. Matheson started with the first demonstration. That is what I was asking about.

Mr. GROOS: Well, I think so.

The CHAIRMAN: Very well.

Mr. GROOS: First of all, Mr. Chairman, I would like to say, speaking for myself alone, that I am very pleased to see Dr. Scott here with his group of colleagues, showing the spirit of public duty which motivates him. This is something we need very much today. As I say, I am very glad to see him here, even though perhaps arising from the discussion here it may only confirm what we have already been led to believe. However it is very necessary that we should possibly keep this sort of thing under constant review.

To me this is very much a technical duel between two group of experts. Now, I am certainly not an expert. I feel, however, that on one side Dr. Scott was very much hampered by the very severe limitations imposed upon him by reason of security.

In that light, I have to look at the presentation that has already been prepared. On one side we have a group which says categorically that this is

possible, while on the other side we have another group which is equally categorical that it is not possible. How would you explain this completely diametrically opposite view?

Mr. SCOTT: I cannot answer that question. I do not know how.

Mr. GROOS: If you cannot answer that question, I have one more. How far would gamma rays travel from the moment of a real nuclear explosion? What distance would they travel?

Mr. SCOTT: The distances we are talking would be in the order of a mile. We have assumed a fairly limited atmosphere, that is, a very slight absorption, so there would be no question but that adequate gamma radiation would reach the aircraft we are talking about.

Mr. GROOS: From an explosion occurring a mile away?

Mr. SCOTT: Yes.

Mr. GROOS: Since we are on the matter of an exploding device, I suppose that in the field of warfare it would be a comparatively easy matter to plant a type of nuclear device or missile up in the north to explode within a mile of any I.C.B.M. which was filled up to the triggered off gamma rays, so that we could explode these things a long time before they came anywhere near our centres of population?

Mr. SCOTT: Yes, if we have designed an I.C.B.M. to respond to something like gamma radiation so that it will indeed do as we hope it will, that is to say if we design it we can do just what you say.

Mr. GROOS: Your whole thesis is based on the fact that they are going to do this?

Mr. SCOTT: What I am saying is that if the enemy decided that they did not want these bombs to fall as duds or to be cooked, it is simply a matter of arranging that they put in an explosive, whatever it may be, that does not cook at all. And this is true. If we could manage to have these things explode over the north pole rather than over North Bay or Toronto, as a means of protection then, this is all to the good. If they are going to explode anywhere, obviously this is true.

Mr. TEMPLE: Following that line of questioning, the larger the nuclear explosion—other than the one we are just talking about in which you say your range of gamma rays would be about a mile—the larger the range of gamma rays?

Mr. SCOTT: The range of gamma rays would be the same with any size of bomb. The intensity would be proportional to the size of the explosion.

Mr. TEMPLE: You said you thought it would be rather stupid of an enemy not to have put in a dead man's fuse and not to activate the gamma rays.

Mr. SCOTT: Yes.

Mr. TEMPLE: What do you think would be the morale, perhaps, of the crews if they knew that even though the Bomarc may explode a mile away, at least away from them—that they are still going to have their own plane and bomb and themselves go off?

Mr. SCOTT: I do not know. But I do know that there were suicide pilots in one of the enemies forces in the last war. If one requires this kind of co-operation on the part of the enemy, we could only hope that we get it.

Mr. TEMPLE: Going further along this line, let us say the enemy is sending over several groups of bombers—it might be hundreds or it might be more than that—then, following Mr. Groos' questions, what we have to do, if they are going to have a gamma ray activator dead man's switch, is just blanket the

area with Bomarcs and it would not matter where they go off so long as the enemy loses its fleet of bombers. Would this not be a stupid thing to do, to put in this kind of fuse?

Mr. SAMPLE: The air space is much larger than that. I do not think it is possible to build sufficient Bomarcs to accomplish that. The bombers can be spaced out.

Mr. TEMPLE: Let us refer to the Voodoos or fighter aircraft armed with nuclear-tipped missiles or rockets. If the Russians put on these dead man fuses, this would be the worst possible military thing they could do; they would leave themselves wide open to losing their whole fleet before they could get close to the target.

Mr. SAMPLE: I would point out that these bombers probably have radar fuses which could be armed at the last possible moment. They do not have to be armed from the time they take off.

Mr. SCOTT: The assumption we have been making is not ours, that the bombs are in fact equipped already with a dead man's switch. We are assuming that this is the basic argument in respect of the cooking process and the reason for it: that is, that they have, in fact, got a dead man's switch. If this is not true, then there is not the justification for the Bomarc claimed for it, that they have to cook the bomb against the possible operation of a dead man's switch. This is not our argument.

Mr. KEYSTON: In line with the previous question and the notes which we have provided we have remarked that this is another statement which is so purely theoretical as to be very naive in the context of military need and practical bomb design. We cannot envisage a military user wanting such a thing as this in the bomb, nor the bomb designer wanting to include this. If Dr. Scott wishes to rest the whole of his case substantially on the practicability and military sense of having such a device in the bomb we could get into a fairly extended discussion on this because it brings in factors relating to the practicability of such a device and the military pros and cons of blowing up the pilots because there is something in the vicinity, and so on. In our judgment, however, as persons who have to deal with the military, we cannot envisage military users wanting this thing in the bomb, even if it were conceded that it is practicable to make it.

Mr. LAMBERT: But that is supposition, too.

Mr. KEYSTON: That is supposition. The argument against this involves not only what the enemy might want, but also a technical entry into the whole question of the practicability of making this kind of thing and its effect on the safety of the bomb under various conditions, and so on.

Mr. LAMBERT: On the argument I developed and the proposition put before us, is not the crux of the whole question right at this point that you can use the gamma ray sensor to eliminate all other questions of bomb design and effect?

Mr. KEYSTON: Yes.

Mr. LAMBERT: This is in essence the point at issue?

Mr. KEYSTON: Yes.

Mr. LAMBERT: Then we get into the field of the practicability of having such a gamma ray sensor and you get then into relative theories and judgment decisions.

Mr. KEYSTON: Well, one has—

Mr. LAMBERT: One man's opinion may be as justifiable as another's.

Mr. KEYSTON: Well, one would have to get into the practical aspects of translating this theory into a usable device in the bomb, and workable for the purposes which Dr. Scott is claiming.

Mr. LAMBERT: Is it your position, doctor, that such a device is wholly impractical; does it go that far?

Mr. KEYSTON: I would rather Dr. Field answered that. I do not know that I should go quite as far as "wholly". This word "wholly" is 100 per cent. However, myself, with a background of experience and discussion with our own bomb technology experts, I would say it is as near wholly impractical as—

Mr. LAMBERT: Perhaps I went too far. Maybe I should have said it is usefully practicable.

Mr. KEYSTON: I personally do not believe it is a practicable device. I can appreciate the theory that you pick up gammas before neutrons, but from that moment one has to think in terms of what goes on in the fuse mechanism. You would have to consider the time it takes your fuse to activate, and so on. Without doubting, of course, that the gamma rays arrive one hundred thousandth of a second before the neutrons have arrived, I would seriously question the practicability of turning that fact into a fuse bomb design application.

The CHAIRMAN: Have you something to add, Dr. Field?

Mr. FIELD: I can only say, Mr. Chairman, with regard to that, that I think there are many ways in which one can trigger off armaments, bombs or torpedoes. Most of these have been investigated and, of course, gamma ray activators have been investigated too. One of the problems one gets into in the design of any weapon system is to make it safe. It is not good to have a bomb in your plane if you know that once in every one hundred thousand times it might go off accidentally.

Mr. LAMBERT: What about the stand-off plane within 100 miles or 200 miles?

Mr. FIELD: I do not quite understand the relevance of this. My point is that in designing a trigger mechanism in a bomb one has to be extremely careful that this does not go off accidentally; not once in one hundred thousand times but obviously never, because if it goes off accidentally, the crew loses confidence in it and drops it as soon as they get away from their own shore. One has to remember that there are gamma rays around apart from what you do with Bomarcs. There are cosmic rays which produce gamma ray showers and one can conceive of an actual detonation of the bomb in the plane, and as was brought out, there is the possibility of carrying a weapon which is going to detonate and blow you up quite apart from any desire you have on your part that the thing goes off at any particular time. In our view, while we do not say that gamma ray activators are impossible, we do not believe it is a militarily useful device. We think it would take a long time to develop such a device which would be useful.

Mr. SAMPLE: The first specific thing we have heard from the defence research board scientists I quarrel with; that is, the statement that cosmic rays invoke a condition dangerous in respect of triggering the bomb. The gamma ray intensity is greater than the cosmic ray intensity in the order of magnitude of about ten to the fifth—100,000 times. The gamma rays from a nuclear weapon are so much stronger than the gamma rays one could conceive of from cosmic rays that the trigger could be made insensitive to cosmic rays and still work very well from gamma rays.

Mr. FIELD: This has to do with the range with which we are speaking. Admittedly, of course, close to the bomb the gamma ray intensity is very high, and for a substantial distance from it. Still, we say this is likely to be a danger. In our organization we have had experience in making fuses. We know cases in which we have had a fuse go off a long way below the level calculated for the disturbance, whatever it might be. I am suggesting this is one of the

many things likely to give you trouble in designing a fuse. The design of a gamma ray fuse is not a simple operation in the particular bomb we had in mind.

Mr. SCOTT: Gentlemen, we make no claim to being simple, and when I talked about a gamma sensor and fuse mechanism I made no statement to the effect that it is simple. I categorically state that it has a job capable of being performed—and this is the point of relevance—and it can be made to work without any dubiety whatever; and the notion that the cosmic rays could influence the triggering of this device is not correct by several orders of magnitude.

Mr. FIELD: There is another point which is more relevant. We have Bomarcs situate in Canada today set up to defend ourselves against existing bombs. I think Dr. Scott is talking about the possibility of an enemy perhaps developing the kind of fuse which he has postulated and putting it in a weapon of the future. This may or may not be true. We today have Bomarcs in position which are designed to defend ourselves against existing weapons. I do not share Dr. Scott's claim that the enemy has such fuses today; if he has, that is one thing, and if not, it is something else.

I would like to make some comment about a curve which Dr. Scott put on the board relevant to the heating of different components of his supposed bomb. One has to say it is a very theoretical bomb which he has produced, one which is very much simplified and it is a very naive concept of the bomb from what we know about it. In many respects it does not give a true picture; however, assuming what he says is correct, he went on to indicate certain parts of the bomb would be exploded—that is, the explosive part—before the fission part of it could be detonated. One ought to say this: if one thinks of the range—and I want to stand up rather than go to the blackboard to give you an illustration—let us conceive the range at which the existing bombs can be cooked by the defending weapon in the Bomarc. If this is the range in which the existing bomb can be cooked by the Bomarc this is the range—and a closer one—at which the bomb can be cooked by the Bomarc if that bomb is shielded in all the ways we think it can be and still be useful. But, well within this, this is the range to which the Bomarc will approach the bomber, so the range in which the Bomarc approaches the bomber is less than the range beyond which it could cook the bomb if shielded and a longer ways inside the range to cook the bomb if not shielded.

Mr. SMITH: Mr. Chairman, I think a little clarification by Dr. Field is necessary. He said the Bomarc was to protect us from existing weapons. It is conceded, Dr. Field, that I.C.B.M's are existing weapons.

Mr. FIELD: That is true.

Mr. SMITH: And the Bomarc will not defend us against I.C.B.M's.

Mr. FIELD: That is right.

Mr. SMITH: And, it is public knowledge that the Americans have an air-to-ground missile called the hound dog, and I believe it is conceded that the Russians may have something of the same order. Now, the Bomarc would not defend us against an air-to-ground missile after it had been launched from its carrying plane would it?

Mr. FIELD: This was discussed by the chief of the air staff in his testimony given before this committee a short time ago. In this testimony he gave the types of missiles which could be carried by attacking bombers which exist today in the Russian fleet and which would presumably be launched at any significant range. These could be engaged successfully by Bomarc. This was dealt with fully by the chief of the air staff.

The CHAIRMAN: You are next, Mr. Matheson.

Mr. MATHESON: I was interested in the appendix which Mr. Scott and his colleagues favoured us with, which starts with military men and politicians fallaciously arguing, and it concludes by saying the Bomarcs are not very accurate missiles. I am very interested in the bases for Dr. Scott's categorical conclusion in this regard and I would like to hear what Dr. Field might have to say on the same subject, that the Bomarcs are not very accurate missiles.

Mr. TRAINOR: I do not want to get into the technical question of when you consider a weapon an accurate missile and when not, but I think the important contention here is—and I think it is generally conceded—that the Bomarc is not, in the military sense, an accurate weapon for the reason that its velocity is not much greater—a factor of maybe three—than the attacking bomber, and the analogy which is often used in this context is that it is like trying to shoot a bullet with a bullet, which is not easy. It is still difficult, when you have a low velocity projectile, in this case an advantage of 3 on the attacking bomb. The supposition has been made in the literature I have come across—and I believe this is the primary reason Dr. Field gave this in his testimony—the primary reason for using nuclear warheads on the Bomarcs was to increase their range and not the cooking process. If this is true, if you want to increase the range of explosion this, in itself, is an admission that the weapon is not expected to be extremely accurate as a military weapon.

Mr. MATHESON: Would you indicate the literature upon which you rely?

Mr. TRAINOR: Well, this is a question which, perhaps—

Mr. MATHESON: That is, you or your colleagues?

Mr. TRAINOR: Well, the type of literature one looks at for information in these things is *Jane's All the World's Aircraft*; this is where we get the information on Bomarcs—and books like Ralph Lapp's. I do not know whether Dr. Field would agree with people like ourselves as to how informative Dr. Lapp is but amongst physicists in the scientific world and in universities it is generally conceded among the people who do not have direct access to classified information that his estimates are the best and they have been found to be extremely accurate.

Mr. HAHN: Dealing again with the question of the accuracy of a Bomarc, you have stated that it was not a very accurate missile. First of all, is not the firing of a Bomarc, as well as nuclear weapons carried by the Voodoo, triggered by either heat or some other proximity device from the target?

Mr. TRAINOR: I do not know the answer to that question in relation to the Bomarc.

Mr. CHURCHILL: Mr. Chairman, I should like to ask a question supplementary to that question regarding the accuracy of a Bomarc. On July 2 when Dr. Field appeared before this committee I understood him to say that there was a homing device on the Bomarc missile. I made a note of that statement hoping to ask him questions regarding it but did not have an opportunity to do so. I have since read the official record and cannot find that remark there so I simply must assume that I did not hear him correctly. My understanding is that there is no homing device on a Bomarc missile. If that is the case, then the Bomarc is not as accurate a weapon as suggested, and this is similarly true of the Genie rocket and, therefore, it is not as accurate a weapon as the Falcon missile with a homing device. It is my understanding as a result of this fact that the statement that a Bomarc missile is not a very accurate missile is a true one, unless we are told that they are equipped with a homing device.

Mr. KEYSTON: As Dr. Scott or Dr. Trainor said when talking about accuracy, what is accurate and what is inaccurate? I think the only point that is relevant to the question, of what is accurate, in this discussion, is the fact that the Bomarc's typical miss distance is small as compared with the ranges

at which one can cook a bomb. I do not think we are at liberty to say how accurate the Bomarc is, but the average distance at which you get a Bomarc exploding relative to a bomber is within the distance at which the cooking phenomenon takes place in respect of a bomber that is unshielded or shielded, so it is accurate relative to the cooking distance. It gets closer to the plane than the distance at which you can be sure of cooking a bomb.

Mr. CHURCHILL: Mr. Chairman, unless someone wishes to ask a supplementary question I have one or two questions dealing with other matters.

Mr. HAHN: Mr. Chairman, I should like to ask one supplementary question. I should like to refer to the original statement made by Dr. Scott that the Bomarcs are not very accurate missiles and that there is a good chance that many of the warheads would explode sufficiently near to destroy the plane without any possibility of damaging even an unprotected H-bomb, and the H-bomb would then explode by the triggering of a dead man switch. I understand you to say, Dr. Keyston, that this is basically not true and that the Bomarc when it is fired is fired at a close enough range, even though it misses the target, so that if it is going to cook the bomb, it will cook it?

Mr. KEYSTON: In our view the Bomarc would be well within the cooking distance, arrived at from calculation, to cook it even though the bomb was equipped with as much shield as is practicable.

Mr. CHURCHILL: So that statement in your view is not founded upon fact?

Mr. KEYSTON: Frankly I do not quite understand this statement. If Dr. Scott had said that there is a chance that many warheads would explode sufficiently far away to destroy a bomber plane I think I would have understood it better. I am not sure what he means when he says they would explode sufficiently near. Certainly the nearer you get the more sure you are of doing the cooking. However, in so far as I understand this statement, I understand that it is not correct.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Dr. Scott, like Mr. Groos, I am very happy to have you people appear before us today and I think probably some of the statements you and your group have made have contributed to a certain uneasiness with relation to the Bomarc and the cooking process. I am hopeful that by the presence of you and your colleagues as well as the presence of Dr. Keyston and Dr. Field we will be able to overcome this feeling.

I hope that our discussions here this morning will clear up some of the misconceptions in the minds of the public and the members of this committee.

Without delving too deeply into the technical aspects of this problem, because I do not feel I am competent to do so, as I see the situation, we are faced with two propositions which appear to be diametrically opposite. These two propositions have been presented to us by you and your group and by Dr. Keyston and Dr. Field. Your proposition, which you explained in some detail and which even I as a layman was able to follow, was based, as you say, on basic principles of physics and on certain highly learned mental gymnastics which you and your group have performed. Your statements and conclusions as outlined this morning are diametrically opposite in at least two areas to those statements and conclusions presented by Dr. Keyston and Dr. Field. They have indicated that their conclusions are based on experimentation, their knowledge of weaponry and their knowledge of United States experiments, to which they have had certain access. I am wondering, in the light of these statements, if you would care to comment in respect of the conclusions to be reached by this committee. Do you feel that Dr. Keyston's statements, based on experimentation, are nothing more than a gigantic hoax as far as the Canadian and United States people are concerned, or do you feel that they perhaps have access to information resulting from experimentation which has not been made available to you at the university level? Would you care to make a comment in that regard?

Mr. SCOTT: Mr. Chairman, I would be very happy to comment. I should like to suggest, if I may, with all due respect, that it would have been valuable to the time of this committee had there been a scientific advisory committee to it the members of which had already accommodated their views among themselves, and which could make a single minded presentation to this committee as a consequence. What has happened is that the information of the defence research board scientists and our information at the university of Alberta are divergent. In our presentation we have attempted, as well as we could, to concentrate on the technical aspect and facts as we see them. We would like to suggest that if there were a scientific advisory committee to this committee of the House of Commons it might be wise, in view of the divergence of opinions, that it consist of members other than, as well as, those of the D.R.B. I think there would be very good reason for setting up such an advisory committee because I am sure that if we got together with the D.R.B. people, they would not be constantly reminding us that we have used a naive model. We are aware of this fact. Nor would they continue to tell us that they have access to classified information which they cannot divulge to this committee, as a result of which they cannot explain their positions. I believe we could get together and solve this problem if we could actually sit down and discuss it on a man to man, scientist to scientist basis rather than in an apparently antagonistic public forum, which I think is very unfortunate.

An hon. MEMBER: Mr. Chairman, I should like to ask a supplementary question.

The CHAIRMAN: Gentlemen, order. Information which is classified cannot be made public, and I do not feel that the members of this committee, even though they may be scientists, could go further than we have now in respect of this information. I should not like this discussion to centre along the lines of the last remark made by Mr. Scott. If we decide that his suggestion is a good and suitable one it may be well to discuss it further at a Steering Subcommittee meeting, following which recommendations could be made to this committee. I will now recognize Mr. Brewin.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Chairman, you recognized me.

The CHAIRMAN: Have you some questions?

Mr. ASSELIN (*Notre-Dame-de-Grace*): I have been listening with a great deal of interest to Dr. Scott, and I am wondering if he has concluded his remarks. I presume he has. Dr. Scott, I wonder if you would admit that the defence research board has had access to nuclear information,—and I believe you would have to admit it—and that there has been a good deal of nuclear testing going on in the world? Would you admit that technical data which have been available from these tests have in fact been made available to the defence research board, and that it might be sufficient for them to arrive at the conclusions at which they have arrived in relation to these weapons, and particularly in relation to the Bomarc, conclusions based on data to which you do not have access? In view of their repeated statements that neither the Canadian nor the American public can have access to some of this classified information, you must either conclude that they are competent and in a position to make a reasoned judgment or else the only other possibility is that either you or we might be suggesting that a gigantic hoax is being perpetrated. Would you care to comment on that?

The CHAIRMAN: I would not want the witness to comment on this. I think you have made a statement.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I know you would not like him to comment on it. However, with all the consideration that I have for your opinion, I feel that this is what the committee is faced with, and I think it

might be cogent to hear what he thinks of my idea of the conclusions of his remarks. I would like to hear if he feels that there are other conclusions we can come to.

Mr. BALDWIN: On the point of order which you have raised, Mr. Chairman, I do not think that Mr. Asselin should be putting words into the mouth of the witness. He neither said nor suggested that it was a gigantic hoax; he suggested a genuine divergence of scientific opinion between himself and the scientists of the defence research board. He has answered that, and your point of order, Mr. Chairman, is quite correct, that it is simply an attempt to make him make a statement which he does not want to make.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I suggest that Mr. Baldwin should not put answers into the mouths of witnesses either.

The CHAIRMAN: Order, I do not think we should try to find out—

Mr. LLOYD: It is an important question of order, and I would like to speak on it before you leave it.

The CHAIRMAN: I stated, at an earlier meeting and when we started this meeting this morning, that we were to discuss the scientific views of the scientists before us. I do not feel that it is right to draw conclusions such as the one arrived at by Mr. Asselin. I feel that it is unfair to qualify the views of one of the witnesses or of the three witnesses in the way you have done, Mr. Asselin. That is why I felt I should not allow an answer to this question. If you want to rephrase the question in such a way as to avoid qualifying the views of the witnesses, then I would allow it, but I do not think it is really fair to do it the way you have done it, Mr. Asselin.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I will try to put my question in a different way. As a member of this committee I am faced with two conclusions —the two I have stated: either we can have confidence in the views as expressed by the defence research board and they have access to certain information, or else we cannot. In view of the fact that they have access to information which Dr. Scott and his associates have not, I am wondering if he could comment on this aspect of it, taking into account the two diametrically opposite statements which have been made. The statements which he has described on the board have been categorically denied. I am now speaking of the two specific processes which, in Dr. Scott's view, are supposed to have taken place. These statements have been categorically denied. I submit that the committee is in somewhat of a dilemma on this. I would like to hear Dr. Scott's views on this. We have heard Dr. Keyston. Possibly Dr. Keyston could answer Dr. Scott's comments.

Mr. CHURCHILL: I am not sure that this is what we are here for.

Mr. ASSELIN (*Notre-Dame-de-Grace*): The point of order is over. I stated my point of view.

Mr. CHURCHILL: I am raising a point of order myself. I am not taking direction from any member of this committee except the Chairman. We are surely not here simply to listen to scientists express their viewpoints with regard to other scientists who are here in front of us, and to enter into an extended controversy. We have come here to hear scientific points of view, and it is up to the committee to make a judgment with regard to these points of view. I think it is quite wrong to be pressing any witness here present to make a statement with regard to what some other witness has said. If there is a judgment to be made in this connection, surely it is for the committee to make it.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Chairman, on that point of order, I have asked Dr. Scott, who has made a proposition which has been categorically denied by the other side, to comment on it. That is clear enough, and that is what we are here to do this morning. I find that the point of order raised by the former minister of national defence is not a point of order.

Mr. CHURCHILL: That is your judgment. We do not have to accept your judgment.

Mr. ASSELIN (*Notre-Dame-de-Grace*): This is my judgment.

The CHAIRMAN: I do not think we should start discussing it this way. We were specifically called here this morning, and we have called the witnesses here to present their scientific points of view. We also have scientists from the Defence Research Board who are here to give us answers to some of our questions and to enlighten our understanding of the problem. I regret to say that I will have to decide that we are here to ask questions of a scientific nature, and I would not want the two groups of witnesses to start arguing between themselves about the relativity of their views. We will judge that when we have to make a decision, and if we want to have them back later on, we can always recall them.

Mr. ASSELIN (*Notre-Dame-de-Grace*): In that case, may I ask the following question? Would Dr. Scott then tell us if the views that have been expressed from a scientific point of view regarding the cooking of the bomb or the non-cooking of the bomb—the one Mr. Scott drew on the board—are correct and what he feels about this? We were told that this bomb could not be detonated in the way that Dr. Scott told us. I wonder if he would care to comment on that.

Mr. CHURCHILL: It is the same thing all over again.

Mr. SCOTT: With respect to my view of what I said and the effect on it of what I have heard this morning, I go out by that same door wherein I came.

Mr. TEMPLE: I would like to question Dr. Scott. Do you agree that officials of the defence research board have access to more scientific information in your field than you and your colleagues?

Mr. SCOTT: May I answer this *in extenso*? I do not know the operation of the McMahon Act with respect to Canada, the classified information with respect to nuclear weapons made by the United States and the availability of that information to us in Canada, to members of the defence research board, and so on. If Dr. Keyston and Dr. Field claim that they have classified information of this sort, I would not dream of denying this claim.

Mr. BALDWIN: I have a supplementary question which is very brief, Mr. Chairman. Do you know of other reputable and competent scientists with knowledge of the subject whose written or verbal statements on this particular issue corroborate your views?

Mr. SCOTT: The answer, Mr. Chairman, is yes indeed.

Mr. BREWIN: My question fits in with that very point. I was wondering whether you had a clear opinion here; I was wondering whether Dr. Scott, perhaps, or at least Dr. Keyston could refer this committee to scientific evidence or witnesses who might assist us in clearing up this point. After all, the University of Alberta is not the whole world, and neither is the defence research board the whole world. There are many other people who presumably could help us to resolve this problem. I would like to have reference to people and to sources on both sides who could help us solve this particular problem which is before us—perhaps not now, but perhaps Dr. Scott and Dr. Keyston could give us the particulars. It is all very well to state differences of view, but there are people capable of commenting on that classified information.

Mr. KEYSTON: I am a member of the same profession of physicists as is Dr. Scott, and it would be distressing to me if members of the committee thought that what we are faced with this morning is in fact differences of opinion on scientific principles between two physicists. It is not that. The

difference is not a clash of science against science. It is a clash between theoretical physics and armament technology.

The hydrogen bomb is not just a simple piece of theory. It has taken millions of dollars and millions of man hours to turn theory into a practical device. It is a highly complex, and intricate engineering proposition. I submit that where we have the advantage is having the whole array of staff in our organization, who are very skilled and experienced in this whole area of instruments, design, technology, and exclusive technology and so on. The clash is between those of us who are largely purely academic scientists. It is not science versus science. The difference is between engineering and technological theory. That is the difference, and it is not really a difference between Dr. Scott and myself, because having regard to the theoretical grounds he is using, we are not at a difference on them at all.

Mr. BREWIN: I fully appreciate the point, but I would like to ask Dr. Scott and his colleagues whether or not they are aware of people who have in addition to the academic and scientific knowledge, practical experience, who might differ from the point of view expressed here by the representatives of D.R.B.

The CHAIRMAN: Mr. Sample.

Mr. SAMPLE: In reply to the last question, there was testimony given by the United States secretary of defence some time ago. I forget the details. In that testimony the Bomarc was rather strongly called into question. I could not say more than that. I have not read it recently. But I would like to speak to what Mr. Keyston said a little while ago. We are speaking of a simple weapon. We took for our calculations a very simple model. What we calculated from that model were certain properties of heating which were strongly dependent on the model. We changed it considerably. We did change some of the features of our model quite a bit, but it did not change the basic results at all.

Mr. BREWIN: May I ask one more question and then I shall be through. We all like to go into these details. The D.R.B. in its file before us commented on Dr. Scott's letter and Dr. Keyston's testimony is here. But I was wondering whether Dr. Scott has available this comment? He may not have had time to go over it, but I wonder if we might have his reply to these comments in due course, because we have had an assertion, sort of a defence on the other side of the difference or whatever it is based on, and I would like to hear a reply to this document which is called D.R.B. comment on Dr. Scott's letter.

I would qualify that by saying that I am not interested in any reply to the comments, for example, under 1. (a) which is a mere expression of opinion which we can judge for ourselves. However, I am interested in the comment on the actual scientific matters involved. I do not think we have time to get it now and I do not know whether Dr. Scott even has seen this document.

The CHAIRMAN: He has not seen this document. This was prepared for the information of the members of the committee. When Dr. Scott and his colleagues arrived this morning I asked Dr. Scott whether he wanted to file his letter and the document which he sent to me, and which has been circulated to members of the committee. He said that he preferred not to have this procedure followed. Because of this it was impossible then to file the comments made by the scientists as it seemed, if I understood Dr. Scott correctly, that this letter was not to be the basis of their representation this morning, but rather that the document which he circulated to us this morning and explained on the blackboard. I think this is the answer.

Mr. BREWIN: It seems elementary to me that in fairness Dr. Scott and his colleagues should be given an opportunity to read the comment made by the defence research board which has been made available to us. They could deal with it and make their own comments in reply; the comments are not particularly polite, but I am sure they will not mind that. Let them answer as well as they can, or in whatever manner they can these comments.

The CHAIRMAN: We will make these documents available to the three scientists and probably they can make their comment in writing so that we might have their views.

Mr. MATHESON: If that is going into the record, then certainly it is only proper that the other go in.

The CHAIRMAN: It is not going into the record. Are you through, Mr. Brewin?

Mr. BREWIN: I have a lot more, but I will leave it for the moment.

Mr. TRAINOR: Might I make a brief comment. It is my impression, in studying the United States scene—not very extensively—and from what I read in the newspapers that the Americans have the tradition not only of having scientists in the direct employ of the government comment on these things, but also scientists at large. The Americans have the tradition of going to the scientific community as a whole. I cited the name of Dr. Hans Bethe, President Kennedy's chief adviser who is not a government employee in this sense. I do not think this is evidence to the fact that there is a difference in scientists who are and who are not in government employ, but I simply think there is an argument for maximizing one's information. One could raise the question, for example, has the defence research board, you might say, made the maximum use of nuclear knowledge? If you ask in Canada who has knowledge about nuclear science, has this knowledge been maximized or have we adopted the policy of relying on what is passed on to us by our neighbours? This is a question I could raise.

The CHAIRMAN: I have on my list Mr. Hahn.

Mr. HAHN: Dr. Scott has presented one view; the defence research board scientists have presented another. We have the comment that the views of the defence research board scientists are backed up by the military views in respect of science in the United States. In other words, United States government is basing its plans on agreement with the theories that have been propounded—

Some hon. MEMBERS: No, no.

Mr. HAHN: I believe this is true. I think it was told to us categorically at NORAD that these weapons had been cooked. They apparently believe this. What I am trying to say is that I believe there is supporting scientific opinion for the view of the defence research board. What other groups support the theories that you have laid before us, Dr. Scott?

Mr. SCOTT: Mr. Chairman, we have not gone out seeking the opinions of scientists as a whole in order to bolster our confidence in our own opinion; we all happen to know people in other than our own universities who agree with our position.

Mr. MATHESON: Does the head of your department in your university agree with your views as well as the other four or five professors of physics in the same university? Dr. Scott, I am not asking this to be rude but I infer from a comment made by you a few minutes ago that this was the view of the physics department of the university of Alberta. Did you intend to convey that impression?

Mr. SCOTT: I do not think I said that.

Mr. MATHESON: Well, that was my impression, that it was the view of the department of physics of the university of Alberta.

The CHAIRMAN: Well, you have the answer of Dr. Scott.

Do you have a question, Mr. Deachman?

Mr. DEACHMAN: Mr. Chairman, I, like some others here, have listened with some interest to the debate on both sides and I do not know that I am convinced by either side; but after having done some reading in preparation for today's meeting, including a book I have, called "The Effects of Nuclear Weapons", which is prepared by the United States army and the atomic energy committee, which gives you just about all the unclassified information you can lay your hands on, and having listened to other people discuss this, the conclusions I have come to are roughly these: first of all, an atomic bomb is about the most intricate and finely machined weapon man has yet devised, as well as being enormously complex and, secondly, these things have been fired off under virtually test conditions. We have not had to fire them off—and I am not referring to the Nagasaki and Hiroshima explosions—under war conditions. What happens to these weapons when they have to operate in the middle of a fireball as they would have to do if they came into contact with an explosive atomic weapon, we do not know because I doubt if anyone has done this in connection with their tests. All we know is that in ideal tests they often do not fire. I cannot see how the argument that has been presented here today convinces me at all that they either cook or they do not cook because no one has postulated the conditions under which these things would have to work or really carry them out.

An hon. MEMBER: What is the question?

The CHAIRMAN: Order. What is the question you wish to ask?

Mr. DEACHMAN: My question is simply this: Can either of these gentlemen refer to any real tests that have been made under war conditions in which reports have come back giving us either classified or unclassified information?

Mr. SCOTT: I don't know, Mr. Chairman, of any tests under war conditions.

Mr. DEACHMAN: Or, simulated tests?

Mr. SCOTT: Or simulated war conditions.

Mr. DEACHMAN: Can you tell me if they have been tested under simulated war conditions and in which one weapon has been actually cooked by a fireball, or a report made to this effect?

Mr. FIELD: The answer is there have not been war conditions under which they have been used.

Mr. DEACHMAN: Or simulated conditions?

Mr. FIELD: But, we do know this, whenever there has been a theoretical consideration with respect to bombs that theory has been invariably tested through tests.

In fact, the reason that the United States and Russians have carried out some hundreds of nuclear tests has been to establish points of the kind that we have been arguing this morning. In other words, the weapons which have been taken into service by the United States for reasons that are obvious have not been proved as a result of the kind of theoretical discussion we have had this morning. No one would have been satisfied one way or the other on that basis without the nuclear tests that have been carried out to establish whether the weapons would do what the United States experts hoped they would do.

Our understanding is that the United States experts have not found it necessary to continue their present series of nuclear tests because they are satisfied that the weapons in their arsenals will do that what they had hoped they would do. When we are given the opinion that these weapons will do certain things under certain circumstances, based on the conclusion as to the distance at which the weapons will do certain things, it is certainly our belief

that this is not based upon theory, but upon theory checked by these experts through a large number of nuclear tests, which we have discussed. In other words, the only reason for carrying out nuclear tests has been to dispose of the kind of theoretical argument we have heard this morning. These tests have been carried out and the United States experts are satisfied that their weapons will do what they say they will do. We have every reason to believe them in this opinion, otherwise we would assume that they would desire to continue their tests.

The CHAIRMAN: Gentlemen, normally we conclude our meeting at this time, but in view of the fact that these witnesses have come from a long distance and there are several members who have indicated their desire to ask further questions, would it be agreeable to prolong our questioning for a few more minutes so that we can complete these discussions this morning?

Some hon. MEMBERS: Agreed.

Mr. CHURCHILL: Mr. Chairman, at this stage I do not intend to ask any scientific questions, but I should like to suggest that it is an odd fact that in the scientific field, which depends on experimentation in ascertaining facts, we representing the general public are asked to have faith in the conclusions which have been presented to us by Dr. Field.

On July 2, I asked whether there has been an anti-aircraft nuclear-tipped missile hit a nuclear bomb with the result that the nuclear bomb failed to explode, and Mr. Field replied:

> We have not been given details on what was actually done because of the nature of this information.

He has repeated again this morning that we have been informed by the United States that they have carried out tests in this field and have reached certain conclusions, but I still cannot understand, and I have asked this question on many occasions during the last few years, why we should have to have faith in the statement that someone somewhere in the United States has been convinced that certain conclusions are correct. The whole basis for advocating the placing of nuclear missiles in Canada has been founded on the conclusion that they are capable of cooking an attacking bomb.

An hon. MEMBER: What is your question?

Mr. CHURCHILL: I should simply like to know why we should have faith in these statements made by scientists regarding their conclusions, accepting their suggestion that the facts are classified? How can one judge or come to any reasonable conclusion in respect of this cooking procedure without the facts which, as Dr. Keyston has said in his opening remarks, the divulgence of which would not be in the public interest? I suggest that the situation is nothing more than a monumental exercise in frustration.

Mr. KEYSTON: Mr. Chairman, we have been given information by the United States experts in respect of the distance at which they have established an exploding Bomarc will cook an H-bomb. I cannot divulge what that distance is, and I cannot say anything more than that. However, I know that the figure is a figure which must have been arrived at as a result of experiment. This is a very satisfying situation to me. Their information is not just a statement of theory. It goes beyond their telling us that a nuclear Bomarc will cook a bomb. The information goes as far as indicating to us the distance at which they have established a nuclear weapon will cook a bomb.

Now, it is inconceivable to me that they would quote the actual distance relatively precisely on the basis of purely theoretical calculations, not backed up by a realistic field test. Of course a realistic field test is not the same as "actual war conditions", but we do not want to go back that far.

Mr. TRAINOR: I am a bit puzzled by what Mr. Keyston says, that they have been quoted a figure. The figure presumably corresponds to a bomb, but if you look at general scientific principles it is quite evident that when you change the size or design of a bomb, the figures change.

Mr. DEACHMAN: We are talking about the Bomarc, a specific bomb, are we not?

Mr. TRAINOR: There is this question of what bomb we are talking about, and it would seem, on the basis of perhaps admittedly a naive question—

Mr. DEACHMAN: On a point of order, Mr. Chairman. I understand there is no doubt about what bomb we are talking about. We are talking about the Bomarc bomb. This is specific to a particular bomb in production. Am I right or wrong?

Mr. SCOTT: May I answer this question in defence of Dr. Trainor? What he is saying is quite relevant, and I would hope he might be heard out in order that you might understand us.

The CHAIRMAN: I would prefer that Dr. Trainor proceed with his statement. I did not understand his answer in the same way you understood him.

Mr. TRAINOR: In clarifying my remarks I would say that what I meant was the bomb that is carried in an attacking bomber. This is the bomb of interest to us, and this is the bomb which can be changed in size. There can be many varieties of it as is evident by just a study of the simple properties of different explosions. One could design many bombs, and presumably, with all the time that has elapsed since this business started, many bombs have been designed. It is a question of what figures we have quoted, the figures of a bomb that we know will come in, or not. This is the type of information that we want. The point of view which we have tried to bring out here is that the initiative in deciding what bomb is going to be flown or what mechanism is gong to set off that bomb, or to what mechanism this bomb is sensitive, lies not with us but with the enemy. We could sit down with people of the defence research board and agree that certain types of bombs, armed and detonated in certain ways, could suffer some cooking and reduce yield of these bombs, and perhaps, even in some cases, they may be complete "duds". In general, this assumes you know what bomb you are designing against. You always face the prospect that when the enemy realizes you are talking about a cooking process—and this phrase has been used for several years, or at least for a couple of years—then you can rest assured the other side is thinking about the mechanisms for protecting their bomb. One gets into the difficulty that perhaps you have to quote many figures rather than just one.

Mr. MACLEAN: It would seem to me that there is no difference of opinion as far as theory is concerned. The question is a difference of opinion between theory and practice. It seems to me that the theory expounded by Dr. Scott and illustrated on the board refers to a theoretical bomb, which is not a practical one, and from that our difficulties stem. I would like to ask Dr. Scott the following question—taking this simplified diagram of a bomb here—would I not be correct in assuming that such a bomb would explode; that there would be a nuclear explosion if such a bomb was in an aircraft and the aircraft crashed and burned or was exposed to temperature of a thousand degrees or so?

Mr. SCOTT: Mr. Chairman, my understanding is that the answer to this question would be no. Unless the bomb were triggered by a device which has been called "a dead man's switch", a mere explosion and burning of the aircraft would itself not trigger the bomb.

Mr. MACLEAN: I understood from Dr. Scott's evidence with this simplified diagram of a bomb that TNT would reach its explosive temperature before the bomb would be cooked from the heat process, and that therefore that situation would exist under any other set of circumstances, including

a crashed aircraft or even a fire with an aircraft on the ground. My point is this: eliminating from this diagram what must be a very complicated safety device, we find on the one hand that, fully expounded, the proposition that a certain bomb would not be cookable; but on the other hand, we have the assurance that in practice the Americans at least have not as yet been able to design a bomb which is, on the one hand, cook-proof, and not safe enough practically to be usable as a military weapon: perhaps Dr. Keyston would clarify that statement if my assumption is right.

Mr. KEYSTON: We have not specifically said what you said at the end; it is your inference, but we have definitely not said that the Americans have not succeeded in producing a bomb with some specific functions and properties. Let us be quite definite about that.

Mr. MACLEAN: Perhaps I was drawing a wrong conclusion.

Mr. KEYSTON: The nub of the point, as Dr. Scott put it and as Mr. Lambert emphasized it, is this question of gamma ray sensor. We have remarked that and I have remarked it in my own opinion, that is not a practical device to include in a bomb.

Mr. MACLEAN: I have one further question. I think it was said somewhere in the evidence that a potential enemy would not be very clever if he could not design a bomb which was cook-proof. At least I drew that inference from what you said. Would it not be correct to assume that the Americans would be just as keen to design a bomb, a tactical bomb, which would also be cook-proof, and that they would be just as anxious to have this defence weapon as anyone?

The CHAIRMAN: Do you still wish to say anything, Dr. Scott?

Mr. SCOTT: Yes, I do. And I cannot answer the question. I do not understand it. I would like to speak to the last remark of Dr. Keyston. We have—and I reiterate the point—been asked to assume by virtue of an assumption made by all the people who talk about this subject, that on bombs on enemy aircraft there are dead men switches. This is a basic assumption in everything that has been said. The purpose of the dead man switch is to explode the bomb if the aircraft goes down. The cooking process is to prevent this from taking place.

Now, at the point where I claim the gamma sensor would do just as well as the dead man switch, we are told that the gamma sensor would not be of much use, because on the one hand, the enemy would not have pilots enough to fly the aircraft. Their morale would go down. And, on the other hand, it is technically a difficult job to do. The second is simply categorically not correct; and I would like to ask if I may, that some of the remarks which my colleagues have made not be diluted by the allegation that they are theoretical—as if there were something wrong with that—or that we are naive and have no weapons experience. We have tried—

Mr. ASSELIN (*Notre-Dame-de-Grace*): Have you experimented?

Mr. SCOTT: We have tried in our remarks to deal with the facts as they exist to our knowledge. May I suggest that it is not fair to claim on the one hand that there is a dead man switch on the bomb and on the other deny to me the right to make it effective, since its very existence means that whoever put it there means it to be effective. I cannot, therefore, allow my gamma ray sensor to be withdrawn on the grounds that it would not be militarily reasonable to use it—it is an extension of the dead man switch and nothing more.

Mr. MCMILLAN: Mr. Chairman, we have been limited to technical questions which is all right. I think Dr. Scott and his group have used their technical knowledge to reach certain practical conclusions. These things have appeared

in the press and in the submission they sent to us. I wonder whether it is possible to ask any questions commensurate with the conclusions they reached?

The CHAIRMAN: Ask your questions and I will see.

Mr. MCMILLAN: May I refer to the memorandum sent to us?

The CHAIRMAN: It has been mentioned; you have it in your hands. Please do.

Mr. MCMILLAN: They have stated and I think Dr. Scott stated that these Bomarcs and Voodoos would in the north shoot down planes or shoot down bombs. Why then would he say that they are worse than useless for Canada, particularly if they could shoot down these bombers in the north country?

Mr. SCOTT: The argument there, Mr. Chairman, is that in the course of shooting down the aircraft we have claimed that the cooking of the bomb load has, in fact, not taken place and that the dead man switch—about this there is no dispute—on the bomb will cause it to explode. Worse than useless is the phrase used to describe the explosion which has then occurred.

Mr. MCMILLAN: Would you say they are worse than useless if they came down in the north country instead of over our centres of population?

Mr. SCOTT: I really cannot answer that accurately because I am not too sure where the Bomarc bases are, except at North Bay and La Macaza.

Mr. MCMILLAN: We admit we have a 400 mile range.

Mr. SCOTT: I am not sure with what accuracy they would catch aircraft, whether 400 miles going north from North Bay or 400 miles going south from North Bay which includes Toronto. If I were in Toronto I would worry about the answer to this.

Mr. MCMILLAN: How about Voodoo planes based in the Arctic?

Mr. SAMPLE: We have no representation about Voodoo planes at all.

Mr. MCMILLAN: In your submission I think you imply that the Voodoo planes are just as useless as the Bomarcs; that is, that against manned bombers their effect would be the same as the Bomarc. Does that imply that even though they were based away north they would have no effect?

Mr. SCOTT: No sir; it does not imply that.

Mr. LAMBERT: This has reference to my previous question to Dr. Keyston and Dr. Field. I am dealing with the effectiveness of the gamma ray sensor, or shall we say the practical difficulties of using it in connection with a war weapon. Would your views be at all modified in the light of the implied development of the stand-off weapon; that is the air to ground, along the principles of the Hound dog which we do know or have a suspicion they are using, where you have a nuclear bomb on the basis of a drone or a non-manned atomic weapon, and if they stood, say, 500 miles off, it comes within the range of the Bomarc which is only 400 miles from this area. Then you have no question of pilots.

Mr. KEYSTON: No; these views would not be changed. It is quite obvious that this matter of the gamma ray sensor is going to be extremely difficult and another complicated addition to the nuclear bomb if it can be produced. Now, the length to which you go in adding yet further complications, difficulty and so on to the bomb are surely related to the military additional value you get out of these. Let us not forget what this gamma ray sensor does, which is different from what the so-called dead man fuse does; it explodes the bomb at the height to which it is exploded by the Bomarc. It produces explosions of these bombs up at 40,000 or 50,000 feet. There is a difference between the military value of exploding bombs at that great height compared to exploding some of them down near the ground and you have to think of the significance of this gamma ray sensor in reference to both practical value and military value. It was very pertinent, in connection with the military value, that one

member also mentioned triggering off a plane which may be well in sight, that is, within destruction range of several other military planes. So, I feel it is quite impossible to divorce the question of the practical difficulty and possibility of this from what you really are achieving militarily, although I know as a scientist—and you can rule me out of order if you so desire for getting into the military sphere—the two are inter-linked in these considerations.

Mr. LAMBERT: Continuing from there, you have no guarantee your bombers are coming in at 40,000 or 50,000 feet; if they are coming in at 15,000 or 20,000 feet and are carrying a megaton bomb, the nuclear explosion in the atmosphere would result in a very real problem. It may not be at 50,000 or 60,000 feet; I think one must consider all these possibilities.

Mr. KEYSTON: It is related to the—

Mr. LAMBERT: If I might interrupt, would you not agree that if you wished to guarantee the effectiveness of your attack, because it only needs one or two shots, you might go to the length of using such a highly dangerous trigger mechanism.

Mr. KEYSTON: If we are talking about a manned bomber, one is doing nothing to guarantee the effectiveness of one's attack by including this; one may contribute more to guaranteeing the failure of attack. If you are turning to the stand off bomb and postulating that the height of engagement is much lower and were asked if you could conceive the sensor in a position like that, that is different. But one has to go quite low down, relative to 40,000 feet, before we produce fall-out of appreciable military value.

Mr. SAMPLE: In respect of the gamma sensor, Mr. Chairman, I feel very strongly that it is possible to build a gamma sensor as fail-safe as any pressure sensor which has been postulated, as the existing dead man switch.

The CHAIRMAN: Gentlemen, I have not received any indication that any other members are desirous of asking further questions before we adjourn.

On July 25, when we decided to invite Dr. Scott to appear before this committee, it was decided that we should also ask him to have one of his colleagues accompany him.

Mr. LLOYD: Mr. Chairman, before you continue I should like to suggest that your statement that no other member desires to ask a question is not accurate. I should at this stage like to bring an apparently important situation to the attention of the members of the steering committee.

The CHAIRMAN: Would you just allow me to finish my remarks please?

We decided to have two members of the scientific staff of the University of Alberta appear before this committee. These gentlemen decided that three members should attend rather than the two originally invited. If it is the desire of this committee to pay the expenses of these three gentlemen rather than the original two we will need a motion to this effect. The motion would be that this committee pay the reasonable living and travelling expenses of Dr. E. B. Scott, Dr. L. E. H. Trainor and Dr. J. T. Sample by reason of their appearance before this committee and that a per diem allowance be paid to these three witnesses for Wednesday and Thursday, July 31 and August 1, 1963.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I so move.

Mr. TEMPLE: I second that motion.

The CHAIRMAN: It has been moved and seconded by Mr. Asselin (Notre-Dame-de-Grace) and Mr. Temple respectively. Is it agreed?

Some HON: MEMBER: Agreed.

Motion agreed to.

The CHAIRMAN: You may proceed now Mr. Lloyd.

Mr. LLOYD: On a question of procedure, Mr. Chairman, I find it extremely difficult to understand the attitude of this committee. I do not feel that it is our purpose to fully comprehend and evaluate the precise scientific processes involved in any explosion, implosions or de-activating of nuclear weapons. I believe it is our purpose, and I want to stress this, to see that a consensus exists in respect of the results arrived at from an accurate set of scientific facts by a responsible body of scientists engaged by the Department of National Defence. This committee, as I see it, therefore, requires a general appraisal of the steps taken by the Department of National Defence in reaching the conclusions which have been expressed by Dr. Keyston, and more particularly now, since they have been challenged by Dr. Scott.

What we are concerned with as a government of laymen, Mr. Chairman, is the responsibility and capability of our scientists in respect of their ability to advise us, and I think the sooner we resolve this question, the sooner we will be satisfied. I do not conceive of this committee being able to draw conclusions on the basis of scientific results such as have been presented to us today. These witnesses are supposed to be expert witnesses and usually in an examination of witnesses one of the first things done is the establishment of the witnesses' identity, experience and capability, as well as the witnesses' performance in arriving at these conclusions, and I strongly urge that we not leave this committee meeting without going beyond a simple identification of Dr. Keyston. I feel that the question is much too complex to be dealt with in that manner. Dr. Keyston has expressed to this committee, as I see it, the results of the deliberations of many wise scientists and military authorities. I feel that it is this type of conclusion that is wanted by the Canadian people.

The CHAIRMAN: This committee is now adjourned to the call of the Chair.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 11

TUESDAY, OCTOBER 8, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Vice-Admiral H. S. Rayner, D.S.C. and Bar, C.D., R.C.N., Chief of Naval Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29378-7—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Fairweather,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

MINUTES OF PROCEEDINGS

TUESDAY, October 8, 1963.
(13)

Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch.—(22)

In attendance: Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; and Vice-Admiral H. S. Rayner, D.S.C. and Bar, Chief of Naval Staff.

The Chairman referred to a meeting of the Steering Subcommittee which was held on Thursday October 3, 1963. He presented the following as the Subcommittee's fifth report:

Your Subcommittee recommends:

(1) That the Committee meet on Tuesday, October 8, at which time Vice-Admiral H.S. Rayner will be the witness.

(2) That the Committee seek permission to sit while the House is sitting.

(3) That Commodore Plomer be invited to appear before this Committee on Thursday, October 10, 1963.

On motion of Mr. Asselin (*Notre-Dame-de-Grâce*), seconded by Mr. Lessard (*Lac-Saint-Jean*), the said report was adopted.

The Chairman reminded the Committee that the examination of Vice-Admiral Rayner was to be based on the contents of the statement that he presented to the Committee on July 9, 1963.

Vice-Admiral Rayner answered questions respecting the above-mentioned statement. The Minister of National Defence, The Honourable P. Hellyer, also answered certain questions.

During the sitting the Vice-Chairman, The Honourable Marcel Lambert, occupied the Chair for some time.

The Chairman announced that the Steering Subcommittee would meet in his office at 5:00 p.m. today.

At 12:35 p.m. the Committee adjourned until 10:30 a.m. on Thursday, October 10, 1963.

E. W. Innes,
Clerk of the Committee.

29378-7—1½

EVIDENCE

TUESDAY, October 8, 1963.

The CHAIRMAN: Gentlemen, we now have a quorum and I call this meeting to order.

I hope that during the recess you all had time both to rest and to study the problems of defence. I am pleased to see that you are all here in good health.

I wish to present a report of the steering subcommittee which met at 11 o'clock on Thursday, October 3.

Your steering committee recommends as follows:

(1) That the committee meet on Tuesday, October 8, at which time Vice-Admiral H. S. Rayner will be the witness;

(2) That the committee seek permission to sit while the house is sitting; and

(3) That Commodore Plomer be invited to appear before this committee on Thursday, October 10, 1963.

Could I have a member move that motion and would someone second it, please?

Mr. ASSELIN (*Notre-Dame-de-Grace*): I move that the report be adopted.

Mr. WINCH: I second that motion.

The CHAIRMAN: The motion has been moved by Mr. Asselin and seconded by Mr. Winch.

Mr. MCMILLAN: Mr. Chairman, I should like to ask one question. Why does the committee wish to have the power to sit while the house is sitting?

The CHAIRMAN: We wish to seek permission to sit while the house is sitting because we do not have that power at this time.

Mr. WINCH: Mr. Chairman, perhaps the main reason for seeking permission to sit while the house is sitting lies in the fact that in our proposed sittings there is the strong possibility of recommendations being made to call witnesses from outside Ottawa. That fact coupled with the understanding that perhaps those witnesses could not complete their evidence and we could not complete our questioning at one sitting, makes it seem completely undesirable to hold those witnesses over in Ottawa for a number of days. Although I object strongly to sitting while the house is sitting, it does seem right on such occasions to sit two or three times a day in order to complete the questioning of the witness.

Mr. FAIRWEATHER: Mr. Chairman, to anyone who has been sitting in the house recently, it would be a privilege to sit somewhere else.

The CHAIRMAN: Is the motion acceptable?

Some hon. MEMBERS: Agreed.

Motion agreed to.

The CHAIRMAN: This morning we have with us Vice-Admiral Rayner, the Minister of National Defence and the Associate Minister.

The steering committee recommends that we pursue our questioning of Admiral Rayner with respect to the statement he made to this committee on Tuesday, July 9, 1963, and that our questions be limited to that statement.

You will notice in the motion that we have just adopted that Commodore Plomer will appear before this committee on Thursday. I hope that all members will make the necessary distinction between questions in respect of the submission made by Vice-Admiral Rayner and our discussions with the Commodore on Thursday. I have been asked by the steering committee to impress upon each member that this proposed procedure should be followed very strictly this morning.

Mr. LAMBERT: The Chief of Naval Staff in his statement, as it appears on page 89 of the proceedings of this committee, in the paragraph entitled "Role of the R.C.N." said in the last statement of this paragraph as follows:

> It has been agreed, that the role of the R.C.N. is to support Canada's external policy and defence policy through the provision of versatile naval forces.

On a previous occasion some questioning was directed toward the composition of naval forces as envisaged by the witness. I should like to ask him this question. Does he consider that the role of the navy as now envisaged would be possible in the frame work of a completely integrated naval force under one command?

Mr. SMITH: You refer to one military force, is that right?

Mr. LAMBERT: Yes I refer to one military force in Canada under one command.

Vice-Admiral H. S. RAYNER, D.S.C. and Bar, C.D., R.C.N. (*Chief of Naval Staff*): In answer to Mr. Lambert's question, I think we must keep in mind our NATO commitments in which we provide antisubmarine forces to SACLANT, and to combined Canada-United States forces in the Pacific.

This is a very difficult question to answer. It would be possible to carryout those responsibilities and to form part of a Canadian military force which would be employed as an integrated force provided we had much larger forces than we now have, because it would not be possible to divert antisubmarine forces into an integrated force capable of transporting men and equipment and landing them efficiently without a decrease in the efficiency of the A/S forces.

To take part in an integrated force we would either require more forces or we would have to put less effort into our A/S forces.

Mr. LAMBERT: In other words, am I right in suggesting that you might have to envisage a modification of the Canadian defence role if one were to concentrate on an integrated Canadian military force?

Mr. RAYNER: If we were to concentrate on an integrated military force, that is right.

Mr. LAMBERT: To what extent do you feel that the naval side of our present defence commitments would have to be modified?

Mr. RAYNER: As I have tried to explain, to take part in an integrated force and play a full and efficient part, we would have to divert effort into the performance of that job. At the present time our role is primarily an antisubmarine role. Of course the fleet has other capabilities in addition to antisubmarine capabilities but the development of the fleet and the employment of the fleet are directed primarily to antisubmarine operations.

As I say, the fleet has other capabilities as well. For example, we can transport men and equipment but it would be a lash-up arrangement. For example if the *Bonaventure* were to be used for this purpose, as the *Magnificent* was back in 1957 at the time of the Suez crisis, it would mean taking the *Bonaventure* off flying for several months and our antisubmarine capability would suffer thereby.

Mr. LAMBERT: Would you consider that there would have to be a major modification in respect of the type of ships and equipment that you would need if the concentration were placed on an integrated military force?

Mr. RAYNER: If one wished to do the job as well as it could be done it would mean some new types of ships would be necessary. I am assuming that in an integrated military force the navy would be required to provide a sea lift for equipment and also for personnel, but certainly for equipment. We would require some specialized ships such as the amphibious forces the United States navy now has, as well as ships such as the assault ships and commando carriers which the royal navy operate.

Mr. LAMBERT: Now, assuming that there would be both an integrated force and a continuation of your present role—you indicated there would have to be an increase in personnel and equipment—to what extent would there be an increase?

Mr. RAYNER: Well, it would depend entirely on how the problem would be tackled. If it was decided that this should be done within the existing money and men, then we would have to divert men and equipment from the antisubmarine role into the integrated role. If there was a higher ceiling, then instead of disturbing our antisubmarine force we would add to it with new ships and new men.

Mr. LAMBERT: Have studies of this kind been made within the framework of the navy?

Mr. RAYNER: Studies have been made as to the way in which the existing forces should be used in such a role; but they have not been done in detail. They have been been thought about. They have not been carried out in detail as yet, looking towards new ships in an integrated role.

Mr. LAMBERT: Is it fair to ask you whether, as a result of these studies, any conclusion has been reached as to the effectiveness of the navy, should such a plan be put into effect? Do you feel there would be a diminution in the role of the navy or an acceleration in the role of the navy?

Mr. RAYNER: This depends so much on what resources the navy would be allowed to be given to get on with this. Certainly, if you decrease the A/S forces too much, it would be better to go the whole way into an integrated force, but then we would lose our position as really a top flight A/S navy.

Mr. LAMBERT: Those are all the questions I have.

Mr. TEMPLE: Admiral Rayner, I have a few question. Would you tell the committee, please, the approximate speed of nuclear submarines?

Mr. RAYNER: The U.S. navy have never announced the speed of their nuclear submarines. I think they have said that they are in excess of 24 knots.

Mr. TEMPLE: Is that surface, or below surface?

Mr. RAYNER: Below surface. They are much faster below surface than they are on top.

Mr. TEMPLE: I have read many reports, which probably are not official but which lead to the belief that nuclear submarines can do in excess of 40 knots submerged. Is there not a preponderance of opinion that that is a fact?

Mr. RAYNER: I do not think I should comment on that.

Mr. TEMPLE: Going one step further, what is the approximate speed of your proposed frigates?

Mr. RAYNER: The approximate speed is 27 knots.

Mr. TEMPLE: I take it that a primary goal of destroyers, destroyer escorts and frigates, in so far as antisubmarine work is concerned, is to track down the submarines and destroy them; that is so, is it not?

Mr. RAYNER: Yes.

Mr. TEMPLE: Do you believe that these frigates would be able to keep up to the speed of the nuclear submarines of the enemy?

Mr. RAYNER: They would have a very difficult time in a race with them; but hunting submarines is not a question of racing the quarry; it is a question of hunting him. Surface craft act as communcations centres, control centres, in conducting an anti-submarine battle, and they are assisted in this anti-submarine battle by helicopters, by long range antisubmarine weapons, by long range sonar, and by numbers of surface craft. Numbers are terribly important. So, you would have numbers deployed over the ocean.

Mr. TEMPLE: Russia does have nuclear powered submarines?

Mr. RAYNER: Yes.

Mr. TEMPLE: Certainly one of the basic requirements is that the surface craft be able to overtake the enemy submarine, is it not?

Mr. RAYNER: No, I do not think it is a basic requirement at all. In anti-submarine warfare I think one must keep in mind that the submarines must come to their quarry. If they are on an antishipping mission, they must come to the convoy to attack it.

Mr. TEMPLE: Then, Admiral, is there any rule that is applied as to the differential in speed between the attacking surface craft and the enemy undersea craft; is it, say, 15 per cent or 20 per cent? Can you allow the enemy undersea craft to be 15 or 20 per cent, whatever it may be, faster than your surface ships? Is there any rule of thumb there?

Mr. RAYNER: No, I do not think any rule has been established. I think speeds of ships are established by what you want the ship to do and by its endurance; how capable will it be at keeping up with a convoy. For example, during the last war most of the convoys went along at somewhere between six and ten knots. Now, the speed of a convoy today would be very much faster. It is essential that the surface escorts have a good advantage in speed over the convoy so that if they are fighting a submarine battle they can get back to the convoy within a reasonable length of time. When you are dealing with naval task forces, of course the speeds are even higher.

Mr. TEMPLE: We are discussing, as I understand it, two matters with which we are concerned, convoys and the defence of North America from the nuclear powered submarine carrying atomic missiles. In so far as a convoy is concerned, I do not propose to question you concerning that, because if it is going as slow as it is, a nuclear submarine can stand off and drop a missile, I suppose, in the centre of the convoy. Are you prepared to support acquisition of these frigates even though they may well be 15 knots or so slower than a nuclear submarine when submerged, assuming that those circumstances are correct, which I do not ask you to say is a fact; but assuming that.

Mr. RAYNER: I have not been faced with this question, quite frankly.

Mr. TEMPLE: You have not?

Mr. RAYNER: You are asking me to assume that nuclear submarines in the time frame that you are thinking about are very, very much faster than the surface craft.

Mr. TEMPLE: Is it not so that the speed of the proposed frigates is considerably slower than the Leander and the Whitby type class made in the United States?

Mr. RAYNER: I think the speed is comparable. I would like to take notice of that question. It is within two or three knots.

Mr. TEMPLE: But you might be on the slow side?

Mr. RAYNER: Yes.

Mr. SMITH: Admiral Rayner, in your earlier statement you dealt with the purpose, role and equipment of the navy, in that sequence. Of course, the equipment has to be related to budget limitations. Within the framework of our present naval role and the commitment to collective security, what is the most urgent requirement of the navy in respect of equipment?

Mr. RAYNER: The most urgent requirements for the navy today are ships to replace some of our present ships which are rapidly wearing out.

Mr. SMITH: That is the highest priority?

Mr. RAYNER: That has the highest priority?

Mr. SMITH: Has consideration been given to the provision, or the design, or the acquisition of ocean-going freighters or troop carriers?

Mr. RAYNER: Some consideration has been given, yes; but our prime concern is the task which we have been given up to the present to replace our antisubmarine forces. We have a commitment to provide a certain number of ships, ready for assignments to SACLANT at any time. Some of these ships will have to be retired progressively from next year onwards.

Mr. SMITH: So our present needs are entirely conditioned by our role in NATO.

Mr. RAYNER: Not—

Mr. SMITH: Not entirely, but largely.

Mr. RAYNER: Yes; that is pretty fair.

Mr. SMITH: Assuming that we had no NATO commitments, what then would be our greatest need in equipment? If we did not have NATO commitments, what then would we need in the way of naval equipment?

Mr. RAYNER: As the minister has pointed out, we do have these NATO commitments. If we did not, we would certainly need some antisubmarine craft. If our main purpose was to be part of an integrated force such as Mr. Lambert was asking about, we would have to be capable of providing A/S protection for that force; we would have to be capable of clearing a way for it through mine fields off the coast we were approaching. We would have to be able to give it some air protection if we were beyond the range of our own shore based aircraft.

Mr. SMITH: This summer I believe there was an announcement that the R.C.A.F. was abandoning one or more of the squadrons which were for long range patrol or antisubmarine work. Does that reduce our effectiveness in antisubmarine defence?

Mr. RAYNER: Yes; I understood you to say there was a report that the R.C.A.F. were giving up some of their long range patrol aircraft.

Hon. PAUL THEODORE HELLYER (*Minister of National Defence*): That they had given up?

Mr. SMITH: That they were abandoning one squadron. I cannot remember on which coast it was. They were abandoning one squadron of their long range patrol aircraft.

Mr. RAYNER: The long range maritime patrol aircraft of the R.C.A.F. are a very important part of the antisubmarine forces.

Mr. SMITH: Are they useful in actually killing a submarine?

Mr. RAYNER: Yes. They have the capability to kill, but of course their great advantage is in surveillance of large areas. There is daily surveillance in the open areas off the Atlantic coast by these long range maritime patrol aircraft, and there is surveillance for a great deal of the time similarly on

the Pacific coast. Without that capacity, we would not have this surveillance. It is not only needed in an emergency, but it is also most useful from day to day to tell us what shipping is moving.

The CHAIRMAN: Mr. Matheson.

Mr. MATHESON: Admiral, in your statement of July 9 you set out the operational tasks of the R.C.N. The one you mentioned first was to defend sea lines of communication through control, escort and convoy of shipping; then you went on to (b), to detect, locate and destroy enemy submarines; and (c) to contribute to early warning.

Would I be correct in believing that the largest allied threat that we face now is knowing soon the location of nuclear powered Russian submarines which might be within range, and to substantially alter the strike power of a potential enemy against North America?

Mr. RAYNER: I would like to answer that by saying that I think the principal threat that North America faces today is from the I.C.B.M., and that it is cheaper to launch I.C.B.M.s from shore than it is from submarines. The main threat is from shore-based I.C.B.M.s.

Mr. MATHESON: Yes; but am I not correct in believing that the chief danger in respect of Cuba within recent months was the fact that close to North America there was a shift in strike power so that the balance was preponderantly perhaps in the enemy's favour?

Mr. RAYNER: I think that is perfectly correct.

Mr. MATHESON: And that is the danger we face with regard to the mobility of the submarines?

Mr. RAYNER: Yes it is, and in the length of time of warning.

Mr. MATHESON: Would it not be fair to say that our most important role as a navy is to assist with regard to detection or early warning? This plays a more important role so far as our contribution to complete warfare is concerned, rather than thinking in terms of convoy.

Mr. RAYNER: I think both are very important. One does not require, necessarily, specialized ships in order to give early warning. What we have to do is to equip our ships, which indeed we have, in order to have that detection capability against aircraft and tie in their communications with the air warning nets, communication nets, and air warning control systems ashore.

Mr. MATHESON: On that point I have been reading publications of the navy, *Naval Technical Review*, Volume 1, Number 1 and also Volume 1, Number 3. In Volume 1, Number 1 there is an editorial headed "A question of Value". They say:

> 'It's unwise to pay too much but it's unwise to pay too little. . . . '

Then in Volume 1, Number 3, they speak of the general purpose frigate and say:

> A new generation of austerity ASW vehicles was then conceived in an attempt to reduce unit cost and thus be able to provide a greater number of operational units. These requirements culminated in the development of the ASW Frigate design which again ended on the shelf due to lack of support for the austerity concept.

May I ask if it is not a fair conclusion, when we look to the various capacities of the general purpose frigate, to feel it does not fight well, does not cover enough ground to locate well, or track well, and does not carry enough sophisticated equipment to play any vital part in surveillance. In other words, it is doing too many things, and not doing anything very well. Is that a fair conclusion?

Mr. RAYNER: No; I could not go along with that conclusion at all. The A/S frigate, the austerity version which you mention, was not proceeded with for two principal reasons; one is that we have already in the fleet 20 specialized antisubmarine craft which are going to be with us for several years, and we also need some submarines which could be used in the A/S role. With the funds which are likely to be available, we considered that to go for a highly specialized A/S frigate would result in our finishing up with an entire fleet of highly specialized antisubmarine vessels. Within the present fleet we have already a measure of versatility in the tribal class destroyers which were built during the war, and we wish to give the fleet the 1970 version of the Tribals which were built in the 1940's. As I said, this is one reason we did not go on with the specialized A/S frigate. Another reason is because it was too slow to keep up with the modern convoy, and too slow to keep up with naval surface forces. With regard to the margin in speed, there is no rule of thumb in respect of the difference of speed between the A/S frigates, modern submarines and the modern convoys which we would have to protect. But in this case it was just too great to be acceptable.

Mr. MATHESON: My concluding question is this. Recently there was an answer from the Department of National Defence to a question indicating that the percentage of the naval dollar that goes into equipment has, I think, declined something in the order of 50 per cent in the last ten years, and this has not been exactly uniform each year. Generally speaking it has dropped, dropped and dropped.

Do you view with alarm the amount of money that has been spent in the last two or three years with regard to ships?

Mr. RAYNER: I think we should have laid down some ships some months ago. We are falling astern in replacing our ships at the rate we should be, to keep up with the commitments which we have been given. By delaying we can only overtake by a crash program.

Mr. MATHESON: At some future time what is the greatest short run need in respect of the cash—crash—program.

Mr. WINCH: You had it right the first time—cash program.

Mr. MATHESON: Assuming there was the necessary cash, what is the base short run need with regard to a crash program?

Mr. RAYNER: I do not wish to suggest that we need a crash program at this time, but the greatest need today is more ships to replace the ships that are coming to the end of their lives.

The CHAIRMAN: Are you through, Mr. Matheson?

Mr. MATHESON: I suppose the admiral is not able to indicate to us the nature of the ships, of which he speaks as frigate type or hydrofoil, which are in the greatest demand?

Mr. RAYNER: We need surface ships and submarines. If the hydrofoil proves out then it might replace some of the surface craft, but it is not a proved vehicle at this time and we will not know whether it is a proved vehicle for two or three years. In the meantime, time has been lost. We have not laid down any A/S ships since 1960.

Mr. LESSARD: Mr. Chairman, my questions will all have relation to a statement which appears at page 97 of our Minutes of Proceedings and Evidence, and the particular statement to which I refer reads as follows:

> Our present destroyer escorts have a very limited capability against nuclear submarines, but they are first class against conventional submarines which as you have heard constitute the vast majority of submarines in the Russian fleet today.

Is the admiral able to tell us, in view of the fact that the major threat involves missile attack, whether we can assume that we have something efficient to protect us against Polaris type missiles fired from nuclear submarines?

Mr. RAYNER: You have stated in your question that the major threat is missile submarines, but this is only part of the threat. The threat against shipping and sea communications is a very severe threat and it is with us today.

Conventional submarines constitute the greatest part of that threat. The 20 modern escorts which we now have are very well equipped to deal with these conventional submarines.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Do you think that we have some type of defence against Polaris type rocket firing nuclear submarines?

Mr. RAYNER: We have very little defence in this regard at this time.

Mr. ASSELIN (*Notre-Dame-de-Grace*): May we expect to have something of this nature in the future?

Mr. RAYNER: We will not have something of this nature unless we keep on trying to develop something. This problem does not only exist in respect of our own navy. It is a problem which faces all the navies of the west.

Mr. ASSELIN (*Notre-Dame-de-Grace*): The range of the Polaris type rocket I understand is something of the order of 1,500 miles or thereabouts, is that right?

Mr. RAYNER: Yes.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Does this fact mean that if we want to be successful in protecting ourselves from this type of attack we will have to detect these submarines at least 2,000 miles from our coast? Can we expect to know of a pending attack at that time and at that distance?

Mr. RAYNER: Your questions lead to a consideration of the kind of war which we may be fighting, as well as to the consideration of how much weight is likely to be given to missile submarines. While there is no defence against an I.C.B.M., which is the case today, by far the greatest weight of attack, I am sure, will come from shore based I.C.B.M.'s. Our problem is, I believe, to move shipping over the oceans in the event of war, and we could be faced with this threat at any time in any form of war, whether it is limited war, a peace keeping operation or otherwise. We must have the capacity to be able to move shipping over the oceans.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I presume we shall require high speed surface ships to defend ourselves in the event of the type of operation to which you refer. As far as you are now aware, what is the fastest surface ship now in use by an allied force and what is its speed? Do we now operate the fastest surface ship in the Canadian navy or does some one of our allies have a surface ship faster than anything we use at the present time?

Mr. RAYNER: There are faster destroyer escorts within the United States navy as well as other navies, but they have not been designed with this higher speed just to hunt submarines. They have been designed with this high speed in order to provide an A/S protection as well as some limited air defence for carrier escort forces which move at high speeds.

I do not think there is any need to give our escorts a very high speed at this time. If we develop a ship which will travel very fast and at a reasonable cost then certainly it would be very advantageous to have them. However, in order to build a ship which will travel at 36 knots, one is faced with a very high cost.

(*Translation*)

Mr. LESSARD (*Lac-Saint-Jean*): Mr. Chairman, I will ask my last question in French and I would ask the interpreter to translate it into English.

Considering that a treaty has just been signed by many nations for the banning of nuclear testing, and that in the near future it may be possible to sign a treaty toward eliminating nuclear weapons; and considering that at present we do not have and do not foresee the possibility of having in the near future an efficient weapon against an attack from submarine-launched guided missiles, do you not believe that it would be wise at present not to invest money in weapons which, for all practical purposes, will eventually be entirely useless?

Mr. RAYNER: I am not clear as to whether Mr. Lessard is relating his question to weapons or to ships.

Mr. LESSARD (*Lac-Saint-Jean*): I am relating my question to ships.

Mr. RAYNER: No, I think that with the advent of the nuclear attack submarine, and when I say an attack submarine I must explain that we describe an anti-shipping submarine in that fashion. I think it is even more essential that we have large numbers of escorts. I would say that the nuclear attack submarine is perhaps four times as capable as a modern conventional submarine in the attack role. This means that in order to defend shipping we must have more ships to compete with that threat. It is essential to our sea borne operations that we can move forces over the sea. It is the navy's responsibility to move men, equipment and supplies of all kinds over the sea, and we have to be able to protect our shipping in order to do so effectively.

I am not clear whether your question was directed to the type of ship required or directed to whether you thought there was some question in respect of nuclear weapons.

Mr. LESSARD (*Lac-Saint-Jean*): I think the question is based on the idea that perhaps we should not spend so much money acquiring new weapons considering the fact that our present shipping is protected at the present time.

Mr. RAYNER: Yes, but the kind of destroyers we have are capable of dealing with the conventional submarine. I refer to the destroyer escorts that we have built since the war. We also have a number of destroyer escorts built during the war which are not as capable and which are now wearing out, and we must decide whether we are going to replace those ships or not.

Mr. LESSARD (*Lac-Saint-Jean*): Thank you very much sir.

Mr. LLOYD: Admiral Rayner, my line of questioning has to do with the lapse of time from the date when a decision is made by the Naval Board to the date when a decision is made by the government. Perhaps I could begin my questioning by referring to page 105 of the Proceedings and Evidence of this committee and in particular the last paragraph which refers to the general purpose frigate, wherein it is stated:

> In March 1962, the government approved the construction of 8 general purpose frigates as part of the ship replacement program.

I presume from that statement that the Naval Board made a specific statement based on careful study and conclusions extending over a considerable period of time prior to that decision being taken. Can you tell me when the Naval Board concluded that this type of frigate program was essential to Canadian defence?

Mr. RAYNER: The Naval Board was considering this question in detail during most of 1961.

Mr. LLOYD: Had you reached a conclusion early in 1961 that a frigate program was a practical policy to follow?

Mr. HELLYER: Mr. Chairman, I think it must be concluded that the Naval Board reached its decision before the government, as is indicated in that report in respect of March, 1962. I do not think that members should ask for dates other than that one which is given.

Mr. LLOYD: These programs take time to conceive. They require stock operations and studies as well as the meeting of the minds of many experts of the various branches of the naval services, and the need to replace wearing out ships of different types, bearing in mind our commitments, must have been conceived much earlier than 1962. I am sure this would have taken place before 1961 when you had commenced your considerations of this kind of a program.

Mr. RAYNER: Perhaps I could say a word in respect of naval planning in answer to that question.

Mr. LLOYD: As I have suggested, Admiral Rayner, with all due respect to the minister, I should like to know what the navy has to say about this situation.

Mr. RAYNER: In considering the type of ships that we need, our experience has been that it takes about seven years from the time a new ship is conceived until the time she joins the fleet. She is conceived after a great deal of time consuming work including staff characteristics and requirements which the ship must meet. Then the designers have to produce what we refer to as a sketch design. This again is studied in great detail. Then, of course, we must obtain approval and it is not until approval is obtained that we can begin to spend money on detailed drawings. The time between the acquiring of approval and that time when the ship is ready to be laid down could extend to two years depending upon the complexity of the ship. This is not only on account of the actual design work that must take place, but also on account of ordering long lead items such as turbines, boilers and various electronic components. Some of these things take years to build. There exists this long lead time, following which the ship is actually built before she joins the fleet. This entire process takes up to approximately seven years.

Mr. WINCH: In these modern days would not a ship be stillborn? Considering the advances being made by science would these ships not be stillborn following conception?

An hon. MEMBER: It is a long pregnancy.

Mr. LLOYD: Mr. Chairman, the hon. member will have ample time to pursue his questioning later. I do not mind sharing my ideas with other members, but I do not like to have them stolen.

Admiral, considering the morale of the navy and the effectiveness of your planning, is it not a fact that the longer the time interval from the date the Naval Board comes to a conclusion and the date upon which the government makes a decision, the greater the likelihood that a particular type of ship will be outmoded?

Mr. RAYNER: This all depends of course on the interval. We try to look ahead as far as possible. Periodically we take out the crystal ball and attempt to look forward as far as even up to 25 years. It takes five to seven years to design a new ship and get her into service. She should have a life of up to 20 years. Therefore, in 1961 we tried to look ahead 25 years.

As we all know, we really cannot look that far ahead in these times when things are happening so quickly, but we certainly do our best. We develop our plans using that principle as a guide. Short term planning, covering a year ahead and longer term planning are included in our future plans.

Every year these plans are reviewed in the light of government policy and in the light of financial restrictions and limitations, as well as in the light

of changes in the threat and changes in NATO policy. We make plans for the coming year as well as medium term plans which look some time ahead.

At the beginning of a year we set our course, so to speak, but occasionally we run into—I would not like to use the word rocks—various things which affect our plans very substantially. Certainly in our short term planning we run into factors which change our ideas. For instance, in 1961 we had to change our plans in view of the Berlin crisis. We added 1,750 men on paper and immediately started to recruit and train them. Half way through 1962 we were faced with the austerity measures which called for some constriction. A little later in that year we were faced with the Cuba situation which demanded a great effort on the part of the navy. At the time of the Cuba situation actually 76 per cent of our ships on the eastern seaboard were ready immediately and proceeded to sea. This was a higher proportion immediately ready than SACLANT would require in an emergency.

Mr. LLOYD: Admiral Rayner, all of these things do contribute to the hazards of obsolescence?

Mr. RAYNER: Yes, but the point I wanted to leave with you was that the operation of a defence force today is a very complex business. I did want to leave the point with you that we have long term planning which we modify from year to year in the light of different events. We do look as far ahead as we can and are ready to jump ahead whenever practicable.

Mr. LLOYD: I understand that your present program is under review as evidenced by statements appearing at page 107 of the Proceedings and Evidence of this committee. The minister has stated that this program is presently under review. Does this review involve a request on the part of the naval department or is it a financial review?

Mr. HELLYER: This review involves many things.

Mr. LLOYD: Admiral Rayner, you indicated that you had to speed up a program when some emergency situation dictated. You have indicated in your replies to my question that you are ready to move rapidly in respect of a type of device which will meet those things which an enemy might propose at sea and off shore.

I would suggest that perhaps you have another problem to solve. I suggest this problem involves the training of personnel to man the new type of ship upon which you have decided. Having decided upon a certain type of ship, would you not then be anxious to receive these ships as quickly as possible in order that you can commence the training of your personnel? I notice that this problem is referred to at various places in your report. You have referred to the re-training of personnel in respect of new ships and weapons. It is my understanding that the new frigates will be oriented for use with helicopters and other technical devices. Therefore, there is some importance in acquiring these ships as early as possible in order that you may carry out this training program. Would not a hold-up in your construction program have some effect on the morale of your forces?

Mr. RAYNER: It is perfectly true, that the training of personnel must go hand in hand with the procurement and building of new ships; otherwise the whole thing is out of phase and we are faced with the re-training of a great number of personnel. Considering the general purpose for which the frigates were built we would have to consider our training program. This has been considered and there is time to commence this program. At the present time we are re-training many naval airmen both to man and maintain helicopters.

Mr. LLOYD: So that the time element is involved in this whole program? A program of appropriate training of personnel in order that they may meet the conditions which arise does form part of this program, and if you do not

have the ships which you obviously require then you cannot train your personnel; is that a fair statement? I think the report makes this fact quite clear.

From time to time Mr. Rayner, we hear criticisms in respect of the extent to which ships are equipped with amenities or frills. Have you made any review in respect of the design of the frigates in this regard, eliminating some of these amenities or frills in an attempt to speed up construction? Have you made any attempt in this regard? Has this formed part of the review that you have been carrying out, or does this come within your jurisdiction?

Mr. RAYNER: We have given careful thought and consideration in the design of these ships to the habitability standards on board. These conditions will be better than exist in our present ships. Many different improvements are being developed from time to time such as the miniaturization of equipment. This provides more room but, of course, the technicians always like to take up that additional space by installing more equipment. One must constantly keep in mind—I do not want to use the word "comfort" but I cannot think of a better one—of the men on board. Ships are spending much more time at sea, and they will spend more and more time as our ability to supply them with fuel, ammunition and stores of all kinds is improved. Habitability becomes very important when men spend weeks and weeks at sea. With voluntary forces we must compete with high living standards ashore and I think we should build the best habitability possible into our ships without interfering, of course, with their primary function in any way. We consult experts in different fields to help us solve these problems.

The CHAIRMAN: One moment, Mr. Lloyd.

Mr. LLOYD: I have only two more questions, Mr. Chairman.

In respect of the present frigate design, is it your opinion that they offer a reasonable amount of habitability for the crew. Is there any need for us to spend time in reviewing that question?

Mr. RAYNER: Yes, I am satisfied there has been much consideration in this matter. I might say there is a reasonable standard of habitability designed to be included in the proposed frigates.

Mr. LLOYD: Finally, Admiral Rayner, you said in answer to a question that there was a grave urgency for new ships to take the place of those which are obsolescent or outmoded. Do you urgently require the 8 frigates that were approved by the government in 1962?

Mr. RAYNER: I think I can only answer that by saying that we urgently require replacement ships for the ships which are wearing out.

Mr. LLOYD: Thank you.

Mr. HAHN: Admiral, I should like to commence, if I may, by just looking for a moment at specific types of equipment which are in existence and then move to something else.

I understand that we are using long range escorts operated by the air force in respect of antisubmarine surveillance, detection and destruction. Do the aircraft involved have the capability of searching out nuclear submarines at the maximum depth at which they can operate?

Mr. RAYNER: These aircraft have located nuclear submarines. I should like to follow up that statement by saying that there is no certainty in this regard. Very much depends on the conditions of water and on the capability of the screws. Of course, at some depths I doubt if a submarine could be found. New submarines may be capable of going to greater depths.

Mr. HAHN: Are the aircraft which we used for this role as advanced as aircraft being used by the United States or Britain in a similar role.

Mr. RAYNER: I think the *Argus* which the air force is using is as advanced as any and a great deal more advanced than many that are being used in this role. I think the *Argus* is a first class aircraft in every way.

Mr. HAHN: The tracker aircraft which are being used from carriers carry out the same operations but at a longer range than can be covered from shore, is that true?

Mr. RAYNER: The tracker, of course, operates from a carrier such as the *Bonaventure*. They would be used for searching and killing submarines in areas which cannot be reached by the long range maritime patrol aircraft. Conditions at the base may be such that the maritime patrol aircraft cannot take off.

Mr. HAHN: Is the tracker aircraft as advanced as any other aircraft of its type?

Mr. RAYNER: Our present trackers are not as advanced as some of the latest aircraft used elsewhere, but we have plans to bring them completely up to date. They could be brought up to date, yes.

Mr. HAHN: Does the tracker have a useful capability against nuclear submarines, or is that capability as good as any aircraft in use by other forces? In other words, can a tracker carry weapons, search out and destroy nuclear submarines at depths to which they operate?

Mr. RAYNER: The tracker is as capable as other aircraft. They have a much shorter range than large aircraft of course and carry as large a weapon load.

Mr. HAHN: In regard to the helicopters which are to be used on our surface ships, when they are searching with sonar, I gather the sonar hangs down below the helicopter into the water. What speed does the helicopter travel when it is performing this function?

Mr. RAYNER: The helicopter is hovering while performing this function and is practically at a standstill.

Mr. HAHN: It hovers while the sonar device is in the water and then lifts it and moves ahead, as I understand the function. Does the helicopter also carry weapons as well as the detection gear?

Mr. RAYNER: Yes, it carries antisubmarine torpedoes.

Mr. HAHN: I understand that you stated that our task carriers were primarily used to carry trackers, but that they can be used, or have been used as troop transports?

Mr. RAYNER: The *Bonaventure* has not been used as a troop carrier, but the *Magnificent* which preceded the *Bonaventure* was used as a troop transport at the time of the Suez crisis.

Mr. HAHN: The *Bonaventure* has not been used for this purpose, but could be used as a troop carrier if the situation necessitated such a performance?

Mr. RAYNER: Yes, but this would involve taking her out of her A/S role.

Mr. HAHN: Is there any advantage in using a submarine such as the *Oberon* for training personnel in antisubmarine work considering that the vessel is not as fast and not capable of diving to the depth of enemy submarines which they may eventually be called upon to seek out and destroy?

Mr. RAYNER: Yes, the *Oberon* submarine makes a very fine training submarine. It has sufficient submerged speed to make it a good training vehicle. The *Oberon* is capable of going to a satisfactory depth.

Mr. HAHN: In respect of the defence roles which we are carrying out, and specifically the escort role, are we capable of guarding against antishipping type submarines, nuclear or conventional? Is there much danger at this time to a convoy as a result of enemy antisurface ships?

Mr. RAYNER: No, there is not. There is some danger to carrier task forces from surface ships. I am making a distinction here because the Russians have some destroyers with long range missiles which I imagine have been designed to operate against surface task forces.

Mr. HAHN: Does the United States navy have surface ships that have better characteristics for this type of operation than the proposed all-purpose frigates? In other words, how would the proposed all-purpose frigates compare to similar ships used by other navies?

Mr. RAYNER: Some ships are being built for the United States navy and British navy, as well as for the Australians, the French and the Japanese with similar characteristics. In addition to these, of course, the United States navy has what they call frigates which are much larger than the ships we contemplate building. They are building and have been building similar sized ships to the general purpose frigates.

Mr. HAHN: We would be capable without the help of other navies to convoy and guard ships across the ocean? Are we capable of doing that job with our existing or contemplated equipment without assistance from another allied navy?

Mr. RAYNER: The answer to your question depends on the kind of situation you are contemplating. Are you thinking about an expeditionary force or a similar small force?

Mr. HAHN: I am thinking of wartime conditions at which time we must convoy ships carrying materials across the ocean. Are we capable of convoying those ships without the help of an allied navy?

Mr. RAYNER: Yes, we have the necessary escort force to guard one or two convoys at a time by ourselves, depending upon the threat, but this is not the method that would be used.

It is unthinkable that Canada would engage in a war without allies. This just would not happen. In a war with allies our naval forces would be integrated with those of our allies. SACLANT was established with this purpose in mind. Our escort groups would form a few of a very great many allied escort groups. I imagine our escort groups would operate as a group, or a series of groups.

The VICE-CHAIRMAN: Perhaps I could just interrupt you here, Mr. Hahn. A number of members of this committee have indicated a desire to ask some questions. In order to allow them to do so I would ask members to establish a relative priority in their questioning in an attempt to limit their questions to one area of discussion.

Mr. HAHN: I have just one further question to ask.

We are operating a variety of types of equipment, some of which is probably as advanced as it can be and some of which is not as advanced as it might be. We are also apparently attempting to perform several functions. It is contemplated that occasionally we will have to perform the role of carrying troops at which time we would have to guard against submarines. Apparently we do not have the necessary equipment to protect our shipping against nuclear submarines, and we appreciate the fact that we will never be operating by ourselves. Would it not be wise to concentrate in certain single areas rather than to try to achieve this versatility of which you spoke earlier?

Would we not be better advised to carry out a much smaller segment of the larger role with the most up-to-date equipment available? In other words would we as a nation be better advised to just look at a very small segment of the naval role, relying completely on our allies for help in respect of the other segments of that role? Are we trying to do too many things with our navy at the present time? Are we trying to be too versatile?

Mr. RAYNER: Our primary role is one of antisubmarine defence, and we are as advanced as any navy in the antisubmarine field. At the same time we must have some capability of supporting land forces. We were asked to do this during the Korean operation. There probably will not be another operation of that type, but the navy may be asked to take part in some United Nations peace keeping operation. The chances of such an operation I think are now increasing. We would be very limited if all we could provide was an anti-submarine force. This is a matter of judgment and opinion, of course.

With respect to the question of submarines, we have been operating without submarines of our own for several years. Submarines are essentially for training our antisubmarine forces. Our experience has been that we do not get enough submarine time by relying on other navies. The United States and Royal navies have been most helpful and most co-operative in this regard.

The Royal Navy has made three submarines available since 1955 in Halifax and we have a United States submarine on loan on the west coast. In addition to that the United States navy gives us some submarine time with their own submarines but we still do not get enough because there is an over-all shortage of submarines for submarine training. Both the navies I have mentioned are short of submarine hulls to give their forces the amount of training which they deem necessary. If we do not have any submarines of our own we will have the short end of the stick in a training sense.

Mr. CHURCHILL: Mr. Chairman, is the minister available for questioning or is he here as an interested observer? I should like to direct a question to the minister if I have permission.

The VICE-CHAIRMAN: The minister is here in his capacity as a witness as well as minister, although Admiral Rayner is here at this time because he is less available to us. I think it would be preferable if members try to direct their questions to those fields to be asked of the Chief of Naval Staff.

Mr. CHURCHILL: The difficulty I am having is that I should like to ask these questions of the minister while the admiral is in attendance.

I put forward this question some three months ago but at that time the committee would not allow me to continue. I do not mind waiting for an opportune time which, in my opinion, is now while the minister and admiral are before us.

The question I wanted to put forward to the minister has reference to a statement made by the admiral appearing at page 122 of the Minutes of Proceedings and Evidence of this committee.

The admiral pointed out, and he has again this morning, that the primary role of Canadian forces is an antisubmarine role, and in this regard he considers that of the maximum force we would require three-fifths antisubmarine vessels, one-fifth submarines and one-fifth general purpose vessels.

Mr. Lambert then asked, keeping in mind the present review with regard to general purpose frigates, what are the alternatives, and the admiral stated that the alternatives were, general purpose frigates, more antisubmarine vessels, more antisubmarine submarines and perhaps some hydrofoils.

Mr. Martineau then wanted to know if, in view of the capabilities ascribed to the general purpose frigates, the admiral believed that the general purpose frigates, 8 of which had been approved for construction, were the best and most adequate replacements for the Tribal class destroyers now becoming overaged and unservicable.

The minister indicated at that time that this involved a matter of opinion. I intended then to ask the minister a question in this regard, and I should like to ask that question at this time. The minister has now had six months to consider these problems. Would it not be helpful to this committee if the minister would give us some lead in this regard? We could spend several

days getting additional information from the admiral, which I am sure would be very helpful, but could the minister now tell us what decision he has arrived at in regard to the ships that are required for the navy, and will they be frigates or some other type of vessel, or has he reached a decision that the navy does not require any additional vessels at this time?

Can we not now, after three months of committee hearings, and six months of the minister's official duties, get a decision with regard to some of these matters? As has been pointed out it is a long range program; seven years from the decision of the board of admiralty to the ship joining the fleet. Some time was lost from 1961 to 1962; this is now 1963. Will the minister tell us whether the review has been completed, and whether we can get on with the job? Has a decision been made?

Mr. HELLYER: Mr. Chairman, as I have stated in the house, I do not wish to add anything further at the moment. I hope a decision will be reached very soon, and just as soon as it is the information will be given to the house and to this committee.

Mr. CHURCHILL: May I ask a supplementary question? The minister has said in the house or outside the house that a white paper is going to be presented some time in January. I simply suggest it would be very helpful to this committee if we knew the train of events, and perhaps could get on with some other business; or does the minister now want the committee to make a recommendation to him with regard to the naval program?

Mr. HELLYER: I think a decision will be taken shortly and it will be announced just as soon as it is taken.

Mr. SMITH: Then why do we not adjourn now?

Mr. CHURCHILL: I have finished my questions. I am sorry the answers are not more complete.

The VICE-CHAIRMAN: The minister has a prior commitment with a representative of a foreign power and he must now leave.

Mr. MACLEAN: Mr. Chairman, on page 90 the admiral enumerated the operational tasks. Item (b) is to detect, locate and destroy enemy submarines. Then on page 122, he says that large fixed wing aircraft play a very important role in this service. I would like to ask the admiral whether, in his opinion, with the coming into use of long range nuclear powered submarines, it is his opinion that the role of long range fixed wing aircraft is perhaps increasing in this field owing to their ability to reconnoitre and keep under surveillance large areas of ocean as compared to surface craft. I would take it that the aircraft would be able to do reconnaissance over a larger area in a shorter time than, say, an aircraft carrier or surface ship.

Mr. RAYNER: I think we come back to the point that antisubmarine warfare must be looked at as a whole. We cannot take one element and put all our money on that, put all our eggs in the aircraft basket, or in the ship basket. We do need a well-balanced team of surface ships to control antisubmarine operations, to act as a link on the spot between the maritime patrol aircraft and other surface forces and the shore. We need submarines in the antisubmarine role; we need helicopters and carrier borne fixed wing aircraft to operate in the antisubmarine role; because, as I indicated before, there are times when the long range patrol aircraft are not available.

Mr. MACLEAN: This leads to my second question. As I pointed out, one of the naval roles is to detect, locate and destroy enemy submarines. Part of the means by which this is done is provided by the maritime command of the R.C.A.F. What is the means whereby the needs of the services jointly are correlated in this field?

Mr. RAYNER: The needs are co-ordinated between the planning staffs at airforce headquarters and naval headquarters, and the requirements, as gen-

erated, are studied by the chiefs of staff. The A/S forces, both surface and air are assigned to the Maritime Commanders in Halifax and Esquimault, by the Chiefs of Staff Committee, and the combined surface and air forces are controlled and operated by the Maritime Commanders and their integrated staffs which comprise both R.C.N. and R.C.A.F. officers at all levels in the different staff branches, plans, operations, intelligence, communications, and so on. It is an integrated effort.

Mr. MACLEAN: The present situation is unsatisfactory. Is there no feeling in the maritime command towards a joint effort which would have a higher priority if it were under naval control?

Mr. RAYNER: I think it is fair to say that there is no official feeling on this matter.

Mr. SMITH: When you were before the committee before, you spoke about a very substantial development program for hydrofoils awarded to DeHaviland, and to Toronto. This summer there have been many news stories, publications, articles in magazines and so on concerning the development of hydrofoils in the United States and particularly in Italy and Japan, and of the success they are having.

Do you feel that the investigation in Canada involves a sufficiently new principle to spend a very substantial amount of money upon hydrofoil development, or will it just be merely a matter of repeating what has been done in Italy and Japan, ending up with nothing new?

Mr. RAYNER: Briefly the answer is yes, I do. I do think that the development is necessary here in Canada. As far as I am aware the development in Japan and Italy has been for a coastal hydrofoil or a hydrofoil to operate in rivers and in sheltered waters. The United States is developing an ocean-going hydrofoil, and that is what our effort is directed to.

From the navy point of view we are only interested in developing an ocean-going hydrofoil which can carry antisubmarine equipment, and the fixed foil principle upon which the Canadian hydrofoil is being built is a different principle to the one on which the United States hydrofoil will operate.

Mr. SMITH: The Americans have two programs going, one at Boeing, and another in New Jersey somewhere.

Mr. RAYNER: Yes, they have, but the principle of the hydrofoil, as far as I am aware, is the same in both cases; the principle upon which our research is proceeding is a different principle. It is a different hydro-dynamic principle.

The CHAIRMAN: Mr. Winch?

Mr. WINCH: I would like to ask the admiral if when the decision was made to send R.C.N. personnel to the United Kingdom for training in submarine operation it was done in consultation with the Minister of National Defence, and if so if there was a commitment that the government was going to purchase submarines for Canada? If not, on what basis was a decision made to train R.C.N. personnel as submariners if we were not going to have submarines.

Mr. RAYNER: We have been training submariners in the United Kingdom since 1955. The agreement which was arrived at with the admiralty provided for Canada to make available an equivalent number of personnel to the Royal Navy which they would need to man the three submarines which they loaned us. I am not aware of details of these negotiations because it was some time ago but I will try to find out.

Mr. WINCH: My main point is, is it our own men who were trained in the United Kingdom who are now operating the three submarines that we have on the Atlantic and the one on the Pacific.

Mr. RAYNER: Our own men are operating the submarine in the Pacific and they were trained in the United States. Some of our own men are serving in the R.N. submarines in Halifax, but there is no agreement with the R.N. that the equivalent number of men which we send over to the United Kingdom to be trained and to serve in the Royal Navy will necessarily serve in the submarines of the 6th Submarine Squadron, in Halifax.

Mr. WINCH: You cannot tell us whether or not our men being trained as submariners meant there was any commitment or implied commitment that Canada was going to get submarines of its own?

Mr. RAYNER: As far as I am aware there was no commitment.

Mr. WINCH: My other question is perhaps out of date now in view of the minister's statement that he does not want any advice on the navy. However, in view of the reiterated statements of the admiral that in the event of another war the major threat will be from I.C.B.M., and in view of the fact that he also says that there is no defence, if that is correct,—and I personally feel it is—I would like to know just what convoys are going to ply the oceans and require Canadian ships for defence.

Mr. RAYNER: This brings us back to the nature of war.

Mr. WINCH: I am sorry, I rather gathered from your statements that in the event of war you thought it was going to be I.C.B.M.

Mr. RAYNER: No, not at all.

Mr. FAIRWEATHER: I wonder what naval construction is going on in Canada now, Admiral Rayner?

Mr. RAYNER: At the present time there are two destroyer escorts completing, one in Sorel—the ship called "*Nipigon*"—and the "*Annapolis*" is completing in Halifax. Both ships will be finished by the middle of 1964 or shortly thereafter.

Mr. FAIRWEATHER: I just have one other question. Would a secondary consideration—and I admit it would be secondary—for naval construction of any type not be to keep an up to date modern shipbuilding facility for the event of war? Would this be a consideration? I am not now going into the merits of which type is best.

Mr. RAYNER: Yes, a modern and up to date building capacity is one of the sinews of war.

Mr. FAIRWEATHER: It is an essential of war?

Mr. RAYNER: It is an essential.

I would like to go back and just talk briefly about sea power and what this consists of. It consists, of course, of fighting ships and merchant ships and harbours, harbour facilities of all kinds, and a strong shipbuilding industry behind them.

Mr. FAIRWEATHER: Thank you.

The CHAIRMAN: Mr. Granger?

Mr. GRANGER: Mr. Chairman, Admiral Rayner, with respect to hydrofoil I understand you to say it will be two or three years before a decision is made as to whether it is practical, but have studies gone far enough yet to indicate it will and that it is the type of ship which take the place of existing ships and ships which are being completed?

Mr. RAYNER: The study has not gone far enough to reach a decision. An engineering study was done on this design of hydrofoil, and this has been gone over by the technical experts in the navy. On paper it is feasible to build an ocean-going hydrofoil which will carry the fighting equipment which we would like to put in her. But this is only on paper. They have gone as far as they can in thinking about it. Actually, they have gone a little further than

putting it on paper because they have actually built models and run those models in tanks with simulated sea conditions. However, the only way really to find out whether this will work is to build a full scale prototype.

This is what they are doing in the United States. They are building prototypes.

Mr. GRANGER: I notice from reading about the hydrofoils that they contemplate one type of a retractable hydrofoil which enables a ship to operate in high seas as a conventional ship but that in more favourable circumstances it would be possible to lower them and cruise over them. Are we proceeding along the lines of retractable hydrofoils or is an effort being made to create a ship with fixed hydrofoils which would also operate as a pure hydrofoil craft?

Mr. RAYNER: The Canadian hydrofoil is built on the principle of a fixed hydrofoil. This work has gone on for many years. It started during the first world war, then there was a lapse between the wars, and then it was taken up again after the last war. The fact that it is operating on a fixed hydrofoil does not interfere with its stability in the displacement made. If it is too rough to proceed at foil borne speeds, then the craft can be slowed down to 15 or 16 knots and operate as a boat and the fixed foils will actually give it greater stability than an ordinary boat of that size would have.

Mr. SMITH: Has there been any consideration or discussion with the Canadian maritime commissioner or with any other body with relation to the construction of an ocean-going fleet of merchantmen which would be operated on lease or by government subsidy and which would be readily available for transports in time of war? It seems to me that while you might be able to escort convoys, there is not much for you to convoy in the way of Canadian ocean shipping.

Mr. RAYNER: There is very little Canadian ocean shipping, but this is not the navy's business at the present time.

Mr. SMITH: I realize that, but I was thinking that in wartime ships for use for cargo and troops have to have certain characteristics. Is there ever any planning or any conversations taking place between the navy and the maritime commission as to what type of ocean-going transports you would like that might have ease of unloading or special requirements for loading and unloading if such a fleet were built?

Mr. RAYNER: Conversations have taken place in respect of these matters, but no serious planning has taken place because we have never been assigned this task. We have never actually had enough money to carry out the tasks we have been assigned in the way in which we would like to carry them out, but this is one of the facts of life which applies to all the services.

Mr. SMITH: Is it true that in the United States there is being constructed at the present time a type of ocean going merchant ship designed for use in wartime which has special characteristics for wartime use?

Mr. RAYNER: I have not heard of this fact, but here again, during wartime we are always short of ships. We never have enough merchant ships or fighting ships, so that we must use everything we have, providing it can keep up to the speed of the convoy and is seaworthy.

During the last war we actually tried to operate lakers on the high seas, with little success.

Mr. SMITH: I am interested in this particular merchant ship now under construction. I have the impression that it is designed to have a speed which will make it of great deal more use than the ordinary merchant ship during wartime. I understand that it is faster but perhaps not as economical to operate.

Mr. RAYNER: Ideally the navy would like to persuade the ship operators to build ships all of which have a speed of at least 20 knots, because speed is a major factor in avoiding submarines.

Mr. SMITH: Thank you.

Mr. BREWIN: Mr. Chairman, as you are aware, I was in attendance at another committee meeting this morning and was unable to be here to hear the evidence given today. I did have a number of questions to ask in respect of certain matters but I do not want to repeat questions that have already been asked and answered. I do not wish to deal with matters that have been discussed by the witness this morning. In view of the fact that it is almost 12:30, and without being presumptuous, I understand the witness may be before us again on Thursday morning at which time perhaps I will have had an opportunity to read a transcript of today's proceedings and thereby be in a position to avoid repeating those questions which have been asked this morning.

The CHAIRMAN: I am informed by the Vice-Admiral that he will be in a position to attend on Thursday.

Mr. LAMBERT: How long does Mr. Brewin anticipate it will take to ask his questions?

Mr. BREWIN: I may only have a few questions as a result of the questions asked this morning, but not being in attendance this morning I am not in a position to know what questions were asked.

I reviewed the witness's evidence very carefully and made an attempt to inform myself in respect of certain matters. I feel I have some questions of importance to ask this witness. However, there may have been other members who anticipated my questions and I do not wish to take up the time of this committee in repetition.

The CHAIRMAN: Perhaps I should inform Mr. Brewin of a decision made earlier by this committee.

We decided unanimously this morning that we would hear Commodore Plomer on Thursday morning. In view of the fact that the minutes of this meeting of the committee will not be ready in time to allow you to review the evidence of this morning, perhaps the Vice-Admiral could be called at a later date. Would the suggestion be agreeable to you that we proceed on Thursday as agreed and perhaps some time next week, if possible continue our questioning of Admiral Rayner?

Mr. BREWIN: Yes. Perhaps I was presumptuous in thinking the minutes would be available tomorrow and that the witness would very likely be here to hear what Commodore Plomer had to say, so that I could ask my questions at that time rather than causing the Admiral to attend on an extra occasion. However, Mr. Chairman, whatever arrangement is convenient to all will also be convenient to myself.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Chairman, the suggestion made by Mr. Brewin, is I think satisfactory. Perhaps Mr. Brewin could consult with Mr. Winch in the meantime and ascertain whether his questions have been asked or not. Perhaps he will have an opportunity of seeing today's proceedings and evidence before the Admiral appears before us again, in order that we may avoid disturbing the Admiral to the extent of calling him on an extra occasion.

The CHAIRMAN: The steering subcommittee is meeting today at five o'clock. If it is possible to arrange the Admiral's attendance in a manner convenient to everyone we will do so.

The meeting will stand adjourned, until 10:30 Thursday morning.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 12

THURSDAY, OCTOBER 10, 1963

WITNESS:

Commodore James Plomer, Ottawa, Ontario.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29380-3—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Granger,	MacLean,
Baldwin,	Groos,	Martineau,
Béchard,	Hahn,	Matheson,
Brewin,	Laniel,	McMillan,
Churchill,	Lessard (*Lac-Saint-Jean*),	Patterson,
Deachman,	Lloyd,	Smith,
Fairweather,	MacInnis,	Temple,
		Winch.

Quorum—13

Note: The name of Mr. MacRae was substituted for the name of Mr. Fairweather after the morning sitting but prior to the afternoon sitting.

E. W. Innes,
Clerk of the Committee.

ORDERS OF REFERENCE

TUESDAY, October 8, 1963.

Ordered,—That the Special Committee on Defence be empowered to sit while the House is sitting.

THURSDAY, October 10, 1963.

Ordered,—That the name of Mr. MacRae be substituted for that of Mr. Fairweather on the Special Committee on Defence.

Attest.

LEON-J. RAYMOND,
The Clerk of the House.

29380-3—1½

REPORT OF THE HOUSE

TUESDAY, October 8, 1963.

The Special Committee on Defence has the honour to present its

SECOND REPORT

Your Committee recommends that it be empowered to sit while the House is sitting.

Respectfully submitted,

MAURICE SAUVE,
Chairman.

(This Report was concurred in by the House on the same day)

MINUTES OF PROCEEDINGS

THURSDAY, October 10, 1963.
(14)

The Special Committee on Defence met at 10:35 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Hahn, Lambert, Lloyd, MacInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch.—(20)

In attendance: Commodore James Plomer, Ottawa, Ontario.

The Chairman presented the following as the Steering Subcommittee's sixth report:

Your Subcommittee recommends:

1) That, in those instances, where a witness is not in a position to supply copies of his initial statement to the Members of the Committee, the Clerk of the Committee arrange, whenever possible, for the production of such copies.
2) That meetings be arranged with certain persons from outside the Government service who have views in the realm of defence policy, as follows:
   a) On Thursday, October 17—Lt. Gen. Guy Simonds
   b) On Tuesday, October 22—Lt. Gen. Charles Foulkes
   c) On Thursday, October 24—John Gellner.

On motion of Mr. Fairweather, seconded by Mr. Béchard, the above mentioned report was adopted.

Commodore Plomer was called; he read his prepared statement, and was questioned thereon.

During the questioning, the witness undertook to prepare a summary of the Mainguy report, 1949, for the information of Committee Members; he was asked to outline the points in that report that, in his opinion, have not been implemented.

At 12:35 p.m. the Committee adjourned until such time as the Orders of the Day have been reached in the House later this day.

AFTERNOON SITTING
(15)

The Special Committee on Defence resumed at 4:30 p.m., the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Churchill, Deachman, Granger, Hahn, Laniel, Lloyd, MacInnis, MacRae, Martineau, Matheston, McMillan, Patterson, Sauvé, Smith, Temple and Winch.—(18)

In attendance: Commodore James Plomer, Ottawa, Ontario.

The Committee resumed the consideration of the submission presented by Mr. Plomer at the morning sitting.

The witness tabled a document respecting the ages and promotions of certain senior officers in the R.C.N. This document is identified as *Exhibit No. 4.*

During his examination the witness was requested to give instances to support some of his contentions. As this would result in the identification of certain persons, this matter was taken under advisement by the Chairman.

On motion of Mr. Asselin (*Notre-Dame-de-Grâce*), seconded by Mr. Patterson,

Resolved:—That, in the event that a representative of the Navy is not available to appear before this Committee on Tuesday, October 15, the Committee may visit some defence establishment, if such arrangements are feasible.

At 6:00 p.m. the Committee adjourned to the call of the Chair.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

THURSDAY, October 10, 1963.
10.30 a.m.

The CHAIRMAN: You will now come to order. I have a report from the steering committee which met on Tuesday October 8. The steering committee recommends to the committee the following:

(1) That, in those instances, where a witness is not in a position to supply copies of his initial statement to the members of the committee, the Clerk of the committee arrange, whenever possible, for the production of such copies.

(2) That meetings be arranged with certain persons from outside the government service who have views in the realm of defence policy as follows:

(1) On Thursday, October 17, Lt. Gen. Guy Simonds.

(2) On Tuesday, October 22, Lt. Gen. Charles Foulkes.

(3) On Thursday, October 24, John Gellner.

May I have a motion to approve this report?

Mr. FAIRWEATHER: I move the adoption of the report.

Mr. BECHARD: I second the motion.

The CHAIRMAN: Is the motion agreed to?

Motion agreed to.

We have with us this morning Commodore James Plomer, who will read a prepared statement, following which he will be your witness. I now call upon Commodore Plomer.

COMMODORE JAMES PLOMER: Mr. Chairman, members of the committee:

In presenting this brief I would express my appreciation of this privilege of appearing before your committee. This hardly represents a pleasant occasion. Nevertheless that I am here does give an unusual example of the strength of the principles of democratic government. You may ask why I chose to make my views public. Let me assure you that all I say and many other points have been represented by me before I left the service. After that it could only become public business.

Your time, I know is limited. I must give you the opportunity for questions. Although the subject is long and involved I have kept this paper as short as possible. For the same reason I shall repeat only a minimum of the material written by me in the August 29th. edition of *Macleans* magazine or the subsequent comments and interviews in the press. And I confirm that I stand behind what I have written but for one small typographical error regarding the material state of the carrier which I shall come to later. Also I called the carrier's guns Bofors. In fact they are three inch fifty. This makes no difference as I contend that the point is the electronics do not work.

The Threat

Before we consider our own resources we must first consider the potential threats. The statement made by the Chief of Naval Staff to this committee last spring covers this well. I would add one factor that must not be overlooked most of the conventional Soviet submarines have far higher underwater speeds than the German U-boats of world war II.

The Fleet

I shall start with the fleet. Naval aviation I can omit—it is as good as or better than that of any other navy.

Modern warfare requires "Instant Defence". This the country is paying for and the ships are supposed to be fully manned and unless under heavy repairs, ready for an emergency, and extended operations. This represents the value for the money voted by parliament for the navy. It can be compared to a big commercial corporation, a railroad, or a utility. Whether a corporation is successful is judged by it's end-product. Do you get good telephone service? Is the train on time? Are you satisfied with the automobile you bought? I am here to tell you about the sea-going defences the nation has bought and ask if you are satisfied?

What then is the physical state of the Fleet? To what I have already written here are two more points on the *Bonaventure*. Early in 1961 this ship gave a demonstration to many NATO officers off Norfolk. This was carried out. But the ship arrived with one of her main feed-pumps out of action and her speed reduced to eighteen knots. There was no spare in Canada. There was no spare in Scotland. It was an obsolete pattern. So one was specially manufactured in great haste and flown out to Canada. Presumably spares are now held. Not only was this costly but it does not qualify as Instant Defence. In time of war I do not think we could have got that pump.

The other. The carrier had a boiler explosion a few weeks ago. Probably because of the shortage of qualified personnel. I shall come to this problem further on. But I would ask how often do the Canadian Pacific or the Cunard ships have boiler explosions. I've never heard of one in Montreal—and that's something you can't keep quiet. This is serious and it's fortunate that there was no loss of life.

The *Crusader* was a serious loss to our naval resources. There was nearly another, the *Sioux*, but for an exceptionally diligent commanding officer who made an organised operation of cleaning every rusty area they could reach. Even then the refit costs, I believe, were in excess of half a million dollars. One could go on.

To refer to the Chief of Naval Staff's brief again. It is officially stated here that the Tribal class destroyers, quote: 'are versatile ships with a good general purpose capability. But after distinguished service they are rapidly wearing out and should be phased out completely by 1970'. Three of them built in England when only exceptionally poor steel was available are years passed their useful economical life. The remaining four were completed after the war in Halifax, and if properly looked after should have had a much longer life than this estimate.

Here is one of the hidden costs of negligence. Because the lives of the *Crusader* and the last four Tribals cannot be prolonged five slow substantial and completely obsolete frigates will stay on instead—slower in calm weather than a modern conventional submarine submerged.

That is one point. But although the Tribals are fast compared to the newer destroyer escorts they are not versatile. This is the kind of misleading statement that one must take exception to. It is dangerous. For these ships were designed before the war by the Royal Navy for a limited role—gunnery ships in the narrow waters of Europe. In consequence their range is limited. The Royal Navy only built two flotillas' preferring the more versatile classes of fleet destroyers of which *Crusader* and the *Sioux* are examples. The R.N. have not had any Tribals for years.

Over two million dollars have been spent on each ship since 1950 fitting more modern sonar sets and 3"50 calibre guns. But their fuel capacity is more restricted than ever now. Because of top-weight they are not permitted to

go below 40 per cent of their fuel. As antisubmarine ships they also offer the additional handicap of a wide turning circle.

Let me demonstrate what I mean. In world war II these ships brought fine reputations in some very spirited actions, in both our own navy and the Royal Navy. The *Cossack* is undoubtedly the most famous. These battles were fought in the North Sea, the Channel, and the Mediterranean. The Royal Navy would not permit them to go on Atlantic convoy duties because of their low fuel capacity. Yet we plan on doing this in the event of war with an even lower endurance.

The Royal Navy in the last war increased the range of some older destroyers by taking out the forward boiler and putting in extra fuel tanks It would have reduced these ships to 28 knot speed, the same as the new destroyer escorts.

This could have been done with the Tribals comparatively inexpensively when they were being rearmed. After all it is no good having weapons if you lack the fuel capacity to deliver them.

One can say re-fuel at sea. This is logical for long range ships. We have just acquired one tanker for the 48 ships on the east coast. Fuel from the carrier they can. But all the time they are doing this, flying is restricted and both ships are vulnerable to submarine attacks. Bad weather can also restrict fuelling operations.

The present state of these ships is not satisfactory. It is perhaps ironic that *Iroquois* has been steaming around for years with one boiler out of commission. There are also two others that have burnt out boilers. On top of this there is a very long list of defects, breakdowns, and failures in these ships that would make their endurance questionable under wartime conditions. For the sake of time I can leave this to the question period if you wish for more details.

The 18 new destroyer escorts can be summed up this way. They are superb sea-boats, and highly manoeuvrable. In these two qualities they are unequalled. Unfortunately these virtues have been marred by an excessive number of defects. Teething troubles are to be expected in any new class of ship, but not to this extent. Another unfortunate error has been the fitting of cruising turbines, costly pieces of machinery in both the *St. Laurent* and *Restigouche* classes to save fuel and extend their range. Never used, they are now being removed from the *St. Laurent's* during their rebuilding—at further expense.

One has only touched on the physical state of the fleet. August a year ago for the first time in history as a result of my complaints the chief of naval technical services produced complete lists of these deficiencies. There are a great many pages. These lists must still be in existence. In his covering paper this officer stated "He did not think that the criticism regarding the breakdown rate was justified nor the suggested curtailment of the ship's life." This must have satisfactorily explained the whole thing off. This I would point out just before the Cuban crisis. Any citizen could read these lists and conclude the fleet was not ready. I would also refer you to the naval board minutes for the past decade. I could only find one heading on the state of ships, but the paragraph that followed was irrelevant. I would suggest if you want substantiation these board minutes should be examined, by the minister. I have been through them carefully for some years back. The proof of much of what I have said lies there. The subjects on which five admirals supposedly carrying heavy responsibilities have spent their time more often than not makes Parkinson's Law an understatement. Neither will you find anything about one of their primary responsibilities the morale and well-being of the thirty odd thousand people service and civilian for whom naval board owes a deep

loyalty. The Mainguy report had one special meeting—it was disposed of as easily and quickly as that. But you will find a vast quantity of endless trivia.

If the minister wishes to go further there are also the minutes of NPCC the next level of official meditation. There is also much to be found there. I did brief this committee on the state of the fleet shortly after becoming deputy naval comptroller. The substantiation is all there if you wish to find it. I would also recommend to you my 1960 and my 1962 reports as senior Canadian officer afloat (Atlantic). I am also prepared to answer questions on them should they become available to you.

What are my credentials to say these things. A few medals do not necessarily mean I know what I am talking about. Here are two flimsies—supposed to be the gist of the confidential report on myself as senior officer afloat. They are short and, I think, are worth recording. The first read, that I had conducted myself quote "With zeal and ability and in every respect to my entire satisfaction. He has made a most notable contribution to the fighting efficiency of the fleet."

This is signed by Rear Admiral H. F. Pullen flag officer Atlantic coast. Kind words, but not so. I was unable to do this.

The next by Admiral Pullen's successor;—"entirely to my satisfaction. He has improved the fleet's capabilities by emphasizing what was necessary and essential and this in spite of an organization in support of the fleet which has been inadequate." signed K. L. Dyer Rear Admiral.

This is a funny business, isn't it?

Before I go on to other areas of naval administration. What are the answers for a fleet so far below the proper standards, compared to those of other NATO navies. It is best to be cautious. I believe that first must come a very careful diagnosis, then the causes must be found, only after that can worth while cures be proscribed. The only suggestions I can make are to the immediate problems.

(1) That before new ships are delivered to the R.C.N. (a) the minister must be satisfied that their physical state will not be subject to such speedy degeneration as has already taken place. (b) that untried electronic or mechanical equipment should not be installed.

(2) The new G. P. frigates are too costly. War at sea is just as much a problem of quantity as it is of quality. A torpedo sinks a forty million dollar ship as quickly as a twenty million dollar vessel.

(3) That priority be given to the construction of submarines.

(4) The same be given to helicopters, for the surface vessel has become too slow for the submarine—particularly in bad weather. But a ship that can only carry one helicopter is too costly a platform—for example the new G. P. frigates.

(5) That effective anti-aircraft defence be given to the fleet. We were lucky in Korea, there were no air-attacks—but this has possibly led to a false sense of security. Guided-missiles surface-to-air are costly. The cheaper ones may not yet have achieved an adequate reliability. Until then the cheapest gun should be used. The gun, be it remembered has never been important in the anti-submarine role—I do not know of a case of gunfire causing the initial damage to a U-boat in the whole of World War II.

(6) I refer to the missing word in the magazine article. Modifications should be made to the carrier to make her more effective. The word more got lost. It makes a big difference.

(7) The loss of the ice-breaker was a bad blow to the navy at the time. She did fine work. But she has no anti-submarine capability. Breaking ice to look for submarines in the long neglected north would be an exercise in futility.

The Organization and Management of the R.C.N.

I have outlined the state of the fleet. How did the ships get this way? First of all the leadership and administration has never been good. Now it is getting worse. To run a navy takes more than being a successful commanding officer of a ship—particularly in these days. It requires individual know-how, managerial proficiency, the latest organization techniques, personnel management, and some financial training all on top of the purely sea-going skills—naturally few are likely to possess great knowledge in all these subjects, but high motivation towards the national interest and sufficient curiosity to ask those who do know, or employ experts where none are available, is essential.

Let us touch briefly on organization. As I have already written the flag officer on each coast has been alone responsible for the state of the fleet. He is a law unto himself. If the chief of naval staff does not know and is unconcerned any minister of national defence will remain in ignorance of the truth. As indeed has been the case—for many years.

But the processes of providing a new organization for the navy is something that has to be seen to be believed. For more than five years they have talked interminably and without decision. Finally not many months ago they chose a compromise that could not be called satisfactory.

I was present at naval board some six years ago when an officer sspecialised in these matters as well as in the management and work-study field, as directed put up the first proposals for the re-organization of headquarters—many years overdue. This was a digest of the various board members views. Now this officer is competent and intelligent. What happens? The chief of naval staff in the role of the terrible tempered Admiral Bang shouts that this is just a lot of dam business jargon and the officer is rudely sent away. No wonder it took five years to reach an incorrect decision.

In another area; ship maintenance; from time to time the R.C.N. proudly announces to the public that we have the highest percentage of the total of personnel going to sea of any navy in the world. This is alright as far as it goes. But from the state of the ships it is obvious that we can't be getting the best out of these large numbers. It must be wasteful. The dockyards are swamped with work. There is much that should be done in self-maintenance by the ships themselves. Again there is no organization to direct this. Believe it or not the repair ship had to go out soliciting business, because of a lack of direction from above. For over two years a work-study group, specially trained sat in Halifax and were not allowed to go aboard the ships. Here was an area—the one mentioned in the Mainguy Report twelve years ago—I would guess that hundreds of thousands of dollars at least have been wasted every year because of ignorance and prejudice. Having been twelve years a banker being cost conscious is unavoidable.

Now there is a system called planned-maintenance which came from the Royal Navy. It is very effective. But it leaves the whole burden to the technical branch. It takes a lot of work building up the records. A few, highly motivated technical officers have done wonders. But short-handed and not supported by the rest of the navy they have not been able to achieve anything like the proper standards, nor in my opinion, can they do so until there are radical changes.

The futility of working towards these ends is demonstrated by the fact that the very able director of naval organisation is leaving the service this December some ten years short of a full-career. Also that expert in the field of management and work study that I previously mentioned is now on loan to another government department. Here is a shocking loss of two highly talented officers, not replaceable. Yet I do not know of any organisation in Canada that needed

their services more. It is this atmosphere of ignorance compounded by arrogance that has driven so many officers away from one of the most interesting professions there are.

I should point out to leave the navy is like leaving a prison-camp. Are you aware that at times officers have been kept in the service against their will. They are told they chose to serve at the Queen's pleasure. Their resignations are delayed and their chance of employment expires. Naturally they hesitate. It is also an unnecessarily expensive way of living. All these elaborate uniforms, compulsory cocktail parties etc.

Personnel Problems and Leadership

I have already written about the fate of the Mainguy report. Also I wrote a long paper bringing it up to date before I left the service. Whether it was read or if it had any effect I do not know. However it could be re-written if any further action is intended.

I come now to what I consider the heart of the R.C.N. problem—personnel. I have left this to the last for this very reason. I have as a qualification to speak of these matters the fact that for four frustrating years I was the deputy chief of naval personnel. Captain Groos on your committee held this office a few years before me.

There are very few problems in any organization that do not lead back to people. I am convinced that a service must be something of an autocracy. This is inevitable. But what kind of autocracy? It must surely be one of intelligence, experience, integrity, adaptability, an unwavering loyalty to the national interest, and a humane leadership. It must not matter whether an officer was in the pre-war navy—whether he was an able seaman—or a reservist. You can't afford it. The negroes in Alabama feel the same way.

The morale of the R.C.N. is poor. I have never known it to be good. There are many reasons. Here is one. A chief of naval staff when I suggested that the morale of the officers was poor, answered, "All officers should have good morale." Which was the end of that conversation. I do not call this good leadership. Even if I was wrong, surely it should have been sufficient to cause inquiries to be made or to show some concern. Just as when informed the fleet was in bad shape he expressed no alarm neither did he call for reports—that goes for two chiefs of naval staff.

Undeniably this service has been run by a club. They admit this themselves. But not a club of experience or any of the essential qualities I have enumerated. It's pure Tammany Hall without any voters to worry about. Marriage ties. Term-mates at the old naval college. A medal or two helps. The failings of other club members are covered up and covered up to a startling degree. It has been said that I am only angry because I didn't get further. I can assure you that had I been in a more heavily populated age-group or started as an enlisted man I would have been fortunate to reach the rank of commander.

Some five years ago it became obvious that these same poor standards were likely to be perpetuated far into the future. Interviews with officers resigning and with officers worried about their futures was all too convincing. Not only were there heavy grouping of ages but errors in promotion or at least odd standards had left the executive branch with over thirty of it's ninety-nine commanders not qualified or unsuitable for command—their principle qualification. As five out of seven admirals are selected from this branch it did not look good. The Royal and United States navies had found it essential to rationalize their career pyramids and re-establish standards by a programme of steady retrenchment. For us it was essential to improve the standards. It would have taken a few years to get the dividends for obvious reasons. I could

only deal with captains and below. By committees of selection this was accomplished after some months of work. The plan passed the tri-service, personnel member's committee without objection. After I left for Halifax it was suppressed without reason. Instead officers without proper professional qualifications continue to be promoted. Officers and men must have confidence in the system, but how can they?

This stagnation continues. Some hundreds of lieutenant commanders, many of them able and forthright people continue to serve without any hope of promotion. This is the nations loss. Yet they are often asked to serve under officers for whom they have lost respect or confidence.

Let me at this stage re-emphasize this lack of ethics and integrity at the top. For I can give you case after case not only of stupid decisions but dishonest ones. We all know that to err is human. That sin is everywhere. But it is the extent. Here is a service where integrity should be the first quality to expect, the normal is such that it carries with it the seeds of destruction of the service itself. Do you know that in one branch for years it was impossible for an officer promoted from the non-commissioned ranks to become a commander. This last whether you call it a lack of ethics or a petty snobbery is not Canadian, neither is it profitable to the nation.

Inevitably morale is bad. Inevitably if the morale of the officers is poor it passes on to the enlisted man. There is also a morale factor with the men called 'Halifaxitis'. Don't blame the city. The chief petty officers will tell you they get twice the work from the men when away from the home port. It is not because their wives and families live here and they want to get home early. One of the causes is the lack of accommodation ashore. There never has been enough housing in this area.

Here is a city far from prosperous. Here are sailors with a serious housing shortage. There is always a long waiting list for the big naval managed appartment blocks—not a successful form of housing—for the alternative is high rentals for sub-standard accommodation. You cannot beat the laws of supply and demand. They have suffered this for years. And for years naval board has done nothing about it. With so many unhappy wives it is small wonder that many skilled men do not re-engage. A scheme to finance but not subsidise a plan for those who wanted to own their own homes would have paid untold dividends in morale; in training costs; and would have been reflected in the state of the ships. This problem also applies to officers. Yet I am sure that a well-thought out plan properly presented to the government would have been accepted during any of the less stringent years of the past decade. Certainly the city of Halifax, as well, I believe, the provincial government would have given their full support.

Leading out of this is the shortage of the higher technical rates.

Engine-room-artificers, for example, because of a serious shortage often do not get any shore duty over many years. This restricts their time at home. More do not reengage. Their morale continues to go down, and these are some of the finest people you can sail with.

Past History Affecting the Present

So much for the present state. How did we get this way. What was this pre-war navy in which to have been an officer is the highest qualification for a Canadian admiral. But don't get the impression that I would suggest all R.C.N. admirals were inept. Human averages contradict this. But I do say there have never been in sufficient strength or in a position to be able to establish long overdue reforms.

First of all no ship of the R.C.N. ever fought a battle until world war II. After world war I it was closed down completely. The officers had to go out and seek civilian employment. Most failed to prosper. When the navy started up again the majority were more than glad to return. I think this gave them a permanent dislike of all things outside the navy.

Between the wars for a decade and a half there were only two destroyers on each coast and a lesser number of small trawlers. They never exercised with the United States ships, but each winter they sailed south, cruised from island to island or along the coast to conclude with a few not too strenuous exercises with the cruisers of the Royal Navy's West Indian squadron. The remainder of the year was even more unwarlike—a few unsophisticated exercises—inevitable with so few ships—plenty of time alongside—visits along the coast—and that was it. Courses and limited seatime was taken with the Royal Navy. There were no antisubmarine exercises and no equipment. On the whole from the naval view-point a very limited background—it could not be anything else.

Over the years these pre-war officers, less than a hundred and fifty strong at the beginning of world-war II, have themselves originated a heroic legand that they suffered much and endured more between the two wars, and they alone possess the professional background. Believe me, they lived pretty well. The more senior officers were far better paid than those of our army and air force. This in the days of mass unemployment and economic depression.

In the war these officers got little sea experience, and practically nothing of the direction of naval operations. You won't find many decorations won at sea under R.C.N. controlled operations.

They claim they are the true professionals. Yet the pre-war enlisted personnel were never allowed into the club except under exceptional circumstances. There is evidence enough that there has been so much discontent with their leadership from the beginning of the war to date that there must be something radically wrong.

When I pointed my finger at the admirals for being responsible for this sad state—who else could be? Let me quote Vice Admiral H. G. DeWolf a retired chief of naval staff in a recent press interview. "Surely the people with the longer experience, those who joined the permanent navy before the last war should now by dint of their experience be reaching the top of the command structure." But they have been there all the time. Experience of what? I have already written about the results of this experience in the article referred to. I could give some remarkable examples. I hope indeed the qualifications of the admirals past and present will be thoroughly investigated sometime in the near future because this has been the area of irreparable damage. Let me add to what I have already written that it is after you have associated with the admirals of other navies you come back to discover with a shock, that ours talk and act like amateurs.

In modern naval history you will find that after every war there is an upheaval of reform and new-thinking. Times are changing rapidly, this is inevitable. Lord Louis Mountbatten brought the Royal Navy out of bad slump, his work on this alone was enough to give him his place in maritime history. In the United States the names of Admiral Arleigh Burke and Admiral H. G. Rickover are household words even to us. The only unheaval and pressures for reform have come from our own enlisted personnel. Mutinies bring no good to anyone—but our men had reached a state of such complete frustration that they could not count the costs.

Let me read to you what Admiral Burke said after being properly appalled by our mutinies and applying the lesson to his own navy:—

Officers must have confidence in the promotion system or discipline will be jeopardised. Unless the best officers are promoted, faith of other officers and enlisted men in the integrity of the system will be shaken. It is essential that officers be promoted who will be best qualified to lead in battle. They must have other qualifications, such as good administrative and technical ability and a wide array of knowledge also, but the rest of the navy must have absolute confidence in those selected. Should the less qualified personnel be selected there will come a time in battle in which the navy will fail because of it's leadership. Like begets like, and inadequate personnel, once they have moved up sufficiently to be on a selection board, will themselves be apt to select other inadequate personnel.

Standards must be very high, they must be attainable, they must be equitable, they must be well-known, and they must be maintained with integrity. Otherwise the officer corps will decay and decay rapidly, and there will be no effective combat navy if this happens.

This was written over ten years ago.

Conclusion

You as a committee are no doubt concerned with the more immediate consideration and a very proper one, of the expenditure of some $300 million of the nations money spent annually. May I also point out there are over thirty thousand Canadians directly involved most of whom I have reason to believe have long waited for the better day to dawn for our navy. There are also our allies who depend on our strength at sea.

If the dangers of atomic destruction have diminished, the threats of the more conventional types of war continue unabated. We were not ready for the Cuban crisis. We would not be now. An effective navy is not built up overnight. It takes many years and many talented people.

Now to finish; I have only made recommendations regarding the immediate problems of the ships. As I have said the sickness must first be fully diagnosed, then the cause must be found. I have outlined both to you. The cure depends not on how much I am believed—but how thoroughly this is investigated. For it must be said that all these views are not originally my own. They represent the sum total of the considered opinions of many officers deeply concerned often bitterly disappointed in the way the affairs of our navy have been conducted. The recommendations must come from those who have made sure of these things.

But I believe implicitly that unless the affairs of the R.C.N. are not fully investigated and the opportunity given, as was done by the Mainguy commission, for every officer or man to express his views for or against and without fear of reprisal, and the findings not properly implemented you will never have the navy Canada deserves. The chance has come before. Each time these reforms are neglected the faults grow deeper and become harder to eradicate.

This terminates my brief, except for a personal request.

Personal Request

For myself; a martyr's crown would not fit me. But I do request that the circumstances surrounding my own departure from the Royal Canadian Navy be investigated by an independent person of proper qualification. There are limits to what an officer can accept and at the same time maintain either his self-respect or respect for others. I have received no worse than many officers or men but it will confirm much of what I have contended and perhaps ease the path for many others who would serve their country. It is documented.

The CHAIRMAN: Commodore Plomer will now answer questions put by members of the committee.

Mr. MATHESON: Commodore, I have four questions I would like to ask if you will permit me. The first one relates to a statement you made. I am not sure whether this statement was in the article which appeared in *Maclean's* magazine, or whether it was made today. You said that the biggest problem from a navy viewpoint is manpower cost, and every year it is going up. I think you indicated 8,000 officers and men were on service at the time of the Mainguy report and there are now 22,000. We know that in ten years our defence dollars have gone from a position of 51 per cent for equipment down now to 22 per cent. Could you tell us have we been living on equipment capital? Is this a serious problem?

Mr. PLOMER: It is a difficult one to answer. I will do my best. As a personal opinion, I would say that the rising cost in personnel is because of not using them properly. Now, there are large ship's companies. This large percentage of people is quite rightly training, but as I pointed out, this study group did not get a chance to go to work on the ships. Routines take up a lot of unnecessary time. There is employment of time perhaps on unnecessary jobs where there might be labour-saving devices. Then on top of this, not maintaining the ships properly obviously does not add up.

Again, your manpower costs are affected by training costs; whereas, if you would keep more skilled people in the electronic, electrical and engineering fields in the navy you would not have to keep training new people all the time. Training absorbs a lot of skilled people as well.

I would say it falls into three fields: management of the people; the necessity of keeping these highly skilled people in the service so that you do not have to retrain new people all the time; and a rationalization of what you use these people for.

I think you would see that in a merchant ship the size of the *Empress of Canada* they use probably 15 or 20 able seamen. The merchant service people always say tauntingly that it takes three men to carry a bucket in the navy and they only have one. This is an exaggeration but it has grown up over the years. The fault goes back—and it is a real one—to the fact that manpower was always considered the cheapest commodity in navies; today it is the most expensive, and the navy has not caught up with itself. I know what I have given is not a very good answer.

Mr. MATHESON: On another point, you spoke of the long neglected north; in your *Maclean* article you said there is a gigantic area of Canadian coastal waters ignored by the R.C.N. in the north and that here only the submarines can operate effectively against hostile submarines. Do we have an important tactical or strategical role to play in the north which is being ignored and, if so, what?

Mr. PLOMER: The Naval Institute of Procedures have done many articles on what the United States navy accomplish in the north and they have, to a large extent, filled some of the gap for us. But, under ice there is no way of attacking other submarines except with a submarine and we have no submarines with sufficient effectiveness and, in fact, we never have exercised up there very much. I know two frigates one year went to Churchill, and there were odd visits like that. But, we have no means to fight in the north; we have not the equipment to do so—and I do not think we ever tried very hard.

Mr. MATHESON: You spoke of our navy being a fleet of ships which are badly chosen, badly equipped and poorly manned, and today you have suggested

that the new G.P. frigates are too costly. It has been suggested the frigates are a cheap method of trying to do too many things in too many places for which they are ill equipped. What is your own view about this?

Mr. PLOMER: Do you mean the G.P. frigate?

Mr. MATHESON: Yes.

Mr. PLOMER: I think, first of all, it is misnamed. It is not quite general purpose. What else can it do but look for submarines? And, there is an increased capability of air attack. I think the cost was given as $32 million finally. When I was deputy comptroller I know the price was ordered to be reduced within the navy. I do say it is misnamed. It was a general purpose frigate but it has not been defined what else it can do but hunt submarines and carry 200 soldiers. I do not know what the military view of this is or whether or not they want it, as I left the navy just about that time. It is really an anti-submarine ship that can carry 200 soldiers. This is the limit of its effectiveness. Now, say for $40 million, you have a ship that can go 28 knots and it carries one helicopter. It has a far more effective and very expensive surface to air guided missile. I believe it has two of them. The ship is $40 million, carries only one helicopter, and can be only in one place to hunt one submarine at a time. But, if you could produce a surface vessel for, I would say, around $25 million then you are getting a bang for your buck, you might say. The Americans have these general purpose ships which, I believe, cost $22 million. In my opinion, they are not quite fast enough but, again, the Royal Navy have used gas turbines to get the extra boost and speed in these ships and this could be applied to all utility frigates of that nature.

I think, as I said in my brief, this is a space problem, a quantity problem as well as a quality problem, and you can only cover so much water for the amount of money you get. But, if you are going to cover more water, and if you are going to use helicopters, you are going to have something that carries more for less money.

Mr. MATHESON: You have spoken of and also referred in your article to the importance of the Mainguy report of October 1949; what are the important recommendations which, in your view, remains unimplemented?

Mr. PLOMER: Well, I have two volumes that I wrote on this before I left the service. It would take up a great deal of your time to go over all of this. However, I have offered to rewrite this, if requested. The report itself, Mr. Matheson, is 57 pages.

Mr. MATHESON: Yes, but I was hoping you could perhaps summarize it for the committee.

Mr. PLOMER: Well, I have the summary which I already have done and, if directed by the Chairman, I would be glad to comply.

The CHAIRMAN: Yes. We would ask the Commodore to prepare a summary which could be distributed during a future meeting.

Have you a question, Mr. Smith?

Mr. SMITH: You have spoken of the G.P. frigate as being too costly; do you know of any navy in the world where ships of the type that you think would be best for the navy are now in use which could be adapted or copied and are better ships than the G.P. frigates for the Canadian navy?

Mr. PLOMER: Yes, I think so. I just mentioned the cheaper frigate escort which the Americans have; it is slow but, again, there is this question of gas turbines. I am sure the British have applied it and, in that way, you could get the extra speed required.

Mr. SMITH: Have the British any faster frigate in operation using this gas turbine?

Mr. PLOMER: I believe so.

Mr. SMITH: So this would not be a case then as raised by you in the previous paragraphs, of using untried mechanical equipment.

Mr. PLOMER: That is correct. The gas turbine was used in a tanker some 20 years ago and it was very successful. The use of the gas turbine for American marine purposes has proved very beneficial.

Mr. SMITH: In the following sub-paragraph you say that priority be given to the construction of submarines; do you mean conventional or nuclear?

Mr. PLOMER: I must answer that very carefully. Again, the only submarine you can use effectively in the north is the nuclear.

I do not know. If we were to go into nuclear submarines, I would say we should do so cautiously. We have to have the know-how to operate them and to manage them successfully, because they are expensive. But they have a very real use. I would say, start with conventional submarines and if we can afford it, then move into nuclear submarines.

Mr. SMITH: Am I right in understanding that the cost of a nuclear submarine is $90,000,000?

Mr. PLOMER: The last figure I heard was not as high as that; I believe it was about from $55,000,000 to $60,000,000. I might say, when you compare their smaller crews you will find there are a lot of things about the nuclear submarine which makes it cheaper to run, than a ship with 220 people aboard; because a nuclear submarine may have from 80 to 90 people, and that is quite a saving. Nevertheless the fuel is expensive.

Mr. SMITH: What about the life expectancy of the submarine as compared with the destroyer?

Mr. PLOMER: The sixth submarine squadron, the one at Halifax, was built at either the close of the war or just after the war, and it is still running.

Mr. SMITH: Is it operable?

Mr. PLOMER: I would say that it is about the same; it depends on how well you look after them really.

Mr. SMITH: Do you suggest that priority should be given to the construction of submarines, and that this construction should be done in Canada?

Mr. PLOMER: Oh yes, very much so.

Mr. SMITH: Why?

Mr. PLOMER: For two reasons: I have always been a strong proponent of the merchant marine. This helps to keep the know-how in ship building and ship repair and it is good economics as well as the costs are not too high. I think in time it would prove to be a worth-while investment both in terms of skills and increased natural techniques, things like that. It might cost more to begin with, but I think that in the long term run, it would be better economics.

Mr. SMITH: To go back to the first of your recommendation where you suggested that untried electronic equipment should not be installed, I understand there are quite a lot of changes. How much of that, do you think, is due to bad original planning or how many of those changes—which are very considerable—derive from the fact that as ships develop, five or six from the first plan to commission, technological changes take place in the building operations.

Mr. PLOMER: That is a very good question, because when you see a ship being designed, it is an experience in itself. For example, when the tanker was under discussion. I know it looked to be 85,000 tons in weight to carry 5,000 tons of oil. But I would say it was a mixture of the two; each branch or arm in

the navy wants to get its own staff in there, with the result there is continual rivalry about this. Then, I think as somebody changes his mind, sometimes something has to be moved.

The actual replacing by more modern equipment is much less in the navy than it is in the aircraft industry where they have to freeze the design completely and not allow anybody else to touch it. This is more a matter of changing of minds, alteration of requirements, or something like that. The development of naval weaponry is not done as rapidly as that.

Mr. SMITH: The central naval drawing office is situated in Montreal and it is in an area adjacent to one of the Canadian ship yards, Vickers, and I understand that the two staffs work very closely together. From your experience, do you think that this is a satisfactory situation, or do you think that the naval drawing office ought to be separated from a privately owned plant?

Mr. PLOMER: I have had but little experience in the Montreal area. Most of my experience has been in the dockyard. Having the drawing office next to the lead office—Vickers have been the lead office in the construction of ships—should, I suggest, lead to better cooperation, but whether it does or not, I am not qualified to answer.

Mr. BREWIN: My first question of Commodore Plomer is about a matter which probably may confirm what he has said about the lack of emphasis upon operational efficiency. A board of inquiry is a method widely used to look into complaints. Is that not correct?

Mr. PLOMER: Boards of inquiry usually follow some accident or loss of government property, by a grounding or something like that.

Mr. BREWIN: I wonder if I am rightly instructed when I say there is a very large number of boards of inquiry that have been concerned with such matters as the misuse of public funds and of small internal matters of that short, while very few were concerned with the problem of operational efficiency?

Mr. PLOMER: That is perfectly correct. If somebody hazards his ship, there is always a board of inquiry; for example, if he touches his propellor or something like that.

Mr. MACINNIS: Did you say "always"?

Mr. PLOMER: As far as I know, nobody has ever grounded a ship or touched bottom with his propellor in the last few years without there being a board of inquiry.

Mr. MACINNIS: What do you mean by "last few years"?

Mr. PLOMER: In my experience, probably in the last eight years.

Mr. MACINNIS: Where have you spent your service time in the last eight years? I am not fully aware of where you had your last eight years experience?

Mr. PLOMER: I have been Deputy Chief of Naval Personnel, Deputy Naval Comptroller, I have been employed at the Naval Defence College in London, and I have been commanding officer of H.M.C.S. *Cornwallis*, the training establishment.

Mr. MACINNIS: When were you at *Cornwallis*?

Mr. PLOMER: From 1952 to 1954.

Mr. BREWIN: The point I was trying to make is this: I understand that very few of the boards of inquiry have been concerned about the problem of operational efficiency.

Mr. PLOMER: That is entirely correct.

Mr. BREWIN: Does that indicate, perhaps, a lack of concern about that particular problem?

Mr. PLOMER: I agree with you 100 per cent. There have been cases—I am thinking of the *Crusader,* for instance—and I do not know of any board of inquiry held on that. I could give you quite a long list of mechanical failures in ships, and excessive deterioration of ships' hulls, and with respect to all these things I know of no board of inquiry at all.

Mr. BREWIN: That brings me to another question. You have spoken of the fact that the situation for trade represents the considered opinion of many officers, who are deeply concerned. You have dealt with officers at the higher level.

Mr. PLOMER: Yes.

Mr. BREWIN: Is it your view that, by and large, the officers below the higher ranks include many extremely competent high calibre officers in the navy?

Mr. PLOMER: I think that is so, but this is entirely a personal opinion. There is a very large number of lieutenant commanders who have no hope of promotion.

Mr. BREWIN: I wonder about lieutenant commanders of this calibre. What would be the method whereby, if they were dissatisfied with conditions, or agreed with you that they were bitterly disappointed in the way the affairs of the navy were being handled, they could bring their complaints and problems, let us say, to the department of defence or to the minister of defence so that these problems could be inquired into or looked into? Is there any channel of communication?

Mr. PLOMER: There is the official channel through which you can state a grievance, but of course, if you state a grievance you can rest assured you will stay a lieutenant commander for the rest of your life.

Mr. BREWIN: It has to go up through the navy board and might be suppressed at that level.

Mr. PLOMER: I would think so. When I was a deputy in personnel I had many lieutenant commanders come to see me. A lot of them—and when I say a lot, I mean probably a dozen—were resigning. One particular man who was an aviator and had the reputation of being very intelligent and had rather a dour personality said, "I am worried about my career". So I said, "I will do what I can, but I cannot do very much; what is the trouble?". He said, "For heaven's sake, do not make me a commander unless you are going to make me a captain. It means I can get out in the rank of lieutenant commander now at age 45, and get another job, but if I am made commander, I stay on until 50, and would never get another job."

Mr. BREWIN: I understand that complaining to your superior is disloyal and rather a serious offence, but is there any manner—you say there is poor morale and we have capable officers at the lower level—by which this can be brought to the attention of persons in authority other than the admirals and the naval board?

Mr. PLOMER: We did try this youth scheme and retrenchment, but you can see that as this thing goes on and gets worse, they feel it is hopeless and they lose heart, and after five or ten years—a lot of them do not give a darn.

Mr. BREWIN: In your report you have spoken of the diagnosis of the sickness.

Mr. PLOMER: Yes.

Mr. BREWIN: I want to put this very bluntly. What you say is that the basic sickness is poor leadership at the top. Is that right?

Mr. PLOMER: Yes.

Mr. BREWIN: Would I be wrong in suggesting that the only cure for that is surgery at the top?

Mr. PLOMER: I agree.

Mr. BREWIN: May I now ask you concerning a very much more detailed matter. I am interested in the question of the helicopters in the new general purpose frigates. Is there to be one or two?

Mr. PLOMER: One, so far as I know.

Mr. BREWIN: Is there adequate provision for the maintenance of helicopters? I am told there is a very serious problem in respect of maintenance and making sure they are serviceable when required for action, and that some of these small boats do not have the equipment, and so on, in order to continue their serviceability. Can you help me?

Mr. PLOMER: When I left the service we had only the old helicopters which were very old. I do know the maintenance people on them were very effective, and efficient. How they kept them going is not clear. These were the older ones. I cannot answer in respect of the newer ones. I do not know what the maintenance facilities are.

Mr. BREWIN: I would not ask you to tell us now who are the many other officers who are deeply concerned, but if there were an inquiry into this matter, you would be able to give the names of others who might be able to agree with or substantiate the position you have taken here. Is that correct?

Mr. PLOMER: I think I could. I would also suggest that it would be a very useful area of discussion to go into this with some of the retired officers who have left; and very able officers have left. I would not want to give names if it would mean reprisals against them.

Mr. WINCH: There are a great many questions one might ask. I will try to speak to two or three at the moment. Because of the importance of the submission, I would appreciate it if the commodore would qualify himself as a witness. Will the commodore, as briefly as he can but giving the necessary information, tell us of his length of service, his naval career, and where his main responsibility lay when he was chief naval officer afloat, and deputy comptroller.

Mr. PLOMER: I worked for 12 years in a chartered bank. I joined the naval reserve in 1932 in Winnipeg and served for two years. There was then a gap or two years until I joined the naval reserve at Saint John, New Brunswick. I was called up in 1939 and was aboard naval ships for eight months. I went overseas where I served in an armed yacht during the battle of Britain for about 16 months. I swept mines in the channel with minesweepers and trawlers. I was captain of H.M.C.S. *Sunflower,* a British corvette, and was involved in the longest and biggest submarine battle fought, called ONS 5. That is substantiated in naval books—the British naval history and the United States naval history. The group I served in was integrated with one of the highest scoring groups. It was not to my credit. It is to the credit of a very able leader, and senior officer of the group who is now, I think, fifth sea lord in the Royal Navy. I was attached to antisubmarine tactics at Londonderry for a short time with the British navy on loan. I came back and set up a tactical school which was already in existence, but which became a naval tactical school. After the war I became a first lieutenant of the *Warrior.* I set up a reserve fleet for about eight months. This involved conditioning of ships that had been laid off. After this, for two years I was commander of a dockyard and deputy superintendent. I was one of the three service representatives in Newfoundland after confederation. We did

not have very many ships. After 16 months there I attended the naval staff course at Greenwich in England. I came back and took over the *Cayuga* and then became C.O. of the *Cornwallis* for a year and two months. I attended the Imperial Defence college in London, which is rather like the National Defence college we have here with civilians, the three services, and people from all over the commonwealth. I came back as deputy chief of naval personnel, for two years was senior Canadian naval officer afloat, and one year as deputy comptroller. The responsibilities of the senior Canadian naval officer afloat are very ill-defined. My predecessor said the state of the fleet was none of his business, and when I looked at the terms of reference, I could not help but agree. I considered that I was being no more than a nuisance in my concern as to the state of the fleet.

Mr. WINCH: You do not mention your decorations, but I would like you to tell us about them.

Mr. PLOMER: The Order of the British Empire, which quite rightly means other people's efforts. The Distinguished Service Cross and a repeat on that—two Distinguished Service Crosses, and the American Legion of Merit.

Mr. WINCH: I note that you emphasized technical services. On the basis of that emphasis, would the commodore mind adding to what he gave us in his submission where he points out that the chief of naval technical services produced complete lists of the deficiencies. This was ignored. Would the commander add to this? He did state that this was just before the Cuban crisis, and said, "Any citizen could read these lists and conclude the fleet was not ready". Would you comment on that in view of the previous evidence that was given to this committee, that in the face of the Cuban crisis the Canadian fleet on the Atlantic was ready and went to sea.

Mr. PLOMER: I agree that it went to sea and it had ammunition on board. The great quality at sea is endurance. There were breakdowns and defects. The three inch 70 gun, which meant the forward part of the ship, was defenceless against air attack.

I think in the Cuban crisis you could have expected—

Mr. WINCH: If I may interrupt, Commodore, can you speak here of your own personal knowledge?

Mr. PLOMER: Yes. There might have been one gun working but not satisfactorily. As far as I am concerned, there were no guns working, that is when you have to leave them at sea and be sure they would continue working. In fact, they were not working. The state of the Tribal's mechanical deficiencies, breakdowns over these last two years—and this list of deficiencies is in naval headquarters—was such that there would have been ships coming back from sea in 24 hours, 36 hours, 48 hours, five days with breakdowns and mechanical troubles—and this is well substantiated by the list of defects they have been having.

Mr. WINCH: Which, you state were drawn to attention about two years before.

Mr. PLOMER: This was, oh, about six or seven weeks before the Cuban crisis.

Mr. WINCH: That is, drawn to the attention of the upper echelon?

Mr. PLOMER: Yes.

Mr. WINCH: I am interested in what you say further on, namely, that untried electronic or mechanical equipment should not be installed; do we in this committee gather from what you have said that untried electronic and mechanical equipment had been installed.

Mr. PLOMER: That is correct.

Mr. WINCH: Would you like to elaborate on that?

Mr. PLOMER: Well, the first one was the 3-70; that took six years to get working. From the time of installation until the time it started to work was a period of six years.

In the engine room there had been numerous things, like turbo blowers—I have not the defect list here but I could give them in respect of other ships studs on the steering gear which were defective on the St. Laurent and Restigouche class and the main shaft of the rudder slips because of this. However, they can go to sea. There was another serious defect in the evaporation, which did not work for a long time but they were beginning to get on top of it then. Of course, all this involved extra work to the engineering department, which was shorthanded in the first place in the matter of electronics technicians.

Also there was a good deal of trouble in the sonar sets. They were not delivering the performance they were supposed to do at this time and they had not been for some time; also they were not too well engineered.

Mr. WINCH: Would you at this moment elaborate on this business of the sonar because I think I am correct in saying we have been given to understand that it was because of the Canadian accomplishments on sonar we were asked to consider emphasizing the anti-submarine aspect. You say that that device, to your knowledge, has been defective, or is.

Mr. PLOMER: It has not been as fully effective as it should be. I do not want to spend the rest of my life in jail for revealing military secrets, but it was not working satisfactorily; it was not delivering the effectiveness it should by about 50 per cent. It was badly engineered from the maintenance point of view as well.

Mr. WINCH: Well, I do not want you to disclose secrets.

Mr. CHURCHILL: I would like to ask the Commodore a question with regard to submarines based on his recommendation that priority be given to the construction of submarines. What was the experience in the second world war with regard to the destruction of enemy submarines by allied submarines? Was it superior in effectiveness to the action taken by surface ships and air?

Mr. PLOMER: No. Very few were sunk by submarines, probably ten or twelve. The problem in antisubmarine warfare is a tactical one, I think the chief of naval staff touched on it the other day when he said the best place to catch submarines is where they want to get you. The question you ask brings up a good tactical point. If you try to defend a convoy with submarines and mix it with escorts the people in the friendly submarines are going to be unhappy and unfriendly because you do not ask questions before you attack. The biggest area of submarine destruction was the Bay of Biscay which was the approach the submarines had to use to get in and out of the various ports. This was, you might say, a submarine route which they could not evade. But, searching for submarines over the whole ocean is a waste of time. I would say your question is a fair one. In searching for submarines in narrow waters like the Denmark straits, up in the north, or in the Bay of Biscay, the anti-submarine submarine would be very effective. As well, the straits of Belle Isle would be an effective place for that to prevent them getting into the St. Lawrence itself, which they did in world war II. But, being around a convoy offer a big problem to everyone. If one uses surface ships you cannot use submarines. The best way to defend a convoy is to put helicopters on the merchant ships. I agree with your question, that to use submarines around a convoy, as you suggested, has not been solved yet.

Mr. CHURCHILL: I do not suggest using them with convoys but I wondered does your recommendation that priority be given to the construction of submarines depend on, if another war comes and convoys have to be escorted, the surface ship plus air continuing to be the best method of protection against submarines and not our own submarines. That was the whole point.

Mr. PLOMER: Well, the advantage of the submarine over the surface ship is that it does not need variable depth sonar, which is a pretty elaborate business and very costly. As well, it needs a smaller crew and it does not need anti-aircraft protection as it can stay under water. But I think, except for around a convoy—and around a convoy is only 50 per cent of your anti-submarine warfare, particularly if there is going to be any danger of missiles, the submarine has the weight in that respect, and we also have a surface fleet at the moment.

Mr. CHURCHILL: Then, in respect of the effectiveness of the present naval force, I think you suggested that at the time of the Cuban crisis the fleet was not in such a state that it could have sustained an operation at sea. Could you tell us what has been the result of the annual manoeuvres that are carried out in connection with NATO and the extensive cruises that are undertaken by ships of the Canadian navy? What is the record of breakdown in those two years?

Mr. PLOMER: I have some examples here that I quoted before which I can read to you. In the last exercise of our fleet in Bermuda before I left last winter to come to Ottawa, we had five breakdowns in one day, with about twenty ships present. Two of them were ships that had to return to harbour.

Around Bermuda where we took the fleet we had a continuous series of breakdowns in both Tribals and the new ships, with only one small repair ship to keep them going. The people in the repair ship deserve a lot of credit. For instance, the Tribals have a steering gear which was breaking down frequently, particularly in the coral approaches to Bermuda—which is not easy on the nerves of the commanding officer. I should make it clear that these did occur handy to Bermuda, where they could go for repairs; in the north Atlantic there are no repair stations or filling stations. This happened in calm weather; I would hate to see it in the North Atlantic in the winter.

Here are some extracts of one lot of ships I inspected:

> Paint in all the older ships so thick that in some we estimated there were more than thirty layers. Beneath much of this paint the rust was eating away the very fabric of the ship. In many the paint came off easily because of the thick rust underneath. In one ship there were stalactites of paint that hung down from a longitudinal frame; they must have been there for years, for removing them with a knife one could see all the different colours in the cross-section. Rocks and dirt even in the accommodation. I found a half empty bottle of smuggled rum in the mess deck behind the locker. It was thick with dust—surely the very pinnacle of slothfulness. Many of the bilges had not been touched for a long time.

That is a basic requirement because it is like the foundation of the ship.

> One ship arrived from refit with her funnel uptake in the main boiler room collapsed. The same ship had many anodes missing.

Anodes are the plates that you put on the ship's hull, underneath; they counter the electrolysis which eats away the metal. It took two messages to gain a conviction that this was urgent. And then they were flown down to meet the ship in Florida.

Feed pumps and other auxiliaries broke down frequently in all ships.

Steering gear failures I have already mentioned; and retaining studs have been overcome now.

Evaporators that did not evaporate.

These evaporators are for fresh water in the boiler rooms. This, I believe, has been corrected now, but for a good many years these things were still happening.

There were some older guns that suffered complete neglect. There was one ship which came to Long Point for her ordinance refit while I was deputy naval controller. The guns were completely rusted where they turned. The officer in charge there said on his report:

This is not as bad as some of the ships we have had up here.

I recommended at the time that there should be a board of inquiry, but none was held. This is not a case of bad office; it is a case of no standards.

There was one ship which came down from Halifax to fire her torpedoes but it was found that the tubes did not work. There had been complete indifference in assembling the tubes before she left Halifax. This made me angry because I had taken two ships and a submarine off an exercise so she could do a torpedo practice.

There is a saying that the cheapest part of a ship is the hull; it is just a lot of steel plates put together like walls of a house. This is fine; it is the cheapest part until you let it go, but then it becomes one of the most expensive things to repair.

Mr. CHURCHILL: Is there any record of the ships of allied navies suffering from similar troubles in those exercises? Perhaps this would be classified information.

Mr. PLOMER: Some of the Royal Navy ships certainly did in Korea, but since then with the very real resurgence of spirit in the Royal Navy they have caught up a lot on these things. As I said in my brief, Lord Mountbatten certainly made things hum there.

Ship maintenance has always been a subject of great interest to me. In the United States Navy the admiral in charge of the reconstruction programme for rebuilding and modernizing their ships in storage, the Fram 1 and Fram 2 programs, said that their ships that had considerable wartime service and were being rebuilt and modernized were found to have very little wrong in the fabric. They found even less than they expected. So, it can be done.

Mr. CHURCHILL: I have another question in respect of the frigates, and the helicopters. You suggested that the proposed general purpose frigates are too expensive, and you made a comparison with the United State's frigate at $22 million, but you qualified that by saying it was a slower ship than the proposed general purpose frigate. Then you said that if the gas turbine was installed, as was done in the United Kingdom, extra speed could be acquired. What would be the extra cost between the $22 million without the gas turbine, and the $40 million suggested for the general purpose frigate? Your comparison there is not sufficiently sound, is it?

Mr. PLOMER: Certainly I am sure it would not be any more expensive than the cruising turbine in the Restigouche and St. Laurent class that has not been used. I do not think the cost would be that much more. If a thing is built into the ship in the first place, it is not so expensive; if it is put in

afterwards it would be extremely costly. I agree this is a loose answer to a specific question; but the cost of the power plant in a ship is a very small proportion of the whole.

Mr. CHURCHILL: I have one final question in this regard. It is proposed that there be one helicopter with each one of the general purpose frigates. Could they be so built that they would accommodate more than one helicopter?

Mr. PLOMER: No. I do know that inside the service itself, the general purpose frigate is not a popular ship at all. As a personal opinion I would say that if you are going to go in for helicopters—you want one that is able to keep up with a convoy, and use your other ships which are in existence as surface ships. The other alternative is to put helicopters on merchant ships in the convoy which would be cheaper still.

Mr. LLOYD: I would like to follow up this matter of helicopters and merchant ships. You suggested that helicopters and merchant ships would be preferable.

Mr. SMITH: The witness suggested that.

Mr. LLOYD: I said "you suggested", and my remarks are directed to Commodore Plomer.

Mr. SMITH: If you would speak a little louder, we would know what you are saying.

The CHAIRMAN: The reporter cannot hear you at all and I am only barely able to hear you.

Mr. LLOYD: It is the usual difficulty, from which I do not suffer. It is usually the other way. I was criticized for speaking too loudly not long ago, and have tried to moderate the tone of my voice since.

Mr. Chairman, perhaps I should begin again?

The CHAIRMAN: Please do.

Mr. LLOYD: I shall commence again in a voice which will reach all corners of the room, for the benefit of the reporters.

Commodore Plomer, can you hear me, sir?

Mr. PLOMER: Yes.

Mr. LLOYD: Can all members of the committee hear me now?

The line of questioning that was directed to you by the previous member of this committee had to do with the use of helicopters on merchant ships. You indicated that you felt that helicopters on merchant ships would help to allow them to perform a more effective role than if they were perhaps operating just from the proposed general purpose frigates, is that correct?

Mr. PLOMER: I agree with that suggestion in any event.

Mr. LLOYD: This statement represents your opinion, does it?

Mr. PLOMER: The suggested use would provide large platforms to carry a greater number of helicopters.

Mr. LLOYD: What is the purpose of the helicopter in this type of operation? Is the helicopter confined to finding a submarine, or destroying it?

Mr. PLOMER: The helicopter does both of those things you have mentioned. The difficulty in hunting and killing submarines arises from the fact that even with the fastest surface ship in the world, when a submarine heads into a storm it cannot be caught by that surface ship. This situation was true during world war II and is more so than ever today. However, by the use of a helicopter in conjunction with a surface vessel, the helicopter can overtake the speed of the submarine.

Mr. LLOYD: Does the general purpose frigate carry any equipment with which it could destroy a submarine?

Mr. PLOMER: Oh, yes, the general purpose frigate is also an antisubmarine surface vessel. Perhaps we are trying to give it too many functions.

Mr. LLOYD: Would a helicopter on a merchant vessel in any way lessen the effectiveness of the general purpose frigate?

Mr. PLOMER: No, I think this would increase the effectiveness of the frigate, because the frigate would not have its hands tied worrying about sending out or bringing back helicopters.

Mr. LLOYD: Commodore, you described your career in the navy. I wonder whether I might go back and get this career by years, rather than by ranks. When did you join the service?

Mr. PLOMER: I was in the reserve in Winnipeg before the war in 1932.

Mr. LLOYD: And you continued with the reserve until what date?

Mr. PLOMER: Perhaps I can give you this information from this article appearing in *Maclean's* magazine. I joined the navy in 1932 when I was a bank clerk.

Mr. LLOYD: You said you had 12 years experience with the bank. In what capacity were you with the bank?

The CHAIRMAN: I think this question is entirely irrelevant to the subject we are discussing. We are concerned with the commodore's naval career, Mr. Lloyd, and I do not think it would be of any use to us to know that he was a bank manager, or of some other capacity in the bank.

Mr. LLOYD: Mr. Chairman, may I submit to you that in the report submitted to us the witness claims a capability in dealing with financial matters because he has cost consciousness derived from his experience as a banker, I am quite happy to be guided by your direction, and take it that he was a banker.

Mr. WINCH: The banks at one time were at sea, and perhaps that is the way this is tied together.

Mr. LLOYD: Where were you at the beginning of world war II, Commodore Plomer?

Mr. PLOMER: I was in Saint John, New Brunswick.

Mr. LLOYD: How long did you stay in Saint John, New Brunswick?

Mr. PLOMER: I went overseas in early 1940. I was called up in 1939.

Mr. LLOYD: You returned to Canada from overseas service at what time?

Mr. PLOMER: In 1944.

Mr. LLOYD: Where were you based at that time?

Mr. PLOMER: Halifax.

Mr. LLOYD: For how long were you based at Halifax?

Mr. PLOMER: I was there until just before the V-day riots in 1945.

Mr. LLOYD: I think we met on that occasion.

Mr. PLOMER: No, I was at sea during the V-day riots.

Mr. LLOYD: You and I have met often in Halifax, have we not?

Mr. PLOMER: Oh, we certainly have.

Mr. LLOYD: You then left Halifax, did you?

Mr. PLOMER: I left in 1945. I went over and became first lieutenant on the *Warrior*. This was before VE-day. I went overseas to take up my appointment as first lieutenant on the *Warrior*.

Mr. LLOYD: When did you return to Halifax?

Mr. PLOMER: I returned in 1946.

Mr. LLOYD: How long did you remain there?

Mr. PLOMER: Oh, for a long time, until confederation in Newfoundland.

Mr. LLOYD: What year was that?

Mr. PLOMER: 1949:

Mr. LLOYD: Have you been in Halifax since?

Mr. PLOMER: Yes.

Mr. LLOYD: For what period of time?

Mr. PLOMER: Two years, as senior Canadian officer afloat.

Mr. LLOYD: But for what years.

Mr. PLOMER: Oh, 1952 to 1954—wait a minute, 1959 to 1961, and I was at *Cornwallis* for two years, which brought me to Halifax a lot.

Mr. LLOYD: When was the last time you were in Halifax on naval service?

Mr. PLOMER: 1959.

Mr. LLOYD: Or was it 1961?

Mr. PLOMER: It would be 1961-62. I guess I would have to look it up.

Mr. LLOYD: Well, it would be around 1961 or 1962.

Mr. PLOMER: Yes.

Mr. MACINNIS: Where were you last year?

Mr. PLOMER: My pension leave expired in April and I packed up last fall.

Mr. MACINNIS: I just thought that if you knew where you were last year you should be able to backtrack from there.

Mr. LLOYD: So, you are knowledgeable about the conditions in Halifax?

Mr. PLOMER: Yes.

Mr. LLOYD: And you made, I believe, some reference to Halifax.

Mr. PLOMER: Yes.

Mr. LLOYD: I do not want to be parochial but I have to direct some questions to you on this matter because it has to do with the morale of personnel. You have made reference to public housing. Were your remarks confined to criticism of naval personnel?

Mr. PLOMER: Yes.

Mr. LLOYD: Were you aware that naval officers in Halifax had assisted the city and Central Mortgage and Housing Corporation in planning redevelopment schemes and rebuilding to provide housing and other activities for naval personnel in Halifax? Were you aware of that? You mentioned that no representations had been made, I believe.

Mr. PLOMER: I referred to representations made to the federal government for more housing.

Mr. LLOYD: You mentioned that here was a city far from prosperous.

Mr. PLOMER: Yes.

Mr. LLOYD: My purpose in asking this question, is to ascertain what, as a banker, your capability was for judging the prosperity or otherwise of a community?

Mr. WINCH: $14.40 minimum wage.

Mr. LLOYD: You say—and I quote:

> Here is a city far from prosperous. Here are sailors with a serious housing shortage. There is always a long waiting list for the big naval managed apartment blocks—not a successful form of housing—where

the alternative is high rentals for substandard accommodations. You cannot beat the laws of supply and demand. They have suffered this for years. And for years naval board has done nothing about it.

Were you aware that the naval officers in command of the base at Halifax made representations to local authorities and received cooperation?

Mr. PLOMER: Yes.

Mr. LLOYD: You admit that?

Mr. PLOMER: I do know that we had to, let us say, one, two, three, four, five years ago ask the command in Halifax if they wanted us to try to get funds for housing from Ottawa.

Mr. LLOYD: Well, from my own experience I do know that naval officers did make representations and I do know of the great efforts that were being made to improve housing accommodation in Halifax and I wanted to know if you, in fact, were particularly knowledgeable about the conditions or whether you had drawn your comments from previous instances.

Mr. PLOMER: I am merely stating there that the naval board did not ask the federal government for funds for housing in any form over that period.

What has gone on at Halifax is very fine, very much needed and very commendable. I only restricted myself to that particular area.

The CHAIRMAN: Have you a question, Mr. Deachman?

Mr. DEACHMAN: I pass.

Mr. MACLEAN: I would like to ask one question. You mentioned untried electronic and mechanical equipment.

The CHAIRMAN: I am sorry but I recognized Mr. Deachman.

Mr. DEACHMAN: I passed.

Mr. FAIRWEATHER: I would like to go back for a minute to the area of surgery of which my friend has spoken. You were Deputy Chief of Naval Personnel.

Mr. PLOMER: Yes.

Mr. FAIRWEATHER: Therefore this would give you an excellent opportunity to view the lesser commands, the lesser ranks. If drastic surgery were to take place in your opinion is there any nucleus of qualified people to move up, to be promoted?

Mr. PLOMER: I think so, but it would have to be done very carefully. Let us say that I believe so.

Mr. FAIRWEATHER: What is the basis of promotion that is beyond captain's stage? What happens when you get to be a captain? How do you become a commodore? That is what I mean.

Mr. PLOMER: Frankly I am still bewildered. Let us say though, that I know one officer at sea who was in a very responsible position, and who was a very charming fellow, an honest, kind and likeable "guy". But I had to give his ship one of the worst inspection reports that it was ever my unfortunate duty to do. Then I had another one, who had a very good ship. He was a very effective officer professionally. Now, one of them was promoted while the other was not. You can guess which one it was. And I am still wondering about it myself. I think it was a shame, but this is what I mean by standards.

Mr. FAIRWEATHER: The other area is in connection with the naval board itself. What civilian control or liaison lies with the minister himself? What is the makeup of the naval board?

Mr. PLOMER: The naval board consists of the Chief of Naval Staff, the Vice Chief of Naval Staff, the Chief of Naval Personnel, the Chief of Naval Technical Service, the Naval Comptroller, and there is also a secretary.

Mr. FAIRWEATHER: Are there any civilians?

Mr. PLOMER: No, none at all. No one sits on the naval board but "naval board"; there is no government representative, and there is no outside representative at all. And on top of that, only the Chief of Naval Staff is responsible to the government, and he delegates authority to the board members as he wishes.

Mr. FAIRWEATHER: Would the Chief of Naval Staff have to go through the deputy minister?

Mr. PLOMER: It would depend on the subject.

Mr. FAIRWEATHER: Do you think that the naval board would be strengthened by the addition of civilians?

Mr. PLOMER: I firmly do. I will probably be howled down after saying so.

Mr. FAIRWEATHER: I believe you would, but I hoped you would say so.

Mr. PLOMER: My firm opinion is that a large area of the navy is what I call purely professional naval requirements, which, in my opinion, we do not promote too effectively. There is a larger area necessary to keep these ships at sea, which requires industrial experience, managerial experience, knowledge of the growing sciences in all these fields or arts, if I may call them that, and I sincerely believe that somebody of the calibre of Mr. Crump, of the Canadian Pacific Railway,—that sort of person—would put this thing on the rails in no time.

Mr. WINCH: How about Donald Gordon? He will be available in a year-and-a-half?

The CHAIRMAN: Have you any more questions, Mr. Fairweather?

Mr. FAIRWEATHER: You describe yourself as a nuisance. Who is carrying on this activity now?

Mr. PLOMER: You see a lot of naval officers here today. I hope they are doing their bit.

Mr. LLOYD: Are you writing a history of the Canadian navy?

Mr. PLOMER: No.

Mr. GRANGER: Mr. Chairman, with respect to maintenance, and ships being described as not being ship shape, is that due, at least in part, to a lack of, say, docking facilities, machinery, equipment and personnel? Is this directly tied in with what has been described as "in need of surgery"?

Mr. PLOMER: In a way, yes, because the answer I have always been given is that this is not the direct responsibility of the chief of naval staff. It is the responsibility of the flag officer on the coast, and in each case they envinced no interest on more than one occasion although I have written my reports on the state of the fleet.

Mr. GRANGER: But you would suggest, if I am not putting words into your mouth, that there is a lack of necessary equipment and personnel to keep ships in proper condition?

Mr. PLOMER: There are tons of people, they are falling over each other in ships, but there is still a lack of skilled people, a lack of organization and a lack of direction. As I said, the dockyard has got too much work to cope with, but more work should be done on the ships by the ship's staff themselves, and the time should be allotted and supervision given. The organization of the ships should be such that they can do this work and that the incentive be there.

Mr. GRANGER: Do I understand that the general purpose frigate cannot be modified to carry more than one helicopter?

Mr. PLOMER: I would not think so. They have crowded it so as to get it on.

Mr. GRANGER: With respect to gas turbines, do they have to carry a separate kind of fuel for their operation and would this reduce the capacity of the ship for carrying regular fuel for regular engines and thus reduce its range?

Mr. PLOMER: I think not because they are burning the equivalent of a bunker in gas turbines in the United States today. It depends on the type of turbine.

Mr. GRANGER: But there are types of turbines which can use what are described as regular ship's fuel.

The CHAIRMAN: I want to ask the members a question. It is now 12:30 and I have three members on my list who wish to ask questions. If there are to be further members who wish to ask questions then I would propose that we adjourn until this afternoon. Which do you prefer? Are there any other members who wish to ask questions? As there are I therefore propose that this committee reassemble, at 3:30 or after Orders of the Day, here in this room.

AFTERNOON SITTING

The CHAIRMAN: Gentlemen, we now have a quorum and we will proceed with the questioning of Commodore Plomer. Mr. Patterson?

Mr. PATTERSON: Mr. Chairman, I just have two or three brief questions that I would like to submit to Commodore Plomer. The first is founded on a statement on the second page of the brief. A reference is made to the fact that a great many breakdowns have occurred as far as the ships of the Royal Canadian Navy are concerned. I would like to ask this question: Who has the immediate responsibility for seeing to it that the vessels are maintained in an adequate state of repair?

Mr. PLOMER: This is part of the trouble, I think. The terms of reference are not sufficiently clear on it. Theoretically, the technical services are responsible for the state of the fleet, but obviously the captain of a ship is the person who should be directly responsible.

Some time ago it seemed to be the philosophy of the navy that technical services would look after the state of the fleet, but this is quite impossible. The hull, for instance, in this philosophy, became part of the engine room responsibility; but obviously the executive officer, who is everywhere but in the engine room, should have the responsibility.

Mr. PATTERSON: You state here that it is possibly because of the shortage of qualified personnel. Would that cast a reflection on the men or would it be on the commanding officer of the vessel? Just where would the responsibility lie for the lack of qualified personnel?

Mr. PLOMER: This would depend on which area one is discussing. The fabric of the hull is purely a matter of ships' organization, and as I pointed out this morning, the proper direction from above is necessary and standards have to be established. As I pointed out, there have been no courts of inquiry on serious deficiencies in a ship, such as a ship being badly run-down in the matter of hull and that kind of maintenance. In the engine room it is very noticeable that there is a great shortage of E.R.A.'s. These are very skilled people. I pointed out that in the merchant ships and the Department of Transport ships these are officers. In navies since time eternal engine room officers have been chief petty officers. These are very key men and there is a shortage of them. When there is

a shortage it means you take someone from a lower trade group to substitute for a higher trade group. Then there is a very definite complaint that I have heard from them while going around ships. They are in short numbers and therefore go to sea all the time. One man who came to me had been to sea for ten years continuously. So the problem is twofold; it is caused by shortages in the higher skills and a certain drop in morale because changes are never made.

Mr. PATTERSON: Another question is based on a later part of your brief. You stated that the present state of these ships is not satisfactory, and you refer to the *Iroquois* steaming around for years with one boiler out of commission. There are also two others that have burned-out boilers. Do these conditions still exist on those vessels?

Mr. PLOMER: As far as I know, yes; which means they have only two boilers instead of three.

Mr. PATTERSON: Then further down there is a reference to turbines. Referring to the eighteen new destroyer escorts and so on, you say that "unfortunately these virtues have been marred by an excessive number of defects", and so on. Then you say:

> Another unfortunate error has been the fitting of cruising turbines, costly pieces of machinery in both the St. Laurent and Restigouche classes to save fuel and extend their range. Never used, they are now being removed from the St. Laurent's during their rebuilding—at further expense.

Now why are they being removed?

Mr. PLOMER: Because they are not used, I assume.

Mr. PATTERSON: If it saves fuel and extends their range, would that not be necessary, especially in times of war?

Mr. PLOMER: I think the main objection to them is that it takes quite a time to uncouple and couple them up again. You have to disconnect the main turbines and connect the cruising turbines. When I asked questions, that was the answer I was given on the ships. As far as I know they worked all right; it was just a case of their not being used.

Mr. PATTERSON: But they do not consider the saving of fuel and the extended range worth maintaining?

Mr. PLOMER: I assume that must be the reason. Anyway, they are coming out, I am told.

Mr. PATTERSON: One other question, Mr. Chairman. In connection with the flimsies to which you referred on the confidential report which was signed by Admiral Pullen's successor, Rear Admiral Dyer, stating:

> This in spite of an organization in support of the fleet which has been inadequate.

Would this constitute a confirmation of the criticisms which form the basis of your analysis of the conditions now existing in the navy?

Mr. PLOMER: I thought so when I got it.

Mr. PATTERSON: Do you still think so?

Mr. PLOMER: I still think a lack of support is there. To what extent it was a confirmation I do not know.

The CHAIRMAN: Mr. Hahn?

Mr. HAHN: Commodore, you have indicated a number of problems in the navy. You have indicated that drastic surgery at the top is necessary to clear up the situation and that in the future we have to bring the right men to the

top. I would like to look at that area for a minute. On page 10 you cite the case of promotion standards that have dropped over 30 of 39 commanders to that rank not qualified or suitable for command.

Mr. PLOMER: That was about five years ago. I was giving that as an example.

Mr. HAHN: Right. You also state that the United States Navy and the Royal Navy have found a method of providing for suitable promotions. I wonder if you could tell us briefly how promotions are made in the Canadian Navy and how that compares with the American practice?

Mr. PLOMER: The Americans, I think, have a very good system. There is what is called a desk in their bureau of personnel and every officer can write to his desk in the personnel department and ask what is the matter, what is happening, what are his prospects. Furthermore, the Americans have a very good system, which is open and above-board, of every officer being able to see his own assessments. He knows what people think about him. It has the handicap that when you know an officer is going to read what you say you are apt to say nicer things than you would otherwise. This is a factor that comes into it, but the Americans seem well satisfied with the way it has worked out. They work by an index and they work on a law of averages, and if the average of someone works out higher or lower than others, this is applied. So if you say a man is very good it means he is pretty fair and if you say he is excellent, he is tops; it works that way. But it has this very important point, that people know what is being said about them. In the course of many letters I have received from writing this article this was one of the points about which many officers out of the navy who wrote to me felt very strongly.

Mr. HAHN: Are officers weeded out or removed at early stages in their career if apparently they are not going to be good officers, and probably will not reach senior rank?

Mr. PLOMER: No. Once you are promoted, that is it. I think you could find from naval records that there have been no cases of demotion and the number of officers asked to retire has been minute, probably not more than five in the last ten years, except for cases of a court martial when someone has been asked for his resignation.

Mr. HAHN: In the Canadian Navy are officers promoted on a time basis? In other words, are they promoted after a certain period of time in a rank? Is the promotion automatic into the next rank?

Mr. PLOMER: You come into a zone after which you can be promoted, and I would say the general tenor of it is that if you do not do anything excessively bad the chances are that you should be promoted. That I would describe as the philosophy of it, but it has been very inconsistent. The point I am complaining about is that the qualification of an executive officer basically—and I could quote Arleigh Burke again—is that he must be able to command a ship effectively at sea. This is like a technical officer or an engineering officer. For example, an engineering officer must be a good engineer and an electrical officer must be a good electrical engineer. If he does not have this good qualification he will not be a good staff officer ashore because I think his judgment will be questioned by others, or compromised.

Mr. HAHN: The rank above obviously contains fewer people than the rank immediately below. What process is followed in the Canadian Navy to select, let us say, those commanders who are going to go up to the next rank of captain? Who decides which ones go up and which ones stay where they are?

Mr. PLOMER: It starts off with a preliminary promotion board which would consist of the deputy chief of naval personnel, the director of officer

personnel—who makes the appointment—and the chief of naval personnel approves them. Then it passes to another board, and it ends up with the naval board and chief of naval staff. I could say quite often that when a list went in at one end, there were quite surprising changes in it when it reached the top to us.

Mr. HAHN: In this process would you say that the club operation was working.

Mr. PLOMER: I have something here which I produced before I left the service. I offered it to the chief of naval staff at the time and he refused to see it. But there are no military secrets involved in the matter. This is a list of all the executive officers and technical officers of all ranks, with their ages, and it is dated as of March 15, 1962, with their origin, whether it be "aryan" or "negro". If the Chairman would like to use this, I could make it available to any of the members of the committee who are interested in seeing it.

Mr. HAHN: Might we have it tabled as part of the record?

The CHAIRMAN: Well, we could have it filed and the members of the committee could have a look at it.

Mr. PLOMER: I think that is the best way to answer your question.

Mr. HAHN: Fine. Thank you.

The CHAIRMAN: If you are finished, Mr. Hahn, now Mr. MacInnis has the floor.

Mr. MACINNIS: I must admit that I arrived late this morning and did not hear the presentation in full. But I am very much interested in a remark that the Commodore made shortly after I came in, in respect to boards of inquiry, when he made the flat statement that if there were a hull scraped, a board of inquiry wa set up immediately.

Mr. PLOMER: That is correct. A board of inquiry is a preliminary to a court martial. You cannot have a court martial without first having a board of inquiry.

Mr. MACINNIS: You say this is always the case; then you went on later to speak of another board of inquiry which you had recommended.

Mr. PLOMER: Yes.

Mr. MACINNIS: But it was never carried through. What procedure is available to have something done about a recommendation you make in respect of such matter? I am not talking of this moment, but of the time when you were on active service. What procedure would be available to you to follow-up on your recommendation for a board of inquiry, especially in the light of particular recommendations which you had made having to do with the maintenance and repair of equipment on board ships which were not up to scratch? You talk about guns not working.

Mr. PLOMER: That is right. On this particular one it is written in at the bottom of the document concerning a ship called the *Nootka*. I recommended it as the deputy comptroller yet nothing happened.

Mr. MACINNIS: When you make these requests for a board of inquiry you make them to your senior officer?

Mr. PLOMER: This was written as a minute on a report.

Mr. MACINNIS: And this report goes to the senior officer with whom you are associated, or where does it go?

Mr. PLOMER: It circulates around headquarters, and this takes time.

Mr. MACINNIS: You say it takes time. It must be directed to one particular person. I would not assume that you, as an officer, would be directing any requests for boards of inquiry down.

Mr. PLOMER: No, I would not do that, but I can only recommend.

Mr. MACINNIS: When such a recommendation is not carried out, is there no channel of communication for you to carry it on to higher authority?

Mr. PLOMER: That went around through higher authorities.

Mr. MACINNIS: To whom did you direct it?

Mr. PLOMER: This was required. I cannot remember to whom it was directed, but this would go through quite a few departments.

Mr. MACINNIS: There is no recourse in the event that this board is not set up?

Mr. PLOMER: No, because this has happened very often, with hundreds and hundreds of such cases of negligence with no board of inquiry at all.

Mr. MACINNIS: This brings me back to your statement this morning when you said that there would definitely be a board of inquiry which a ship captain or commander might invoke himself. Does not the same thing happen in the event of a smashed dock, or the scraping of a propellor, or a running on the rocks, or the shooting up of Americans on the other side? Is there such a case where a board of inquiry has not been set up?

Mr. PLOMER: I know that officers have boards of inquiry or court martials every time they hazard a ship—or pretty nearly every time; that is if they run aground.

Mr. MACINNIS: You have answered my question, and I do not need any further explanation of it. You have answered it in the statement you just made, "or pretty nearly every time". This morning you were definite in your answer but now you say "pretty nearly".

Mr. PLOMER: I was thinking of one instance. Let me explain it this way: my complaint is that I know officers have had boards of inquiry, yet a board of inquiry is not a court of law. On the other hand, a court martial is a court of law. But a board of inquiry is followed by a court martial with very few exceptions. Every time a commanding officer hazards his ship, for instance, or touches bottom with his propellor, or goes aground, or anything like that. Only until recently they held boards of inquiry into negligence into the maintenance of a ship, or about machinery which has been carelessly treated. Do I make myself clear?

Mr. MACINNIS: Yes, that is quite clear.

Mr. PLOMER: And this is one of the reasons why the fleet has not been kept in good shape, because these standards have not been enforced.

Mr. MACINNIS: I have one more question, and it concerns the promotion board for promoting officers. It necessarily follows that there must be the matter of rank established in order for them to get their rank.

Mr. PLOMER: That is right.

Mr. MACINNIS: Have you in your experience had an opportunity to sit on these promotion boards.

Mr. PLOMER: I sat on all the preliminary boards, or nearly all of them, for four years.

Mr. MACINNIS: You say you sat on all the preliminary boards?

Mr. PLOMER: Yes, that is the beginning.

Mr. MACINNIS: What does "preliminary board" mean?

Mr. PLOMER: This is the first process in selecting people for promotion.

Mr. MACINNIS: This is in the lower echelon?

Mr. PLOMER: This is the rock bottom. You would have—I forget the figures —something like 15 or 20, according to what was asked, to decide upon candidates for promotion out of, let us say, 5 to 10 vacancies, depending on what was laid down.

Mr. MACINNIS: What would you say the average worked out to be on the recommendations which you handled?

Mr. PLOMER: I would have to draw the figures out of the air if I did so, but some years it was good while in other years we were very disappointed.

The CHAIRMAN: Now, Mr. Winch.

Mr. WINCH: Mr. Chairman, during the recess I read this brief twice in the hope of being able to condense my questions. I find I have six which I would like to ask, and I have documented them in type so that I might put them briefly. I note that in the brief presented this morning by Commodore Plomer, he stated that his contentions in some aspects could be proven true if certain documentation were produced. I would therefore ask the witness, if in his reference to certain navy board minutes and various reports on deficiences, he considers that these could be made available to our committee without breaking security provisions and information? I refer to the navy board minutes and reports which he mentioned in his brief.

Mr. PLOMER: I think it could be done if items of security were removed from these minutes, because there is only a very small percentage of them. I have just read through one of them to be sure.

Mr. WINCH: I would like to ask the commodore this question: in his brief he suggested that his 1960 and 1962 reports, as senior Canadian officer afloat (Atlantic), would be of interest to this committee, "if they should become available to us".

I would like to ask the commodore would he be good enough to inform the committee whether he thinks these could be made available to the committee without breaking security?

Mr. PLOMER: I think they could. I see only two items that should be removed on a security basis in this particular one. I am not sure I have the right years.

Mr. WINCH: In your brief you mention your 1960 and 1962 reports as senior naval officer afloat, Atlantic.

Mr. PLOMER: I have one here dated September 15, 1961. I know where they are and I can stipulate them.

Mr. WINCH: You think that with very slight removal they could be made available?

Mr. PLOMER: I do.

Mr. WINCH: The commodore stated in his brief:

> That effective anti-aircraft defence be given to the fleet.

I interpret this statement to mean that the Royal Canadian Navy does not have adequate air defence in the opinion of the commodore. Will he elaborate wherein the deficiency lies?

Mr. PLOMER: I will be glad to. In world war II there was what was called stand-off bombing and glider bombs. Several ships were badly damaged or sunk by these. This was a radio-controlled glider bomb. I know R.C.N. ships had meetings with these. It is purely a matter of being able to fight back at something that can stand off and bomb you. Quite obviously, if they could stand off at considerable range in world war II, I think it is very

logical to conclude that they can now stand off two or three times as far to do the same thing, and could be out of range of the present gun armament that we possess.

Mr. WINCH: Do you mean that the equipment our present ships are supplied with has not kept pace with the attack weapons?

Mr. PLOMER: This is correct. This brings up a very complicated subject of surface to air guided missiles. The missile, of course, has outgrown the gun, and you have aircraft using missiles and ships using guns.

Mr. WINCH: That leads to my next question. This is something which, I must admit, rather confused me. I would like the commodore to explain his statement wherein he says:

> Guided missiles surface-to-air are costly. The cheaper ones may not yet have achieved an adequate reliability. Until then the cheapest guns should be used.

I found that statement very confusing. Will the commodore explain these two statements wherein he says:

> The cheaper ones may not yet have achieved an adequate reliability.

And then:

> Until then the cheapest guns should be used.

Mr. PLOMER: The three inch 70, I believe, cost $1,300,000 for mounting. That is the last gun we fitted, and it took some five or six years to make it work. I think this is poor economy. A cheaper gun would have worked much sooner, and—

Mr. WINCH: Would you name the gun which would have worked much sooner?

Mr. PLOMER: I think it is the five inch 54 which is the gun they propose to put in the general purpose frigate.

Mr. WINCH: How long has it been available?

Mr. PLOMER: It came out before the three inch 70, I believe.

Mr. WINCH: I promised I would not hold this up, Mr. Chairman. I have two more questions.

In his brief the commodore stated:

> For over two years a work-study group, specially trained sat in Halifax and were not allowed to go aboard the ships.

I would like to ask the chairman if the commodore will explain to this committee who authorized this group to be in Halifax for two years, and why they were not permitted to fulfil their duties by boarding ships. Can he also indicate who refused them the opportunity?

Mr. PLOMER: That was at the command level. Who deliberately stopped it, I do not know; it was between the admiral and the chief of staff. I know they did not go aboard the ships, and I know that the officer responsible was an engineer and he never had an opportunity to brief the admiral on what he was supposed to be trying to do.

Mr. WINCH: Do you know what these men were doing in the two years they were in Halifax?

Mr. PLOMER: I think they occupied themselves in other things around the harbour. I do know they were frustrated people, and that they were not used to their full capacity.

Mr. WINCH: Were they used for the purpose they were sent there?

Mr. PLOMER: Not in my opinion; the ships were in the places they were needed most.

Mr. WINCH: I rather hesitate to ask this question, but I feel I must because I do not want to hold the others up, or have to come back. I draw the attention of the commodore to the last paragraph of his brief where he is asking this committee to consider a personal request relative to himself. I would like to ask the commodore whom he considers "an independent person of proper qualification" to investigate the circumstances surrounding his own departure from the Royal Canadian Navy, all of which the commodore maintains is documented.

Mr. PLOMER: I would say 98 per cent documentation. Some justice or judge, or somebody of legal standing would be perfectly acceptable to me. I would like to make it quite clear that I have no ambitions or intentions to return to the navy. I feel once one takes this step it is finished; but I do feel it is a matter of my own personal reputation, and it would also be for the sake of other officers who I know have had it as tough as or tougher than I have had it.

Mr. WINCH: You feel that an unbiased investigation of your own case will, perhaps, assist the morale of the navy?

Mr. PLOMER: Yes.

Mr. WINCH: I am sorry I have had to raise this personal question.

Mr. PLOMER: I only raised this because, although the personal issue is not quite proper in this, inevitably one involved the other. I feel this would serve a very useful illustration of what I have contended.

Mr. MCMILLAN: Mr. Chairman, I have listened, and without going into details I wonder if I could assume from this brief that the commodore would give top priority to a marked change or shake up in the commond to make for a better navy.

Mr. PLOMER: I do, because I believe the wrong values have become accepted as normal. I think it needs a very vigorous reorientation of thinking in order to get rid of a sense of values that should have been abandoned some time ago.

Mr. MCMILLAN: Before lunch there was mention of defects in the equipment on the *Bonaventure*.

Mr. PLOMER: Yes.

Mr. MCMILLAN: And also on another ship, I believe, it was mentioned that only one gun was firing?

Mr. PLOMER: Yes, sir.

Mr. MCMILLAN: And there was also mention about rusty equipment?

Mr. PLOMER: Yes.

Mr. MCMILLAN: How much of that is due to inferior equipment supplied, and how much is due to the crew?

Mr. PLOMER: I would say from personal experience that this varies. There is certainly a wide area. It can be directly laid down to the wrong equipment; there is no doubt about that. I have noticed, however, that where there is a poor commanding officer, or perhaps a poorly qualified squadron commander—because they have had squadron commanders enjoying their first command—you will find degeneration of the ship.

Mr. MCMILLAN: By commanding officer, whom do you mean?

Mr. PLOMER: The captain of the ship.

Mr. MCMILLAN: Of course, he is responsible all the way through?

Mr. PLOMER: This is my contention; that is, that the chain does not follow in the organization.

Mr. MCMILLAN: In other words, commodore, what is the use of the government supplying new ships if, in your opinion, the crews and the others do not look after their ships?

Mr. PLOMER: That is correct.

Mr. MCMILLAN: Is that your opinion?

Mr. PLOMER: That is my opinion.

Mr. WINCH: I wonder if Mr. McMillan would mind if I interrupted for a moment to inquire as to the difference in the responsibility of a commander of a ship and the executive officer.

Mr. PLOMER: The captain of the ship is the supreme man in that ship. The executive officer is the next man down in the line of the executive branch, and he is responsible for gunnery, cleaning the ship, organization of the ship and all these things.

Mr. WINCH: That is what I wanted to clear up. Then, basically, the executive officer would be the one to report to the captain if he was not satisfied with the organization and maintenance of the ship.

Mr. PLOMER: That is correct.

Mr. WINCH: And, also, whether or not it is in good shape.

Mr. PLOMER: Yes. He is the key man. But, the engineering officer can go directly to the captain, and very often does.

Mr. MCMILLAN: You said something later on about our air arm not being sufficient, I think you said.

Mr. PLOMER: No; I said it was efficient.

Mr. MCMILLAN: I also note that you say here that you can omit naval aviation, that it is as good as or better than that of any other country.

Mr. PLOMER: Yes.

Mr. MCMILLAN: Then how do you square these two things?

Mr. PLOMER: I have left naval aviation out because it is very good. The major part of it is flying, of which I did quite a lot, and I found their procedures in the air were good; the standard of pilots was good and the standard of maintenance was excellent. It is something to be proud of. May I point out that naval aviation really started from scratch after the war. It started off with inferior aircraft; they overcame a great deal of difficulties in order to get where they are today, and they deserve a lot of credit.

Mr. MCMILLAN: In your opinion, commodore, can the present command be changed enough in order to bring about the desired change that you have suggested?

Mr. PLOMER: The director of naval organization is leaving the navy in December. He put up proposal after proposal after proposal and he knows much more about it than I do. I supported him as far as I could and I think it is a pity that his advice was not taken three or four years ago.

Mr. LLOYD: Mr. Chairman, I would like to direct some questions to the witness in respect of this matter of organization which we were just discussing. I am not sure of the page but it is the 6th page from the back. You state:

> After I left for Halifax it was suppressed without reason.

and, in this connection, you were referring to the plan passing the tri-service, personnel member's committee without objection. This is a scheme of organization which had in mind, no doubt, a different method of promotion and service selection, is that correct?

Mr. PLOMER: This actually was an adapted copy of what the American Navy and the Royal Navy had been doing. It was a planned retrenchment to try and get the more effective lieutenant commanders up and give them a career.

Mr. LLOYD: Then you go on to say:

> Instead officers without proper professional qualifications continue to be promoted.

Mr. PLOMER: Yes.

Mr. LLOYD: What type of professional qualifications are you referring to? Would you elaborate on that.

Mr. PLOMER: Yes, sufficient qualifications which in my opinion, would fit him for the position of an executive branch officer at sea plus, as Admiral Burke said, the other qualities, which are in my brief. There are also qualifications of leadership, and questionable promotions of people who are unable to command ships or have not commanded ships at all. There are many areas in this. If required further I could go into detail in that connection.

Mr. LLOYD: This really is a serious declaration.

Mr. PLOMER: I agree.

Mr. LLOYD: It is serious because it points right to the qualifications of our senior naval officers.

Mr. PLOMER: Yes.

Mr. LLOYD: Then you go on to say:

> Let me at this stage re-emphasize this lack of ethics and integrity at the top.

Mr. PLOMER: Yes.

Mr. LLOYD: Would you like to enlarge on that and give us a specific statement in which way there is a lack of ethics and a lack of integrity?

Mr. PLOMER: Yes. You see, if you took this as a quantity problem, I could give you examples. I know two swallows do not make a summer but I can give you example after example after example. How do you wish me to do this? It is not my wish to keep you all afternoon.

Mr. LLOYD: Perhaps I can help you. You go on to say:

> For I can give you case after case not only of stupid decisions but dishonest ones.

Would you give us some illustrations of not only stupid decisions but dishonest ones.

Mr. PLOMER: Yes. The reason I am hestitating about this is that it involves people and names and if I describe the circumstances to you, even if I do not give their names, everyone in the room can find out. As I have said, I can give case after case and I am willing to do so, but it is a delicate business when you are involving other people. Now, if the Chairman will delegate any proportion of this committee I will sit before them and go through all these cases, one after the other.

Mr. LLOYD: Well, you have a much better capability than I to express your thoughts, as indicated in this brief.

Mr. PLOMER: That is very kind.

Mr. LLOYD: And I am unable to understand why you cannot describe the kind of stupid or dishonest decisions without giving the names.

Mr. PLOMER: I am perfectly prepared to do this. As I say, I could give you plenty of cases. However, I refuse to do this unless and until it is decided by the Chairman under what circumstances this could be done. I think it would be most unfair. I have said in my article there were admirals who failed at sea in operation and I can substantiate that. However, I do not blame them for their faults but the people who put them there. This is a humane business and I am not here to destroy characters. However, I will prove this under more confidential conditions. I think it is a matter of ethics, is it not?

Mr. LLOYD: I was going to ask you that. Do you think it is the right thing to do to make a general statement of lack of ethics and integrity at the top and not give case after case of stupid and dishonest decisions? You are putting a cloud over the reputation of every officer in the higher group or category.

Mr. PLOMER: Not only that but many more.

Mr. MACINNIS: Are you trying to say, commodore, that promotions of incompetent people are very evident?

Mr. PLOMER: Yes.

Mr. MACINNIS: And to put it the other way, is it a matter of not what you know but who you know? Is that what you are saying.

Mr. PLOMER: No.

Mr. MACINNIS: Is this the type of dishonesty to which you refer?

Mr. PLOMER: Yes, and I could give parallels of individual officers in which there seems to be evidence of some vindictiveness. I am only too willing to do this. Although I think I should, I must refuse to make a public statement about individuals who are quickly identified.

I am only too willing to do so but I think I should refuse to make public statements about individuals who would be clearly identifiable. I will be glad to appear before a group of this committee of any number that is required to give such evidence. I am sure I can prove these statements to your satisfaction.

Mr. WINCH: Would it be agreeable if we refer this question to the steering committee?

Mr. LLOYD: I have no objection to that.

Mr. WINCH: I can understand the witness' reluctance.

The CHAIRMAN: Gentlemen, would you kindly speak one at a time.

Mr. LLOYD: Mr. Chairman, I shall finish my questioning in a moment.

I can understand the witness' concern in this regard, but when I come to the last part where he requests that the whole circumstances surrounding his departure from the navy be investigated by an independent person, it seems to me that if such an investigation was undertaken the commodore would be prepared to go into more particulars and details in regard to these statements he has made.

Mr. PLOMER: Yes. Incidentally, in what I have documented there you will find several instances in this regard.

Mr. LLOYD: I find it difficult to follow that which you have referred to as documentation.

Mr. PLOMER: The documents referred to give several instances of what I have stated. I hope you will appreciate, Mr. Lloyd that this is not a pleasant business. If this is going to be thoroughly investigated it must be analyzed completely and I think for the sake of the feelings of individual people I would rather do this under more confidential circumstances.

Mr. LLOYD: Mr. Chairman, I am quite prepared to defer the further questioning of this witness along these lines until the steering committee has come to some conclusion in this regard.

Mr. WINCH: Would you move a motion to that effect?

Mr. SMITH: Mr. Chairman, I should like to say something at this moment on a point of order.

Regardless of what appears in the commodore's statement I think the committee should realize that the mere fact that something appears in the statement does not make it part of the terms of reference of this committee. We must be very careful in this committee in discussing personnel with the witness in so far as the personnel might effect the flow of command or policies of the navy. This committee was not set up to determine the rights and wrongs that may or may not have been done in respect of certain individuals, and I would just like to make that quite clear, before the steering committee becomes seized with this problem.

Mr. WINCH: Mr. Chairman, I would just like to ask, with all due respect, if we are going to consider the policies and efficiency of the navy, how in the name of heaven are we going to do so if we do not at the same time look into the personnel, promotions and efficiency of their operations? Surely such a study would form part of our duties, so long as we do not do it on an individual or personal basis.

The CHAIRMAN: Gentlemen, perhaps you would accept the suggestion that I take this problem under advisement and let you know at some later date what we can do in this regard?

Mr. FAIRWEATHER: Mr. Chairman as of this afternoon I am not a member of this committee although I have been and should like just to bring one thing to the attention of this committee. I am ignorant as to what the situation is in this regard, but what protection has a witness appearing before a parliamentary committee? Is a witness appearing before our committee afforded an immunity similar to ours? If he is not I would suggest that this witness is getting into a field that he should certainly consider to be properly dealt with at a confidential hearing.

Mr. WINCH: That is exactly the reason I have objected, Mr. Chairman.

The CHAIRMAN: It is my understanding that a witness has the protection of parliament.

Mr. FAIRWEATHER: Perhaps we should just fire away with our questions in that event.

Mr. HAHN: In regard to the point that has been referred to, Mr. Chairman, the witness may well have the protection of parliament, but if he is going to name people, the people named will not have that immunity.

Mr. WINCH: The witness has indicated that he will not name individuals.

The CHAIRMAN: I think we have agreed that I will take this under consideration for the time being. I do not think we need to pursue this subject further.

Have you completed your questioning, Mr. Lloyd?

Mr. LLOYD: Yes.

The CHAIRMAN: It is your turn, Mr. Deachman.

Mr. DEACHMAN: I have several questions I should like to ask in connection with the general purpose frigate which was discussed this morning.

I should like particularly to discuss costing. I think you have had some considerable experience in regard to navy costing and accounting? We have

received one figure, as representing the cost of the new general purpose frigate in the amount of $32 million. Does that represent roughly the cost of the new general purpose frigate, as far as you are aware?

Mr. PLOMER: I do not think that is representative. I feel that the cost will go to a great deal more than that. One figure that was mentioned during the course of a discussion was $37 million. The figure has been reduced from $37 million to $32 millions in some way of which I am not sure.

Mr. DEACHMAN: Let us take the figure $37 million as being a possible cost. Would that cost represent the whole cost of the frigate afloat and ready for action.

Mr. PLOMER: No.

Mr. DEACHMAN: Would that cost include, for instance, the cost of the helicopter which is to be on board?

Mr. PLOMER: No.

Mr. DEACHMAN: The cost of the helicopter would have to be added to that $37 million?

Mr. PLOMER: I do not know the current cost of the new H.S.-2.

Mr. DEACHMAN: Have you any idea at all of the cost of a helicopter?

Mr. PLOMER: If I were to give you any figure in this regard I would only be guessing. The cost is quite high, of course.

Mr. DEACHMAN: Would the $37 million figure include the electronic gear or the armament that accompanies the helicopter?

Mr. PLOMER: The armament is a separate self-contained deal and would have to be added to that cost.

Mr. DEACHMAN: Would that cost include the V.D.S. which go with the vessel; would it include the variable depth sonar equipment that goes with the vessel.

Mr. PLOMER: I think that would be included in that cost.

Mr. DEACHMAN: Would that cost include the cost of the ship's stores?

Mr. PLOMER: No.

Mr. DEACHMAN: Would the cost include the cost of the guns, the firing equipment, and the gun guiding system?

Mr. PLOMER: It would include the cost of the items you mentioned but not the ammunition.

Mr. DEACHMAN: That cost would not include the cost of ammunition for the guns, and that would be extra?

Mr. PLOMER: Yes.

Mr. DEACHMAN: Would the rockets be included in that cost as well as the rocket launching system?

Mr. PLOMER: The launchers would be part of that cost, but the rocket missiles would be extra.

Mr. DEACHMAN: We must then add to that proposed cost of $37 million, the cost of the stores, the cost of the helicopter, the cost of the ammunition for the guns, all the ammunition for the rocket launchers and perhaps the cost of the variable depth sonar; is that right?

Mr. PLOMER: Yes.

Mr. DEACHMAN: Would that original cost include the spares that are required?

Mr. PLOMER: I believe spares are ordered separately.

Mr. DEACHMAN: So when we are talking in terms of spares they would then have to be added to the $37 million cost as well as everything that we have mentioned so far?

Mr. PLOMER: I would not swear to the accuracy of that statement, but I think it is correct.

Mr. DEACHMAN: What have you to say in this regard about the spares to the guns for instance?

Mr. PLOMER: I think the immediate spares go on board, but there are a lot of spares carried on shore.

Mr. DEACHMAN: Those are the spares to which I am referring.

Mr. PLOMER: I believe that probably they have to be ordered separately.

Mr. DEACHMAN: So to float this vessel the cost would be much more than the $37 million as proposed?

Mr. PLOMER: The cost will definitely be more.

Mr. DEACHMAN: Would you say that the final cost would exceed $40 million?

Mr. PLOMER: As an honest guess I would say that it would, yes.

Mr. DEACHMAN: Would the final cost exceed $45 million?

Mr. PLOMER: I would guess that the cost would run between $40-$45 millions.

Mr. DEACHMAN: How does that cost compare with the price of a MacKenzie class vessel?

Mr. PLOMER: That cost is quite a bit in excess of the cost of a MacKenzie class vessel. I do not know what the final figures were in respect of the MacKenzie class, but I am sure the proposed G.P. frigates will cost much more.

Mr. DEACHMAN: Does the navy set up its accounting in such a way that this kind of total figures can be established?

Mr. PLOMER: No.

Mr. DEACHMAN: In other words there is no system in existence by which you can produce a final figure of this type?

Mr. PLOMER: One can cost account civilian labour. That cost is recorded very carefully. The dockyards have a good system in that regard. However, unless you start including the service labour, of which there is a good percentage, you cannot arrive at an accurate figure. In respect of the three-inch 70 gun, which required a great deal of time before it was made operative, no one will ever know what it cost. The only accountable part is the civilian labour.

Mr. DEACHMAN: What about the cost of tuning up the electronic gear which is, I believe, enormously complex and must require a considerable amount of tuning up before the ship is commissioned and ready for action? Is the cost of tuning it up included in the cost of the ship?

Mr. PLOMER: The way that goes is a pretty normal thing. You have got to carry that cost continuously. You are forever tuning up the gear and the people on the ship are doing it.

Mr. DEACHMAN: Regarding its performance, I think you mentioned this morning the speed of this vessel would be 27 knots?

Mr. PLOMER: Twenty seven to 28 knots.

Mr. DEACHMAN: What is the speed, if there is a published figure, of the MacKenzie class, for instance?

Mr. PLOMER: About 28 knots.

Mr. DEACHMAN: My own recollection, from what I have read of the speed of a U.S. carrier fleet or a U.S. sub hunting or attack force, is something over 30 knots. Is that your impression?

Mr. PLOMER: Definitely.

Mr. DEACHMAN: Would it be as high as 35 knots?

Mr. PLOMER: No, I think the *Enterprise* could probably go up to that at a guess, but 30 to 32 knots is the figure.

Mr. DEACHMAN: And the carrier force moving with it would move at a speed of 32 knots?

Mr. PLOMER: That is what the Americans call flank speed, which is full speed under operating conditions. They have got to be prepared to do that.

Mr. DEACHMAN: The G.P. frigates then would not be able to move as a component part of a carrier force?

Mr. PLOMER: The carrier would have to go slower for them if she were to keep them on as a screen.

Mr. DEACHMAN: The United States navy as they put vessels to sea would have to slow down to accommodate our proposed frigate?

Mr. PLOMER: That is correct.

Mr. DEACHMAN: I want to ask some questions regarding the accommodation of that frigate. By the time we put all the electronic gear aboard, by the time we put the helicopter aboard and by the time you equip it with the three-inch 70's and put the rocketry aboard and all its ammunition, how much capacity is going to be left for carrying 200 men?

Mr. PLOMER: I think, as I remember it, and I only know the general trend of G.P. frigates, I must say in all honesty that I did not have many views on the G.P. frigate when I was in the service. Frankly, I was too busy trying to do the naval estimates at that time. I was concerned with the state of the fleet and other things like that, and I did not sit down and think about it. It was a thing that was all designed and finished when I arrived at headquarters, and I did not make any noises of protest. It is only since I have left the service that I have had time to think about it and that I weighed the thing up in relation to my problems at sea and things like that. As I said earlier, what I represented were things I represented in the service. This is not something I represented in the service. I want to make that quite clear.

The question of accommodation I think took a lot of juggling, and I think the idea is that they would leave some of the crew ashore to make room for the 200 soldiers.

Mr. DEACHMAN: Is it your impression that this would be an overcrowded vessel attempting to do too many things and perhaps not doing any of them well?

Mr. PLOMER: The words "general purpose", let us be honest, is misleading. General purpose gives an impression of something that can practically do anything. What she is is an antisubmarine ship with a helicopter and heavily increased anti-aircraft capability in missiles. I believe the reason for putting the 200 soldiers in was so that they could make use of the helicopter and give the helicopter another use. Every extra thing you put in a ship you have to pay for either in money or in decreased capability in some other area if you are to keep the same size.

Mr. DEACHMAN: That answers my question.

Mr. MATHESON: I wondered, commodore, if generally and briefly you could give us some of your impressions as to the current usefulness of our service colleges from the naval point of view?

Mr. PLOMER: I was not expecting that. This is tricky ground. I believe myself, in the context of what I said this morning, that times are advancing so fast that people must have the opportunity for a much wider education. Now, whether you can get that in the syllabus I do not know. What I have seen of the syllabus is very good. They have progressed over the years. However, the problem in the navy is getting enough officers. They have had a lot of trouble recruiting officers, and officers come from every origin you can think of. There is the Venture scheme on the west coast where they come on a seven-year short service commission. There are officers who have come up from lower deck. There are two ways to come up; you can come as a junior, become a cadet and go to university. Universities have turned out good people. There is also the UNTD form of university education, but few of those people join the navy. That is a pity. They are capable and intelligent people. You have got this different entry and all sorts of different ways, and service colleges offer only a very small percentage of the officers involved. That is the best answer I can give you.

Mr. MATHESON: Can I ask one more question, and I do so because I have been told by very zealous and keen R.C.N.R. part-time officers that they have been somewhat disappointed in the quality of training that they have received. They have had the feeling that really competent officers were not available to make much in the way of training possible. I am wondering what your views are with respect to the usefulness of the R.C.N.R. as it fits into the whole Royal Canadian naval picture.

Mr. PLOMER: I had some letters to this effect myself after this article appeared. The problem of course is, in the event of a nuclear war, how you could get people, say, from Windsor or from Ottawa down to the coast if you wanted them quickly. But the ships are more or less manned so there is no real requirement for reserve. The demand there is not very large if at all. I would say that for a non-nuclear war, if it is extended for any length of time, there would be a very great need for reserves. They would be very valuable according to the quality of training they had. It is a double-pronged problem. I would say that in the event of atomic war they would not help very much, but for a non-nuclear war further inland, the more difficult it would be for any extended effect with any casualty list, the reserves would be very valuable people.

Mr. SMITH: I have three questions that relate to some previous answers the commodore gave. He spoke of a type of frigate or destroyer that the British use for which a gas turbine is used to give it additional speed. Is it an ancillary engine that uses a different type of fuel?

Mr. PLOMER: I think the same fuel could be used. They are using pretty low grade bunker oils for gas turbines.

Mr. SMITH: Is it designed for fairly short bursts of speed? This morning when you were talking about helipcopters on merchant ships, I was wondering whether you know of any of the countries in the western world that are designing or building merchant fleets or merchant ships within their fleets that have special properties that will make them more useful in times of war as cargo ships?

Mr. PLOMER: No, I do not. The helicopter program could be more easily transportable by just loading it on the ship and bolting it down onto the hatches. Of course the merchant ship is much larger and more stable than the frigate.

Mr. SMITH: Would it be a matter of great cost to adopt some sort of landing platform on merchant ships for helicopters?

Mr. PLOMER: I do not think so. I think it was the frigate *Buckingham* on which the helicopter trials took place in the navy. They worked in very rough weather. They used a more or less transportable platform which they afterwards took off and put on some other ship.

Mr. SMITH: Then you were talking about the air defence capabilities of the ships. We have heard from other witnesses on the committee that the Americans have an air surface missile called "Hound Dog", which has a range of nearly 500 miles. This summer there were reports that the Russians have a very similar missile, which we hope has a little less range, but no one knows for sure. Do you think, sir, that there is any possibility of any naval gun being put on a ship that will give an antiaircraft defence for such an attack?

Mr. PLOMER: This of course is the anti-missile missile. I do not think any gun would be effective.

Mr. SMITH: Are these destroyer escorts big enough to mount on them an antimissile missile?

Mr. PLOMER: I am becoming pretty inexpert. I must admit I do not know.

The CHAIRMAN: Mr. Granger?

Mr. GRANGER: Whose is the responsibility of maintenance? If I understood correctly this morning, there is no one afloat who need be—let me put it that way—responsible for a ship when she needs paint, when there is a boiler not working or a gun mechanism that is rusty. Who has the authority for that? Is it the captain of the ship afloat? If not, does he have to put to sea with a ship in that condition?

Mr. PLOMER: If the ship becomes rusty or similar problems arise, there are two reasons. Maybe she has not had enough time alongside and, with the Nova Scotia climate—I must not say Halifax—which is wet, there is no doubt it is more difficult; it is far easier to keep a ship in British Columbia. The ships last longer there because of the better climate. This problem of rust and corrosion could be overcome. The thing that was suggested by someone in the fleet when I put it up was to have a paint shed. Sufficiently high to cover part of the ship so it can be painted in a dry area. This would pay for itself many times over. The responsibility is hard to define. The superintendent of dockyards is responsible for carrying out repairs according to the money and resources available to him. This is what I was explaining earlier. There again, the executive branch seems to have left it all to the dockyard and it was not enforced on the captains of ships.

Mr. GRANGER: There must be authority for it somewhere?

Mr. PLOMER: There may be now but there was not when I left the navy.

Mr. SMITH: When did you leave the navy?

Mr. PLOMER: Just about a year ago, and my leave expired in April.

The CHAIRMAN: Mr. MacRae?

Mr. MACRAE: I wanted to ask a question with reference to mutinies mentioned on page fourteen. I want to deal with the human factor here for a moment and ask the commodore some question in connection with a statement he made there.

On what occasions have there been mutinies in the Canadian navy since world war II, excluding those particularly in Halifax on V.E. day? Secondly, in connection with that, I would ask the commodore perhaps very briefly to tell the committee what were the specific reasons for mutiny in the Canadian navy, other than general dis-satisfaction which perhaps we might understand?

Thirdly, in connection with that—if I have not asked too many questions all at once—was anything at all accomplished by these mutinies? I have in mind that undoubtedly naval personnel would be very severely punished for anything of this nature, and that they would know that, because we know or at least we think that naval discipline and punishment have always been more severe than that in other services.

Mr. PLOMER: The mutinies took place in the *Magnificent,* the *Athabascan,* the *Crescent* and then not longer afterwards, while the committee was sitting, in the *Swansea,* a frigate. There was one on the *Iroquois* during the war, and there were other smaller ones during the war.

The reasons I think are probably better described by the Mainguy commission rather than by myself. Here is this Mainguy report.

Mr. MACRAE: Very briefly, could you describe it for us?

Mr. PLOMER: If I should try to digest what they say in the Mainguy report it might be misconstrued. The people who wrote this report went into it very thoroughly and chose their words very carefully. If I tried to do it off the cuff, I am afraid that I would put my foot in my mouth.

The CHAIRMAN: Mr. MacRae, you may not have been here this morning when the witness agreed to prepare for us a document comprising a summary of the Mainguy report.

Mr. PLOMER: Some of the headings are "Artificial Distance Between Officers and Men"; "Malcontents Wishing To Be Discharged From Navy"; "Comparisons Between American and Canadian Navies"; "Absence of Canadian Identification in Navy", and so on. That is the gist of it.

Mr. MACRAE: Finally, could you tell us whether anything was accomplished in this, I mean, anything of value to the Canadian navy?

Mr. PLOMER: It was not completely futile. I think the trouble was that while the recommendations at the end where carried out to the letter, there are gaps still remaining between a large proportion of officers and men. Leadership courses were given at *Cornwallis* while I was responsible for them when I was there, and I think they did a lot of good. But somehow they did not reach all the way down as principles.

Mr. MACRAE: I have one final question. What reaction have you had from your naval colleagues of your own rank, or of junior rank, to your article, and to other publicity which you have had because of statements you made in the past?

Mr. PLOMER: Very favourable.

Mr. WINCH: The minister would say that that was a question calling for an opinion.

Mr. PLOMER: Well, I could read you extracts from letters. I do not think the letters could be construed in any way as unfavourable. Whether it is known as not, as you say, this is all opinion. I would say that I know one of the statements given to the press was that what I said was courageously true, but that it was exaggerated. Now, the exaggeration depends entirely on what standard of navy you want. If you want to have a third class navy, then it is exaggerated; but if you want to have a first class navy, it is not exaggerated one bit; and I would stand by that.

Mr. CHURCHILL: My question refers again to the proposed frigate program for which we want to give the minister some assistance although he said it was not necessary. On the question of the speed of the frigates: what speed does the commodore consider desirable for any frigate to be built in the future?

Mr. PLOMER: I think the minimum speed should be 32 knots.

Mr. CHURCHILL: Are these frigates intended to be used as supporting vessels for the United States carrier force, or are they intended to be used as antisubmarine vessels, for convoy duty for Canadian purposes?

Mr. PLOMER: If they are called "general purpose", I would assume they are meant to do these things.

Mr. CHURCHILL: Do the frigates now in use by the United States navy have a speed of 32 knots?

Mr. PLOMER: They have destroyers which they use for that, and they were world war I destroyers rebuilt and modernized, but with the same machinery, and they are good for 32 knots.

Mr. CHURCHILL: The circumstances would be somewhat unusual if Canadian frigates were required to be a supporting arm for United States carrier forces. Is that not so?

Mr. PLOMER: No, as I said, they are supposed to be able to be interchanged, just as the east coast and NATO forces are said to be able to work together themselves. The whole purpose of the integration of NATO forces and standards was that they could fuel from each other, and that sort of thing.

Mr. CHURCHILL: Their primary duty at the moment would be for protection to our own carrier. What is its speed?

Mr. PLOMER: Twenty-four knots in good weather.

Mr. CHURCHILL: In the exercises which have been held from time to time under NATO auspices, have our Canadian ships—the ones presently in use—been able to maintain their place in rank? Is their speed generally too slow, or how do they compare with the vessels of the United States or the British navy?

Mr. PLOMER: In two years, the only NATO exercise I was on was over in Northern Ireland. The weather was bad. I did not operate with another fast carrier. In Korea, however, we did operate with fast American carriers which indicates, I think, that we need to be able to co-operate with the American or British carriers. I was driving a Tribal class destroyer then, and at full speed we would be dangerously low on fuel in a day and a half. This happened once. We had the speed, but not the fuel capacity. If we had had the new ships then—this was before they came out—either the carrier would have had to slow up, or we would have ended up dropping behind.

Mr. CHURCHILL: In actual war circumstances are there many occasions on which full speed is required from a carrier?

Mr. PLOMER: Yes. If they want to get from A to B, they will use full speed, and that is quite often in wartime. Also, they like to use all the speed they can when there is not much wind in order to allow the planes to fly off without using the catapults; also, it makes landing easier, especially with jet aircraft.

Mr. CHURCHILL: There would be many instances when a slower speed frigate or destroyer in heavy weather would be able to maintain its place with a carrier force?

Mr. PLOMER: Theoretically, in respect of a carrier, a bigger ship should be able to steam faster than the destroyers, which may be anything in the neighbourhood of one-twentieth their size. I have seen the *Bonaventure* hove to in a heading sea for fear of further damage, while the *St. Laurent* and *Restigouche* steamed into the sea at 14 knots. This is the difference. It should be the other way around.

Mr. WINCH: I have one question, Mr. Chairman. This question has not been asked yet, which rather surprises me.

In view of his experience in a rather responsible position, and in particular his position as deputy comptroller where I presume he had something to do with the drafting of estimates, I would like to ask the commodore whether he could tell this committee, in view of the condition of the Canadian naval ships, to what extent he feels their condition, or their lack of condition, is due to not having the money passed by the House of Commons in order to meet the requirements of the maintenance for the ships.

Mr. PLOMER: The loss of the *Crusader* was partly blamed on that; that is, that they could not get the extra money. I contradict that. I believe that if that ship had been properly looked after, both before she had been taken from the sea as unfit, and properly looked after when sent up to Sydney, none of these heavy expenditures would have been necessary.

As deputy comptroller, I have seen estimates and requests for money put up very effectively, and also very ineffectively. In the two areas of government, financial policy in periods of national stringency when you cannot expect to get money; but in the normal process of getting authority from the treasury board, in my eight or ten months I can honestly say I have found the treasury board people very co-operative.

Mr. WINCH: Then you would agree that the responsibility for the condition, as you have outlined it in your brief, of the Canadian navy is not due to the money not being made available by the House of Commons?

Mr. PLOMER: That I believe.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Chairman, I would like to address one or two questions to the commodore. It gives me a great deal of pleasure to do so as an old air force man.

In respect of the general purpose frigate, you indicated this morning that one of the roles of the frigate was to carry helicopters and thus enlarge the range in which they might be able to carry out their antisubmarine capabilities.

Mr. PLOMER: Yes.

Mr. ASSELIN (*Notre-Dame-de-Grace*): But you stated that this role could be better done by putting the helicopters on better platforms.

Mr. PLOMER: I said on bigger platforms, more helicopters.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Which cost less money.

Mr. PLOMER: Per helicopter.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Per helicopter.

Mr. PLOMER: Yes.

Mr. ASSELIN (*Notre-Dame-de-Grace*): And, secondly, if you take away from the general purpose frigate the helicopter because you can put it on a bigger platform and for less money that leaves you with an antisubmarine and an anti-aircraft frigate and, as I see it, the logical consequence of this is that it is too slow to keep up with the convoy. And, as an aside, something has puzzled me which is this, we seem to be spending a lot of time on convoys and I am wondering what place convoying is going to have in future wars. Would you care to say a word or two on that?

Mr. PLOMER: Yes. I believe very strenuously, not as being a naval cult, that a convoy is an essential part of warfare, and I think even under some phases of atomic warfare you will need convoys. If you want to transport large quantities of men, whether they are soldiers, naval or air force personnel, there is no substitute for the aircraft as you get them there quickly and you get them where you want them. Time is of the essence in any military factor. But, when you come to food stuffs, heavy tanks, motorized equipment, grain, metals, raw materials

of all kinds and so forth you have to deliver these and the only way you can do that is by sea. You know yourself how many aircraft it would take to substitute for a 10,000 ton ship. It is necessary to get these materials to wherever your war is being fought. It might be a bush war in the far east. In Korea there were no submarine or aircraft attacks; it was an *Alice in Wonderland*. However, if someone wanted to play dirty pool and attack with aircraft and submarines the convoy comes into being right away.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I have difficulty in foreseeing that type of war because if some one is going to play dirty pool I think the billiard ball might very quickly become an atomic bomb. I cannot see convoying under those circumstances; I cannot visualize any nation being equipped with that type of equipment, save major ones, and when you get to that point I think all is very nearly lost.

Mr. PLOMER: The only interesting lesson that history teaches us is that we should not live in the past but learn by it. We nearly lost two world wars because we did not have a convoy system. I say let us play it safe.

Mr. SMITH: In any event, we have not any merchant navy to convoy, have we?

Mr. PLOMER: I agree but we still have to send the goods.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Could you go on and tell me what nations have submarines.

Mr. PLOMER: The Chinese certainly have them; the Russians of course have a phenomenal number of them and you will notice that from time to time they sell them to different people. They sell them to the Egyptians. They may or may not have sold some to the Cubans. I do not know about that.

It has been Russian practice in the past to sell submarines to any nation that does not like the west.

Mr. ASSELIN (*Notre-Dame-de-Grace*): To go on with my original point, we have divorced the helicopter for economical and technical reasons from the general purpose frigate. We now have a frigate which we have come to the conclusion is too slow to keep up; is that right?

Mr. PLOMER: It is not too slow for convoy work.

Mr. ASSELIN (*Notre-Dame-de-Grace*): It is too slow to keep up to the flank speed you were referring to, and it is too slow to keep up with a submarine in rough weather; is that right?

Mr. PLOMER: It depends on the kind of submarine and on how rough the weather is whether the frigate can keep up or not.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Are you prepared to make the statement that there are conditions under which this frigate would not even be able to keep up to the conventional as opposed to nuclear submarine in very rough weather?

Mr. PLOMER: That is true in respect of very bad weather, yes.

Mr. ASSELIN: Consequently what you are saying would be true to the third degree in respect of a nuclear powered submarine?

Mr. PLOMER: Yes. However, I would say in defence of the general purpose frigate, and I am trying to be objective about this, that it is a basic problem in respect of surface vessels as against submarines that they cannot keep up in bad weather. However, I would say that if her hull was as good as the St. Laurent-Restigouche type hull she would be as fast as anything else of the same tonnage in bad weather.

Mr. ASSELIN: Would you say that it would be as fast in those circumstances as the one being built in the United States to which you referred earlier?

Mr. PLOMER: Yes, this is a splendid sea boat.

Mr. ASSELIN: Considering the difficulty in respect of the helicopters and the conclusion that they should be divorced from these proposed frigates, would you come to the conclusion that it might be better to take the cost required for this project and use it in a more efficient and effective way as far as the navy is concerned?

Mr. PLOMER: I agree with that statement.

Mr. ASSELIN: In your opinion, commodore, what is the most effective and efficient way of using that money for the Canadian navy?

Mr. PLOMER: As a strictly personal opinion, and not an opinion arrived at on the basis of a general belief, I would say that it should be spent in two fields. It should be spent in providing species of standard cheaply built carrier that could carry three, four, five helicopters which may have to be screened by other ships, but which would provide the best type of carrier, and I have always been most anxious to have the navy acquire more and more modern submarines. We need more modern submarines not only as antisubmarine submarines but for the purpose of providing the navy and air force with more realistic training conditions. When one has a limited number of exercise submarines, which are perhaps a good deal slower than others, the personnel develop a false sense of security. They begin to think they are exceptionally capable until such time as they encounter an experienced captain with a modern submarine and then they find they are wrong.

We need new submarines which are faster, but we need them in greater quantities. I do not wish to brag personally, but in respect of the circumstances we ran into during the convoy I mentioned earlier, there were in excess of thirty submarines attacking that convoy. I would suggest it was the greatest number they ever mustered at one time.

The only thing that saved us was radar as it was foggy, but the problem of coordinated thinking in fighting one attack, drawing back, fighting another attack, and so on is in quite a different dimension to what we are exercising now. This is where we are missing antisubmarine facilities. This applies to the R.C.A.F. also.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Thank you. You have made some of my problems clear and simple.

Mr. MATHESON: I have the following question, commodore: we have been told, I think, that one of the advantages of the G. P. frigate was the possibility of fairly readily moving, say, 200 men. Having in mind that all our military operations since Korea have been, I suppose, U.N. supported in one form or another, does one not come to the conclusion that if Canada is called upon in the future to play a continuing U.N. peace-keeping role with troops, perhaps the most efficient and economic and safe way of transporting them would in fact be with merchant vessels that could ship, maybe, a battalion or a brigade at a time rather than try to do it by frigate?

Mr. PLOMER: Let me give you some examples. At one time, a few years back, one of the Canadian National steamships was offered to us as either a supply ship or transport ship for the nominal sum of a dollar. I was extremely sorry at the time to see us not accept it. At the time of the Congo, it was proposed to send the repair ship *Cape Scott* to the Congo and word came down to us at Halifax—and heaven knows we needed her—to use her to take soldiers to the Congo. Personally I felt we were reaching new heights of *Alice in Wonderland* because if the *Cape Scott* wants to do a wild burst of speed it can hit 10½ knots. They cannot do it too long. It is usually not more than 9½ to 10 knots. There would have been a very dismal and unhappy group of soldiers

arriving in that ship to the Congo after sailing across the equator with mostly workshops to sleep in. I would say of course, although it is crying over spilt milk, that the Canadian National steamer would have made a beautiful troop carrier. It could have carried a great deal of troops with equipment, with provisions and with everything they wanted. She went at 16 or 17 knots, which is at a fairly good clip. However, we have not the capability to do that. You cannot take 200 soldiers very long distances in a G. P. frigate.

Mr. DEACHMAN: You are sure the C.N. kept good maintenance of the ship and that we would not be buying another pig in a poke?

Mr. WINCH: For one dollar?

Mr. DEACHMAN: Even for one dollar.

Mr. PLOMER: They are worth the bargain. After they sold them they certainly degenerated. They were degenerating fast in Halifax.

The CHAIRMAN: Gentlemen, before we adjourn I have to ask you for a motion. It might be possible that this coming Tuesday, October 15, the representatives of the navy will not be ready to appear before the committee as we have planned. In that event, the committee may wish to visit some defence establishments, if such arrangements are feasible. To do this I will need a motion from the members of the committee.

Mr. DEACHMAN: Before the motion is made, Mr. Chairman, may I say I have no doubt that the navy would like to reappear again after Commodore Plomer's visit. I am sure they have things to say that will be both interesting to the committee and they certainly deserve to be heard. I would not want us to lose track of a return engagement from the navy in the near future. I think this relates to the publicity which the navy would receive as well as to other things, and that that should be done in the quite near future if possible.

The CHAIRMAN: Would someone propose the motion?

Mr. ASSELIN (*Notre-Dame-de-Grace*): May I make the motion that we visit, if this is feasible, the defence establishments.

Mr. SMITH: We could go to Toronto and have a demonstration of the Bobcat.

The CHAIRMAN: It is proposed by Mr. Asselin and seconded by Mr. Patterson that in the event of the representatives of the navy not being able to come on Tuesday, the committee may visit some defence establishments, if such arrangements are feasible. I will explain. We had made arrangements to have the navy representatives here on Tuesday, but we are not sure they will be able to come. It is only in that event that we will try to organize the visit that has been proposed to us. We do not want to lose a day. Any further comments?

Mr. CHURCHILL: Mr. Chairman, in view of the program of legislation and other business before the house, I think it unwise for this committee to be travelling at this particular time. It is all very well to sit here and listen to presentations, but we are still fairly close to the house. I am not in favour of trips at this time. We are constantly being reminded of the business of the house which must be done. How can we go off travelling and neglect that business. I would say the time for trips is during the Christmas and New Year recess.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Any activity which took the defence committee away from the House of Commons, incidentally taking the last speaker with it, would probably do something to expedite the business of the House of Commons!

The CHAIRMAN: Is the motion carried?

Agreed.

OFFICIAL REPORT OF PROCEEDINGS AND EVIDENCE

This edition of the Minutes of Proceedings and Evidence contains the text of the Evidence in the language in which it was given, and a translation in English of the French texts printed in the Evidence.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 13

TUESDAY, OCTOBER 15, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Vice-Admiral H. S. Rayner, D.S.C. and Bar, C.D., R.C.N., Chief of Naval Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29514-7—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

MINUTES OF PROCEEDINGS

TUESDAY, October 15, 1963
(16)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Brewin, Churchill, Granger, Groos, Hahn, Lambert, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Patterson, Sauvé, Temple and Winch.—(20).

In attendance: Honourable Paul Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; Vice-Admiral H. S. Rayner, D.S.C. and Bar, R.C.N., Chief of Naval Staff; *Also* Commodore James Plomer; *and also* a Parliamentary Interpreter.

Vice-Admiral Rayner read a statement prepared in reply to the statement presented to the Committee by Commodore Plomer on October 10, 1963.

The witness was questioned on the contents of his statement and on related matters.

At 12:30 p.m. the Committee adjourned until the Orders of the Day have been reached in the House later this day.

AFTERNOON SITTING
(17)

The Special Committee on Defence resumed at 3:35 p.m., the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Lloyd, MacInnis, MacRae, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch.—(19).

In attendance: Same as at morning sitting.

The questioning of Vice-Admiral Rayner was continued.

Mr. Hellyer, the Minister of National Defence, answered questions respecting policy.

Mr. Churchill stated that an omission had been made at page 332 in the printed record of the Committee (See today's Evidence page 420).

The examination of Vice-Admiral Rayner, regarding the statement made by Commodore Plomer, being completed, the Committee questioned him respecting other matters.

At 5:30 p.m. the Committee adjourned until 10:30 a.m. Thursday, October 17, 1963.

E. W. Innes,
Clerk of the Committee.

29514-7—1½

EVIDENCE

TUESDAY, October 15, 1963

The CHAIRMAN: Gentlemen, may we now come to order.

This morning Vice-Admiral Rayner will read a statement. Members of this committee will then question the Vice-Admiral in respect of this statement. When we have completed the statement and our questioning in respect thereto we will revert to our questioning of Admiral Rayner in respect of the first statement he read to this committee. You will recall that some members indicated their desire to pursue questioning in respect of that statement but time was limited and we were unable to complete that questioning.

Vice-Admiral H. S. RAYNER (*D.S.C. and Bar, C.D., R.C.N. Chief of Naval Staff*): Mr. Chairman, before commencing to read my statement, may I say that I am sorry the French text is not available. There was not sufficient time to obtain a translation but it will be available as soon as it is ready. Mr. Chairman, members of the committee.

I appreciate this opportunity to appear before you on the first occasion of your sitting since the committee listened to Commodore Plomer.

This former officer has levelled some grave charges against the Navy, including poor leadership at the top and bad management of naval affairs, resulting in a fleet of badly equipped and poorly manned ships, far below the proper standards.

Nothing in this world is perfect and the navy is very much of this world. So there is an element of truth in some of the things that Commodore Plomer has written and said. But having said that, I wish to emphasize as strongly as I can that I reject many of the conclusions that he has drawn and I know that many of the allegations that he makes are not in accordance with the facts. I believe that what he has written and said gives a false impression of the navy as it is today. I know that the navy is efficient and that the performance of our ships on operations in recent years has stood up well in comparison with the performance of ships of other navies.

The chain of responsibility between the ships and naval headquarters is clearly established. It runs between the captain of a ship, who is responsible for the readiness and safety of his ship and her men, through his senior officers to the highest naval authority. The flag officers on the coasts are directly responsible to the chief of the naval staff for all ships, establishments and naval activities and operations within their command areas. The ultimate naval authority is the chief of the naval staff. My duties and responsibilities are defined in the National Defence Act as "subject to the regulations and under the direction of the minister, to be charged with the control and administration of the navy".

My chief advisors are the members of naval board, namely the vice chief, the chief of naval technical services, the chief of naval personnel and the naval comptroller. The Board formulates naval policy and co-ordinates and integrates the activities of all branches and departments in the navy, and provides advice to me. I would stress that I am kept well informed on all major matters, and see all messages concerning important incidents or casualties to ships, aircraft or personnel.

The vice chief of naval staff is responsible to the C.N.S. for the fighting readiness of the fleet, and the chief of naval technical services for the design,

construction and equipping of ships and aircraft and their armament, and for the maintenance and repairing of ships and aircraft. These two officers keep themselves well informed of the disposition and general state of the fleet and inform me as necessary. In addition, the flag officers on the coasts keep me informed of their immediate major problems. They also report personally, periodically, to naval board.

I, in turn, advise the minister on naval matters.

R.C.N. Promotion Policy

In Commodore Plomer's testimony before this committee, and in his earlier published article in Maclean's, an attempt was made to create the impression that R.C.N. officer promotion policies discriminate in favour of pre-war cadet trained officers, without recognition of the merits of those who came from other sources. It was implied that merit was of secondary importance. I cannot agree with this, and further state categorically that this is not so. Every effort is made to ensure that all officers are treated fairly and objectively.

The composition of promotion boards and the procedure for selecting officers for promotion is under constant review. There was a comprehensive review in 1960 after which naval board caused general orders to be promulgated setting forth the principles and policies governing the promotion of officers.

Officers are aware of the professional requirements for promotion, the zones of promotion, how vacancies are allocated and how selection boards function. I would like to describe to you, briefly, how this is done.

To begin with, all officers are assessed at least once a year, by their immediate superiors. After it has been decided how many officers can be promoted to the next higher rank during the forthcoming year, a preliminary screening board, composed of captains, studies the files of all officers in the zones for promotion to commander and captain and selects probably twice as many officers as there are vacancies. This selected list is then considered by a preliminary selection board of commodores which studies the files and further refines the list and makes recommendations to a final board. The list that they submit will again contain more names than there are vacancies. The final board is composed of five rear-admirals normally including the flag officers from each coast. This board also studies the files of the candidates and determines jointly who are the best qualified to assume the duties of the next higher rank. They also make recommendations on the promotions of captains to commodores. I might point out here that any member of any of these boards may call for the file of any officer he deems worthy of consideration whether or not that name has been selected; thus the process provides not only for screening but also for checking the screening. It also provides a process whereby the experience and knowledge of a wide spectrum of senior officers is brought to bear on the vital subject of promotion. The final board submits a list of the officers that they recommend to the chief of the naval staff, who has the power of approval up to the rank of commander, and who makes recommendations to the minister, with the knowledge of the chairman, chiefs of staff committee, for promotions to the rank of captain and above.

In selecting a senior officer, his entire service record is carefully reviewed to evaluate his performance over the years. In addition to service qualifications to be met, there are some basic considerations including integrity of character, professional knowledge and ability, and judgment. There is also a medical examination. Every effort is made to estimate the officer's potential in the higher rank. Method of entry into the service plays no part. In this connection, it is of interest to note that of the nine admirals now serving, three were former officers of the R.C.N.V.R. Also, three former admirals, including the

last chief of naval personnel, started their careers on the lower deck and worked their way up through their own merit.

Whilst on the subject of officers, I think that Commodore Plomer gave this committee a very misleading impression concerning several of the older pre-war officers. I was not one of them as I was still a junior officer when the war started, but their example and training were a great help to me on active service. Not all of these officers were educated in the Royal Naval College of Canada before it was paid off for lack of funds in 1922. But this small band of Canada's early naval officers, in the face of very discouraging prospects, were largely instrumental in keeping the navy alive during the lean years of the twenties and early thirties. It was under their leadership, together with that of some able and devoted senior reserve officers, that the navy expanded during the war from 3,570 personnel, including reserves, at the beginning, to a force of 96,000 by 1945. By then we were manning and supporting 400 operational ships.

I would like to turn now to the general state of RCN ships. It is alleged that many of the Atlantic ships are in a shocking state due to neglect. I quote, "The case of the destroyer HMCS *Crusader* was the worst".

Let me give you some facts concerning the *Crusader*. This ship and her sister ship *Crescent* were built in Britain, transferred to Canada whilst under construction and completed just after the close of world war II. On arrival in Canada, the *Crusader* was placed in reserve on the west coast until 1952 when she was recommissioned for service in Korea.

In 1955, after a refit in Esquimalt, British Columbia, the ship was transferred to the Atlantic where she was employed for the next four years on various equipment trials, including the evaluation of the variable depth sonar. During this period the *Crusader* was employed for the most part close to Halifax to meet equipment trial requirements. Running repairs were made by the dockyard as occasion warranted, but the ship did not have a refit during this period.

In late 1959, a limited refit was carried out, together with a survey of the ship's general condition. The survey established that the ship's hull had seriously deteriorated as well as the electric cabling. This was a common feature of ships of this vintage, aggravated in the case of the *Crusader* by the time the ship had spent in reserve, together with having had no general refit or overhaul over the four immediately preceding years. The estimated cost of restoring the ship was of the same order as that required for the tribal class destroyers subsequently given "extended refits" to make good general deterioration of the hulls and electric cabling of those ships after 14 or 15 years' service.

Also at this time, the *Crusader* was under consideration for modernization to begin in 1960. She was being considered for conversion to the same general standards as that planned for the St. Laurents, i.e. the fitting of variable depth sonar and helicopter operating facilities. But in the case of *Crusader* general modernization would also involve the replacement of obsolescent armament and electronic equipment and the whole was estimated to cost some $5,500,000. With this probability in mind, the ship was laid up in late 1959, preparatory to either refit or conversion. The ship was subsequently taken to Sydney in July, 1960.

However, the light helicopter under consideration for the St. Laurents at that time did not perform satisfactorily on manufacturer's trials, and a heavier, larger helicopter, the HSS-2, was selected for service. The beam of the *Crusader* was less than that of the St. Laurents and was insufficient to provide a suitable landing platform for the larger helicopter. As a result, this particular conversion proposal had to be abandoned.

After considering other possible conversions, it was decided that modernization of one ship of the *Crusader's* age and type was not economically justifiable, particularly with the ships of the Mackenzie class approaching completion. As you know, the six Mackenzies are replacing six older ships in the fleet. On August 7, 1962, I recommended to the minister that the ship be declared surplus to requirements. This was approved.

There has been much talk of the 3"70 gun and I would like to tell you how this gun came to be selected and its present status.

The U.S.N. and R.N. began developing the 3"70 antiaircraft mounting in 1947. In 1953, the naval board selected this gun from three other types for fitting in the St. Laurent and Restigouche classes of ships. At this time, both the U.S.N. and R.N. considered that the 3"70 would prove to be the best anti-aircraft gun available. Further, at this time, no suitable surface-to-air missile system was available for ships of the size of the R.C.N. destroyer escorts.

Subsequently the U.S.N. abandoned development of this gun in favour of surface-to-air missiles and the 5"54 mounting. The R.N. development continued and the 3"70's were built in England. Their cost was $1.3 million per mounting including spares.

Because of delay in development, the gun was not available for fitting in the St. Laurents and was still undergoing trials when the Restigouche class was built. Consequently, when the first mountings were delivered to Canada it was known that some modifications would be necessary and would have to be retro-fitted into Canadian mountings.

The early performance of these guns was disappointing and many breakdowns occurred. However, one simply cannot replace new and very expensive guns because of some difficulties encountered in making them work. By dint of a concentrated and sustained effort in the ships themselves, by the progressive fitting of modifications to improve the mounting, by extra training for the highly skilled technicians needed to maintain this complicated weapon, and with the invaluable assistance of highly qualified personnel on loan from the Royal Navy, these mountings are now effective.

Contrary to Commodore Plomer's statement, at the time of Cuba the 3"70 mountings in all the ships fitted with this gun were operationally effective. In some ships, one gun of a twin mounting was not working all the time, but the other one was. Further, in June of this year, during a reliability trial carried out by five ships fitted with this equipment, over a period of about six days while crossing the north Atlantic, the 3"70 mountings proved to be available for immediate use 92% of the time.

The 3"70 is a very complex weapon with a high rate of fire. It will remain a difficult piece of equipment to maintain. It can be maintained, however, and present indications are that this weapon system's past limitations have been eradicated. The 3"70 is extremely accurate, has a high rate of fire and is a first-class anti-aircraft gun.

Maintenance of Ships

A ship's operational availability is directly dependent upon good equipment maintenance and good ship husbandry.

There have been, as stated, a number of material failures to ship-fitted equipments.

These failures can generally be categorized as being caused either by design deficiencies or by inadequate or faulty maintenance.

In a modern warship there is a very wide range of complex machinery and equipment ranging from the most sensitive of electronic instruments to large reduction gearing. It must of necessity be as compact and light as possible in order that it will fit into the smallest compatible space in the ship

structure. The equipments must be designed and built for this specialized purpose, and when in use must be capable of meeting the operational requirements of highly specialized sea warfare. Some of the failures have been the result of a design effort to obtain compactness and lightness. Some of this miniaturization has resulted in too great a reduction in the ruggedness and overall serviceability of an equipment. Under operational conditions certain of this equipment does not meet design expectations. This is not peculiar to the R.C.N., but is a problem common to all navies who are developing new equipment.

The R.C.N. employs the so-called planned maintenance system, derived from the Royal navy and adapted to our particular ship requirements progressively over the last four years. This system is now fully established.

The planned maintenance system aims at preventative maintenance, to ensure equipment reliability and to prevent breakdowns. It lists, in orderly fashion, the inspection and maintenance routines, together with periodic overhaul, developed as part of the system. It points out, in general fashion, what means should be used to carry out this work, e.g. by ships' staff, by repair ship or by dockyard.

It also requires a monthly reporting procedure whereby ships report any outstanding planned maintenance work, thereby providing, if in the negative sense, an indicator of the general state of ship husbandry.

A further feature of the system is the material failure report which requires ships to report, with attendant detail, equipment breakdown, malfunctioning or improper performance. Ships raise these reports, on an individual equipment basis, when the occasion warrants. These provide the principal basis of information to the command and naval headquarters as to equipment maintenance problems in the fleet.

The concern for good maintenance which gave rise to the adoption of the planned maintenance system also gave rise to organizational changes to enable the system to be used effectively. These will be mentioned in connection with the processing of planned maintenance material.

Reports of individual ships' planned maintenance performance, together with those concerning material failure, go, in the first instance, to the flag officer on the coast concerned.

The flag officer, through his staff, takes the appropriate action to give the ship the assistance she requires depending on her planned maintenance performance, and her need of repair ship or dockyard assistance.

Reports of material failure are forwarded, with appropriate comment, by the flag officer to naval headquarters, where they are dealt with, specifically, by the director of fleet maintenance who was established in March, 1961.

All incoming reports of material failures are recorded and acknowledged. The reports are then used to originate changes to instructions, better procedures, design improvements, etc., as the case demands. Quarterly reports are issued by naval headquarters to the fleet and all maintenance authorities, showing the action taken in response to reports received.

In short, we believe we have in the planned maintenance system one that provides:—

(*a*) good instructions for maintenance and husbandry,

(*b*) a reporting system that indicates the state of ship maintenance, and

(c) a system for reporting material failures, dealing with these, and informing ships of action taken, with an organization to make the system work effectively.

For such a system to be fully effective, well-trained and experienced operators and maintainers are required. To overcome the acute shortage of

skilled maintainers brought about by the large expansion of the navy since 1950 (11,000 to nearly 22,000) and by the increased complexity of equipment in the new ships, the fleet schools have been and are working hard to train the maximum numbers of men that can be spared from operational tasks.

The end result of properly performed maintenance is the ability of a ship to perform its operational task at sea. In peacetime many factors affect the balance between the operational availability and "down time" of ships. " Down time" is deliberately planned to provide time for maintenance and leave periods for the crew. The degree to which the ship's company can maintain their own ship has a significant effect on refit costs, in recognition of which ships in the Atlantic command are given 90 days per year self-maintenance opportunity. "Down time" must also be planned for refits.

Unplanned "down time" results from the need to effect unscheduled repairs, arising either from heavy weather damage or breakdown. Within the Atlantic command, unplanned ship "down time" runs at about 2 per cent annually—a relatively small deviation from the planned operational cycle.

Notwithstanding the planned maintenance system, the following additional steps have been taken to improve operational availability and capability.

(*a*) The formation of a work-up team in January, 1962, in the Atlantic command to assist ships which are newly commissioned or just out of refit and their new crews, to meet operational standards. This is done by checking the organization and performance of the crew and the procedures used by them in operating and maintaining the equipment in the ships.

(*b*) The institution of a stepped-up trade training plan in early 1962 to train additional skilled men to help overcome the shortage of skilled tradesmen.

(*c*) The re-organization of the Atlantic command commencing in late 1962, with increased decentralization at the senior levels, and greater emphasis on the operational readiness of the fleet.

(*d*) As previously mentioned, extended refits have been approved for older destroyer escorts of the tribal class approximately six years before normal retirement. This was done, because the previous refit programme, in the light of experience, was inadequate to maintain a reasonable standard of operational efficiency. These ships required more than normal repairs, especially to their hull structure and lead-cased cables associated with electrical and electronic systems.

(*e*) To obtain the greatest return from our maintenance effort, a four-year refit cycle was established in 1962 on a trial basis for the Restigouche class destroyer escorts. Under this scheme, refits would normally be carried out every four years instead of every two years as they have been. There would be additional maintenance periods by ships' staffs with some dockyard assistance under the planned maintenance scheme in the intervening years. It is expected that this will increase the overall operational availability of ships, and at the same time reduce refit costs.

The results of the steps I have just outlined will not be realized in a matter of weeks but over a period of years. But they are already having a good effect.

How is one to assess the navy's effectiveness? The proof of a navy's effectiveness, or that of any armed service, lies in its ability to respond to a given situation.

Such a situation occurred, for the Royal Canadian Navy, just under a year ago.

On October 22, 1962, without any forewarning whatsoever, the President of the United States announced the soviet military buildup on the island of Cuba.

On October 24 the United States naval quarantine of Cuba was imposed.

On that same day, October 24, action was taken to commence bringing the navy, as quickly as possible, to a high state of operational readiness.

The Cuban crisis proved to be a most realistic test of the ability of the navy, particularly the operational forces, to react in an emergency.

The fleets on both the Atlantic and Pacific coasts were involved. However, I will deal only with the Atlantic fleet in this statement.

Out of a total of 39 ships deployed in the Atlantic, 29 were available for operations. Of these, the *Bonaventure* and five destroyer escorts were in Portsmouth, England. The carrier group was sailed at very short notice for Canada. The other Atlantic ships were all within the command operational area.

Of the ten ships not immediately available, three were in refit. One was being destored prior to refit. This entails landing the ammunition and other stores which would otherwise interfere with work during the refit. One minesweeper was in drydock. Three ships, a destroyer, a minesweeper and a patrol craft, were undergoing maintenance and repair in Halifax. One patrol craft was being used by the Halifax reserve division for training. The tenth, the *Mackenzie*, a new ship, had recently been commissioned was still undergoing post-commissioning trials. She was fuelled and ammunitioned and allowed to continue working up but was available if required.

The refits were allowed to continue. The destoring of the ship being prepared for refit was suspended for the time being but she was not brought forward into operation. Of the remainder, by 2 November, one destroyer escort, the two minesweepers and two patrol craft had become available.

The fleet was held in a high state of readiness for the duration of the crisis. And when I say readiness, I do not mean in harbour, on a standby basis. I mean groups of ships at sea, on patrol, or being replenished in harbour for further patrols. Contrary to what you have been led to believe, there were only two ships which required a short time in harbour for machinery, repairs. In war time one of these ships would not have been brought in.

All of the remainder were ready for operations. I have no doubt that some minor repairs were necessary now and then. The complex equipments in ships today need constant attention. They need tuning and adjustment. An electronic tube or other electronic component fails and needs to be replaced. However, these would not be serious enough to require the ship to be withdrawn from operations as the defect would be put right by the ship's staff. The state reports which cover this are available in Halifax.

I do not understand how Commodore Plomer, who resides in Ottawa, and who had been on retirement leave for a full month prior to Cuba, could have had personal knowledge concerning the operational state of the fleet!

There has been reference to the Mainguy report. This was an outstanding document and was recognized in the navy as such, by all ranks. On those of us who were serving in the navy at the time it made a deep and lasting impression. It brought reforms, and it has served as a guidepost in the years since.

Contrary to what has been said, all but three minor recommendations of the Mainguy report have been implemented in whole or in part; they were put into effect years ago. The beneficial effects, while not easily measurable, have been considerable.

At the time of the Mainguy report, late 1949, the navy consisted of just over 9,000 officers and men and some 25 ships, of which 20 were in commission. Most of our personnel had served in the second world war and so had most of our ships. Our equipment was virtually all of second world war vintage.

To-day, the RCN's manpower numbers about 21,500, we have more than 50 ships in commission and we operate five naval air squadrons. Among our officers and men, those who served in the war are vastly outnumbered by post-war entries. The average age is 27. More than half our ships have been built since 1949. Within the past ten months we have commissioned four new ships, three destroyer escorts and a fleet replenishment ship.

So, as you can see, there have been very considerable changes in the visible shape and appearance of the navy. But the really significant change, a change that is not so readily visible, is that brought about by the technological explosions of the past fifteen years. New developments in technical equipment and weapons systems have followed one another at an accelerating pace.

The impact has been felt throughout the navy—in the arming and fitting of ships, in the selection of equipment and weapons systems, in the field of supply and logistics, in organization and administration, and in some respects most of all in the training of personnel.

It is difficult to keep up with trends in equipment and weapons systems. It is even more difficult to keep up with the need for adequate numbers of men properly trained in the operation and maintenance of these equipments.

Seven years ago, in June 1956, an RCN personnel structure committee was established at naval headquarters. The committee's instructions, as set forth by the naval board, were to:

(*a*) examine the present personnel structure to assess its strengths and weaknesses as it affects the present manning and administration of the service;

(*b*) make recommendations as to the most suitable officer and man structure for the future which would be in the best interests of the service and the nation, with emphasis on efficiency, simplicity and economy; and

(c) make recommendations for implementation including any interim re-organization that may be necessary.

The committee was composed of three commodores, two acting commodores and one commander, who served as secretary.

The committee submitted a report which recommended, in its own words, "the introduction of . . . far-reaching changes and principles."

The report was reviewed, in detail, by the naval board and most of the recommendations were approved or accepted in principle. The result was a very considerable re-organization of the personnel structure of the RCN. Except in some instances, it was not something that could be carried out quickly, and whose effects would be felt overnight. There were bound to be strains and stresses, as there have been; and some of the new concepts have required modification when subjected to the test of actual application.

In the event, the navy's personnel structure to-day, is vastly different from that of seven years ago.

Following on this very extensive study and re-organization of the navy's manpower structure, there was formed by direction of naval board, in April, 1961, a committee whose terms of reference were:—

> To define the purpose of the navy and make recommendations concerning the role, tasks and composition of the fleet required to meet the navy's responsibilities in the future in the most economical manner. This will entail an examination of the probable nature of naval forces and design of weapon systems required during the next 25 years.

This committee, the ad hoc committee on naval objectives, was composed of one rear-admiral, four commodores, one captain, a senior scientist, and another senior civilian who served as secretary.

The committee produced a very thoughtful and very comprehensive report in which it did define the purpose of the navy and made recommendations as to the role, tasks and composition of the fleet in the years ahead. The report was submitted to the naval board in the autumn of 1961 and its recommendations were accepted, in fact where possible, and otherwise in principle.

I have dwelt at some length on major studies carried out, reports written and recommendations made, with respect to the navy. My object has been to try to indicate to you that there has been, within the navy, serious concern about all matters pertaining to the R.C.N., and a serious endeavour to improve and progress the fleet and the organization that stands behind it. Besides the studies I have mentioned there have been, and continue to be, others dealing with particular areas. I might say that in none of these reports I have mentioned, has there been any restraint with respect to criticism—constructive criticism.

The navy is not perfect. Mistakes are made. There are conditions that require remedy. There is frustration. Service in the navy demands self-discipline and self-sacrifice to a very high degree. In a peacetime service it is sometimes difficult for individuals to maintain a real sense of purpose.

But, Mr. Chairman and gentlemen, I know that I speak for the whole of the navy, when I say that if the navy were called on to-morrow, or to-day, to serve Canada in an emergency, it would be ready. Of this I am absolutely confident; absolutely certain.

I should like to hark back to the Mainguy report and quote a sentence from its introduction:

> "We were asked to find out what was wrong with the navy. If, therefore, we have stressed what is wrong, it should not be forgotten that a great deal is overwhelmingly right."

That was the navy of 1949.

The navy of 1963, gentlemen, is larger, better-equipped, better-trained, more efficient and more effective than that of 14 years ago. That is not an opinion; that is a fact.

The navy has its faults and its weak spots. But in the navy of 1963 "a great deal is overwhelmingly right."

Thank you, Mr. Chairman.

Mr. TEMPLE: Mr. Chairman, I should like to ask a question arising out of a statement appearing at pages 20 and 21, particularly having regard to the quotation which reads:

> To define the purpose of the navy and make recommendations concerning the role, tasks and composition of the fleet required to meet the navy's responsibilities in the future in the most economical manner. This will entail an examination of the probable nature of naval forces and design of weapon systems required during the next 25 years.

Do you have figures with you in respect of the exact cost of the proposed general purpose frigate program?

Mr. RAYNER: Yes, I have those figures. The estimated cost of the individual ship is $37 million. The estimated cost of the whole program including support costs, ammunition, stores and everything else, which is part of that general program, is $452 millions.

Mr. TEMPLE: Thank you.

Mr. MATHESON: Mr. Chairman, I should like to ask three questions arising out of this submission. The first question has regard to the *Crusader,* which I think was mentioned in the magazine article as well as in the submission made by Commodore Plomer. You have mentioned that the *Crusader* and her sister

ship the *Crescent* were built in Britain and transferred to Canada following world war II. Would you be kind enough to inform us, sir, when the *Crusader* and her sister ship were built, what was the quality of construction from the standpoint of it being a short or long run ship, and give us some idea of its proposed anticipated life? I am actually interested in finding out whether or not in your judgment the *Crusader* was finally abandoned after this ship had outlived her usefulness as compared with earlier expectations?

Mr. RAYNER: Several ships of this type were built by the Royal Navy and, speaking from memory, I believe the *Crusader* and the *Crescent* were finished in 1945. They were of war time construction and, speaking again from memory, practically all of these ships which were in service in the Royal Navy were retired from the Royal Navy in 1960 or 1961. I think that the *Crusader* lasted as long as could be expected in the Royal Canadian Navy without a major refit.

Mr. MATHESON: On page 18 you refer to three minor recommendations of the Mainguy report that have been implemented in whole or in part. Would you please indicate what they are, their extent, and whether or not there is any likelihood of their being implemented?

Mr. RAYNER: The three recommendations are: first of all, there is a recommendation concerning ship upkeep allowance. Allowances are paid to men in the navy to enable them to renew their clothing. In the army and air force renewal of clothing is free and no allowance has been paid. There are arguments for both systems. In the navy it was decided that we would go on with paying upkeep allowance instead of issuing clothing.

Another recommendation was in respect to dependants' allowance. "Marriage allowance only is paid in the navy. A single officer or a man supporting or partly supporting his parents should, in our opinion receive an allowance based upon the degrees of dependancy allowed in the United States navy." The quotation is from the Mainguy report, I might say. But this was not implemented, and there is no provision made, because it was not considered it should be done in peace time. However there is provision to introduce this in the mobilization plan.

The third one concerns pay for good conduct badges. Up until the new pay structure came into effect at the end of the war, when a man received a good conduct badge, he received pay for it. This allowance has been cut out in the new pay system. But these badges continued to be granted. It was a recommendation by the Mainguy commission that pay be reintroduced, but this could not be worked out between the three services. So in the result, extra pay does not result from good conduct badges in any of the three services.

Mr. MATHESON: My third question again follows the statement made on page 18 when you told us today that more than half of our ships have been built since 1949, and that within the past ten months you have commissioned four new ships, three destroyer escorts, and a fleet replenishment ship.

Naval answers to questions asked in the house have indicated that in ten years our navy dollar has dropped from 51 per cent in equipment down to 22 per cent, and in some years lower than that. I refer partly to a news report which you gave to Mr. Bruce MacDonald of the *Globe and Mail*, in which you said:

> I think we should have laid down some ships some months ago. We are falling astern in replacing our ships at the rate we should to keep up with our commitments. We are falling behind and we can only catch up with a crash program.

I wish to leave my questions concerning peace-keeping operations until later on in the day. But may I now ask you if you regard this situation as

satisfactory in respect of construction? I ask you this question because on page 21 you go on with further information at this point, and I am particularly interested to know whether or not the recommendations of the ad hoc committee were implemented in respect of new ship construction and replacement policy generally, or is it a fact that the navy has really become a victim, if you like, because of fiscal and economic conditions? Would you be quite frank with us and tell us if you are satisfied with the replacement of important naval equipment?

Mr. RAYNER: I stand by your earlier statement that the replacement of ships is the greatest need in the navy. I say in this statement that over one-half of the ships have been built since 1949. These are half the ships in the navy. A great deal of discussion about the ship replacement program has evolved around the construction of escorts. We have a commitment to provide 43 escorts, 29 to SACLANT and 14 to the Canada-United States branch of NATO. But in making this statement one takes into account more than escorts. I had in mind ten mine sweepers, all of which have been built since 1949.

Mr. MATHESON: Does it follow, sir, that we are in a serious state of failure to maintain, if you like, our equipment strength? I refer again to the conflicting case given to Mr. Bruce MacDonald, that we really need a crash program for all major ship replacing.

Mr. MACRAE: Mr. Chairman, we can hear neither the questions nor the answers. Would you please speak up.

Mr. MATHESON: My concern is that you would appear to have given two sides of this question. On the one hand you tell us that over 50 per cent of our ships now in operation have been built since 1949, which, I suppose, means that they are still within a reasonably expectant life. On the other hand, to Mr. Bruce MacDonald of the *Globe* you seem to have categorically indicated the need for a crash program, saying that we are falling behind in replacing our ships at the rate which is required.

As a layman, I wonder. We are falling down to 22 per cent from 51 per cent of the naval dollar a year ago, and I wonder if we are placing ourselves in a serious position. Does the navy need more money for ships?

Mr. RAYNER: Briefly, the answer to that is yes, it does. But I would like to explain that Mr. Bruce MacDonald's account from which you quoted was written not as a result of an interview with me, but as a result of evidence given before this committee. I mentioned the effect of a crash program to the committee, but I qualified it immediately after by stating that I was not suggesting that a crash program is needed at this time.

Mr. MATHESON: I do not want to delay the committee, but you have spoken of this ad hoc committee and of naval objectives. Are you satisfied since that committee produced a report that we have in some measure implemented that report?

Mr. RAYNER: Yes, our planning has been governed by it, but there are financial restrictions on the proposed program. Those financial restrictions in recent years have not enabled the navy to do all that we would wish, but this is a problem which faces all our forces in Canada and elsewhere.

Mr. WINCH: Mr. Chairman, may some of the other members of the committee have an opportunity to ask questions?

Mr. CHURCHILL: This was all written out on page 323 of an earlier report, with the same questions and the same answers.

The CHAIRMAN: Do you wish to finish, Mr. Matheson?

Mr. MATHESON: May I finish my last question, and then I have one further question? I take it we have had a vast increase in personnel which has been

met owing to the changing complex of naval requirements, and therefore there is no foreseeable reduction in our naval expenses for personnel. Do you regard 22 per cent of the naval dollar as a fixed percentage? I do not think it has increased in ten years, and has in no way declined now with respect to our requirements for replacements, or do you see a need—an urgent need —for a larger defence dollar so that further ship building can be done, and if so, to what extent?

Mr. RAYNER: This is a question of opinion. I can only say that other navies have been spending a greater percentage of their budget on new equipment and new ship construction than we have.

Mr. MACLEAN: Mr. Chairman, I have two or three questions I would like to ask the admiral. He pointed out that there is an acceleration in the introduction of new complicated equipment in the navy. A previous witness suggested the other day that untried electronic or mechanical equipment should not be installed. It would seem to me that if that is the case, this would imply that the R.C.N. should not install equipment until it had been found satisfactory by some means or other, by other services in some other navy, or that it had been thoroughly tested beforehand by some testing and developing branch of the navy. Would the admiral care to coment on this situation? Does he think that the present commitment for the introduction and testing of new equipment is satisfactory?

Mr. RAYNER: Yes, I would think the present organization for testing and developing new equipment is satisfactory. We also receive results of development trials from the Royal Navy and from the United States Navy. But when one is building a ship, one tends to have regard to the fact that the ship is going to last for about twenty years, and that it is going to take five or six years from the thinking stage until the time she is in service with the fleet. Therefore one has to look ahead and take a chance on the development of some of this equipment, otherwise the ship would be three or four years out of date before it joined the fleet. We have an organization based on headquarters which inspects all new equipment on all new ships.

Mr. MACLEAN: My second question has to do with promotions. How are officers selected for any course at the Imperial Defence College, or for other special courses? What do you think of as factors when an officer is or is not sent out on a course? What effect does this have on his chances of promotion?

Mr. RAYNER: Officers are selected for senior staff courses initially by the chief of naval personnel who recommends them to the C.N.S., and in fact the navy then recommends to the chairman of the chief of staff committee candidates for senior staff courses at the National Defence College in Kingston or at the Imperial Defence College in the United Kingdom. Candidates are cleared by the chiefs of staff committee. The fact that an officer has not taken a course has no effect. Let me put it this way. One of these senior courses is not a qualification for promotion, but obviously an officer who has taken the course is in a much better position to do his job, than an officer who has not taken the course.

Mr. MACLEAN: My last question has to do with the age of retirement of officers. My understanding is that when an officer is promoted, at least in some cases, his age of retirement from the service is moved forward. It has been implied in the past that some officers would prefer to continue their service in their present rank and retire earlier, rather than to accept a promotion and serve for a longer period of time. The implication of this is that their service is automatically extended as a result of a promotion which places an officer in some cases in a position which he can not avoid. I wonder whether the admiral would care to comment in this regard and give us some

idea as to his thoughts of the British system of treating personnel, where an individual is promptly discharged from the service providing he stands for parliament?

Mr. RAYNER: In respect of the question of age of retirement, your suggestion is true. The retirement age of a lieutenant commander is 45, of a commander is 50 and of a captain and senior officers is 55. If an officer is promoted he must serve longer.

I have been made aware of a very few cases where an officer has refused a promotion because it would entail longer service. However, if an officer resigns, the policy in the navy is to release him as soon as he can be spared from the service. If he cannot be spared within a few weeks he is informed that his resignation is not acceptable nor possible at that time but will be acceptable within a certain number of months, or when proper relief can be provided.

Your second question is difficult to answer.

Mr. GROOS: Do not answer that question.

Mr. RAYNER: Thank you.

Mr. GROOS: Admiral Rayner, apart from the points of Commodore Plomer's testimony which you have rejected out of hand as being untrue, did he raise any important points in respect of which you had not been previously aware?

Mr. RAYNER: I do not think so. He pointed up certain points of which we were aware. He underlined or emphasized certain areas, but a great many of the points which he made in his reports were known and understood by the Atlantic command where he was in command of seagoing ships. A great deal of thought was being given to these points and, in fact, Commodore Plomer took part in some of these studies.

Most of these points were known in the Atlantic command and some of the measures I have mentioned here were not the result of Commodore Plomer's reports although they took place in 1961 and 1962. Some of these measures were in progress before these reports were received.

Mr. GROOS: Admiral, can you assure this committee that these matters are now under active investigation by your staff with a view to improving the situation?

Mr. RAYNER: One of the main functions of naval headquarters staff is to keep these areas under active and constant investigation in order to provide means to enable the fleet to operate effectively.

Mr. MACINNIS: Admiral Rayner, referring to a question in respect of the matter of the assessment selection and promotion of officers, at page 4 of your brief, you stated:

> I might point out here that any member of any of these boards may call for the file of any officer he deems worthy of consideration whether or not that name has been selected.

As a result of this situation would board members have the opportunity of bypassing those individuals who may be selected purely on the basis of merit, allowing the possibility of promoting certain individuals who would not measure up to the merit system?

Mr. RAYNER: I do not think what you have suggested could result in any way. To begin with, before an officer is considered for promotion he must be recommended.

Mr. MACINNIS: You state that the officer must be recommended and that forms precisely the basis for my question. In your own brief you state:

> I might point out here that any member of any of these boards may call for the file of any officer he deems worthy of consideration whether or not that name has been selected.

Mr. PLOMER: That is true. Any member of the board can call for the file of any officer and, having called for the file, if the officer has not been recommended that is the end of the matter. The point is that officers are assessed once a year, and in order that an officer may be promoted he must have been recommended by his senior officer. If he has not been recommended then he is not eligible for selection. The selection is done by a preliminary screening board, so that all officers must be properly considered.

Mr. MACINNIS: I should like to mention one further point in this regard. I should like to point out that you have a board of senior officers and, as far as I am concerned, the emphasis is placed in your statement on the words "— of any officer he deems worthy—" Therefore you have a senior officer sitting on a board who deems some officer worthy of consideration. This member of the board is given the privilege of calling for that officer's file in order that he may be considered for promotion, as the case may be. This method is not in accordance with certain statements that have been made previously.

Mr. RAYNER: Just one moment, Mr. MacInnis. Surely that method is a source of strength to the promotion boards?

Mr. MACINNIS: This method also provides a source of bypass over the merit system.

Mr. RAYNER: No one is bypassed.

Mr. MACINNIS: Perhaps I should have used the word "favoured" rather than "bypassed".

Mr. RAYNER: The word "favoured" is not applicable. The fact that a member of a selection board calls for the file of an officer does not indicate that that officer is going to be selected for promotion.

Mr. MACINNIS: I realize that, and the same situation applies in respect of anyone who appears before the selection board. You have already pointed out that there are approximately twice as many officers selected as there are vacancies available for promotion, so that each and every officer who appears before the board is not going to be promoted.

However, I would like to follow up with a question in respect of the matter of the planned maintenance system which apparently came into effect since 1962. Prior to that time the maintenance of ships was carried out on the basis of a two year period. Why was this system not followed and applied in the case of the *Crusader*?

Mr. RAYNER: The planned maintenance system has been introduced into progressive use since 1959. That is the date upon which the plan was established.

This problem has been exercising the responsible officers for many years. There was a system of maintenance in effect before that, but it was realized in the late 1950's that ships were becoming very much more complex and that some system had to be evolved which would provide better maintenance. This system resulted from that realization. This new system was agreed upon in 1958 and established in 1959 and has been followed since, although it has taken some time to establish it properly.

Mr. MACINNIS: Why was the *Crusader* allowed to go as long as it did without any consideration in respect of refitting? Under the progressive system of maintenance which has been in effect since 1959 why was the *Crusader*

permitted to go as long as it did, resulting in it becoming obsolescent in respect of armament and electronic equipment, which would cost an estimated $5,500,000? Why was the *Crusader* allowed to deteriorate to that extent in spite of the fact that under the system in existence prior to 1959 each ship was subject to refitting every two years?

Mr. RAYNER: The *Crusader* was running as a trial ship out of Halifax from 1955 to 1959. There was a heavy demand for her services in order to carry on with those trials. She was running trials in respect of variable depth sonar systems. During these trials equipment was being fitted and taken out from time to time, as a result of which the *Crusader* was in the dockyard providing more opportunity for running maintenance than in respect of a normally operating ship.

There is one other factor involved in this question, namely that the navy was faced with the problem of whether to modernize and convert the *Crusader* or not. Her sister ship the *Crescent* was converted commencing in 1955. The question in 1957 and in 1958 was, I suppose, whether to convert this ship. This question gave rise to the delaying of refitting. Obviously, if she was to be converted within several months it would make sense to do her refitting at the same time. The normal refitting was delayed until a decision in this regard was arrived at and eventually in 1959 a survey was made and it was decided she must be refitted before she rany any more. The decision still had not been taken whether to proceed with the conversion of the *Crusader* or not because by that time she was being considered for the same type of conversion as that in respect of the St. Laurent class which involved fitting a helicopter and variable depth sonar.

We were not ready to proceed with that conversion until late 1960. It was then decided that as the *Crusader* was not fit to run, rather than refit her at that time she should be laid up; in other words, she was paid off and placed in reserve until a decision had been made whether she should be converted or not.

Mr. MACINNIS: At page 16 of your brief, Admiral Rayner, at the top of the page you state:

> On October 24 the United States naval quarantine of Cuba was imposed.
>
> On that same day, October 24, action was taken to commence bringing the navy, as quickly as possible, to a high state of operational readiness.

Admiral Rayner, I had been under the impression, as the result of previous submissions to this committee, that the navy has always been in a state of high operational readiness. There is emphasis in this statement upon the fact that action was taken to commence bringing the navy as quickly as possible to a high state of operational readiness. This statement does not bear out my impression that the navy was prepared and ready for operations at this time. Your statement indicated that in the event of an emergency action is taken to make ready to meet the emergency.

Mr. RAYNER: The navy has always been ready for a short term emergency, but one cannot maintain ships in readiness for prolonged emergencies at all times.

What is meant by this statement is that we interrupted maintenance programs and brought all ships to the ready position for operations as rapidly as possible.

Mr. MACINNIS: What percentage of your fleet would be fully prepared to meet an emergency which you indicated was going to be of considerable length? Do you maintain at all times a percentage of the fleet capable of meeting a long-range emergency?

Mr. RAYNER: Yes, we do. But there is a difference between keeping a ship ready to fight immediately and, let us say, keeping ships available for a short term emergency. For instance, when you are getting ready to fight immediately, you put ammunition in the guns ready to fire. You load your torpedoes, and so on.

Mr. MACINNIS: I do not mean to be as technical as all that, as to have ammunition in the breech and such as that; but if you would give it, I would like a comparison between the readiness of the naval forces to go into immediate action to meet an emergency as compared to that of the R.C.A.F. and the Canadian army?

Mr. RAYNER: The ships themselves are always ready. When a ship steams out of Halifax, she has the necessary ammunition and stores on board to go into action. When I speak about bringing the navy to a high state of operational readiness, I am thinking of supporting organizations on shore also.

Mr. BREWIN: Mr. Chairman, I want to ask the admiral one or two questions that arose out of the evidence of Commodore Plomer which I do not think have been specifically mentioned in the information given to us today: On page 342 of the evidence there was a reference by Commodore Plomer to the fact that the *Bonaventure* in 1961 gave a demonstration to many NATO officers off Norfolk, and he said:

> But the ship arrived with one of her main feed-pumps out of action and her speed reduced to eighteen knots. There was no spare in Canada. There was no spare in Scotland. It was an obsolete pattern. So one was specially manufactured in great haste and flown out to Canada.

This is given as an illustration of the unreadiness of the *Bonaventure* for war conditions. Is there any comment that the admiral would care to make?

Mr. RAYNER: Yes. I would like to explain why. The *Bonaventure* is fitted with four boiler feed pumps, two being for normal use and two for auxiliary use at slightly less capacity. During the 1961 exercises to which you referred, one of the auxiliary pumps suffered an unusual failure for which no spare parts were carried on board. I stress the words "unusual failure".

Spares had to be ordered, and were obtained from Scotland, and all repairs were carried out by the ship's staff on their receipt. Meanwhile the pump capacity of the ship was sufficient to provide full power, but with only a marginal stand-by. As tracker aircraft only were being operated, the ship's speed was temporarily curtailed to 18 knots as a matter of prudence. This speed was deemed to be sufficient for the operations taking place.

Mr. BREWIN: On page 314 also Commodore Plomer rather criticizes a statement made by the admiral earlier to the effect that Tribal class destroyers are versatile. He said that they were not versatile, and that it was misleading, and that their range was limited. Would the admiral care to comment on that matter?

Mr. RAYNER: This is a matter of opinion. I am firmly convinced that the Tribals are versatile ships. These ships were built in 1937 in the Royal Navy and are larger than contemporary destroyers at that time because emphasis was laid on main armament rather than on torpedoes. They were armed with eight 4.7 guns and only four torpedo tubes. They were built to counter the heavy German and Italian destroyers of the day, and were intended to break up enemy flotillas by gun action. During the earlier years of the second world war the comparatively short endurance of the Tribals was somewhat of a drawback. But by modern method of replacement, we

have offset this considerably. I would like to mention the fact that the Canadian Tribal *Cayuga* in late 1950 set a record for Commonwealth destroyers in the Korean theatre by remaining at sea on patrol for 50 consecutive days.

Mr. BREWIN: Dealing with another point, the commodore told us that the *Iroquois* had been steaming around for years with one boiler out of commission, and that there were two others also with burned out boilers. Can you comment on that?

Mr. RAYNER: Yes, I would like to say that in July 1955 the *Iroquois* sustained serious damage to one of her boilers. She has three. A new boiler installed was estimated to cost $3,000,000, with considerable time required for procurement and fitting; that is a period of 18 months or more. The cost and time involved considered in relation to her then planned paying-off, which was 1960, gave rise to the decision to retain her as a two boiler ship with a consequent reduction in the vessel's speed of between two and three knots; that would be a reduction from about 31 to 29. The ship was paid off and placed in reserve in October 1962. The engineer officer, and the senior man in charge of the boiler at the time, were disciplined as a result of this accident.

In regard to the other two ships, one boiler was temporarily crippled and it was decided to allow the two ships in question to operate for a brief time with two boilers instead of three, until they went into refit.

Mr. BREWIN: A little further on the commodore said that as a result of complaints the chief of naval staff received a complete list of these deficiencies. Was such a list produced?

Mr. RAYNER: Such a list was produced from the information readily available at naval headquarters. I would like to explain the circumstances of how this list came to be produced. Commodore Plomer took his complaints to the Minister of National Defence, and the Minister of National Defence called for a full inquiry which was carried out, during which both the flag officer at the coast and the chief of naval technical services were asked to provide a list of breakdowns, and this list was produced by the chief of naval technical services, and it was produced for the minister's inquiry. But I would like to stress that this was just a question of going to the books and picking off a list of the breakdowns which had occurred. This was part of the normal recording procedure at naval headquarters to keep the technical staff there informed.

Mr. BREWIN: I take it you would not agree with Commodore Plomer's conclusion that any person could read this list and conclude that the breach was not remedied?

Mr. RAYNER: That would be a wrong conclusion.

Mr. BREWIN: There is another matter concerning naval board minutes in which he stated, in his view, questions of operational efficiency were not given the importance which they warranted, and that he could only find one heading on the state of ships, and that under this there was a quantity of trivia. Have you anything to comment on that?

Mr. RAYNER: I would say this: Commodore Plomer said that in the year 1962 right up until the Cuban crisis the state of readiness of the fleet was not a subject of formal discussion at the naval board. On January 1, 1962, until the time of the Cuban crisis the naval board met 23 times. I might say that at every regular naval board meeting—although it is not recorded in the minutes because it is a regular procedure—the deployment of the fleet and the operations picture are explained to the board, and this gives rise, naturally, to discussion, certainly, on the state of the fleet. And while no subject under the formal headin gof state of readiness of the fleet appeared on any agenda during these months from January to October, 14 different subjects were discussed and some of them on more than one occasion, which involved consideration

by the naval board of several subjects concerned with the fighting efficiency of the fleet.

Some of these "endless trivia" included the question of uniforms for Wrens. We regard uniforms as an important subject, because they are part of morale. Unless one keeps a tight hold on uniforms, one will find a great many changes taking place, because a great many people have ideas on it. And I would like to point out or mention that at an admiralty board meeting Lord Mountbatten, having seen some of the naval uniforms worn here in Canada, asked to have a couple of our sailors appear to show these new uniforms to the board of admiralty. So you see that they also take great interest in uniforms.

Mr. BREWIN: There is a similar question, when he drew some inference from the subject matter of a board of inquiry, and when he said they dealt with matters of internal canteen arrangements and such, and that very few of them, if any, bore any relationship to operational efficiency. I think that is at page 369, if I have the reference correctly, and he said that there were hundreds and hundreds of cases of negligence with no board of inquiry at all. Was he correct, and if so, what comments would you care to make?

Mr. RAYNER: I do not think there were hundreds and hundreds of cases of negligence, but I would like to say that I think Commodore Plomer was speaking on the basis of his experience when he was head of the fleet from October 1959 to September 1961, during which period there were six boards of inquiry concerning fires in ships, and six concerning mechanical failure, breakdowns and conditions of maintenance. In addition there were three courts martials on charges including stranding or hazarding of ships.

Mr. BREWIN: I hope that my next question it not one which you would prefer not to answer, but the commodore brought forward some commendation of himself by Rear-Admiral Pullen and Rear-Admiral Dyer in respect of his notable contribution to the fighting efficiency of the fleet together with his zeal and ability. Have you any comment to make in this regard?

Mr. RAYNER: In what manner do you wish me to comment?

Mr. BREWIN: The rear-admiral has said that Commodore Plomer conducted himself with zeal and ability to his entire satisfaction and made a most notable contribution to the fighting efficiency of the fleet. Rear-Admiral Pullen said that this was entirely to his satisfaction and stated that Commodore Plomer had improved the fleet's capabilities by emphasizing what was necessary and essential and did this in spite of an organization in support of the fleet which has been inadequate. Rear-Admiral Dyer was apparently a signatory to this report. I am wondering whether you would care to comment in this regard.

Mr. RAYNER: No, I have no reason to disagree with those statements at all.

Mr. BREWIN: I realize that other members of this committee wish to ask questions but I should like to ask one or two more at this time.

At the end of the first written submission to this committee the Commodore said that many of the views were not originally his own but represented the sum total of the considered opinions of many officers deeply concerned, often bitterly disappointed in the way the affairs of the navy have been conducted. I wonder whether such officers are free to express their views without fear of penalty, and if so, whether many of the criticisms put forward by Commodore Plomer are supported by other officers. Have you any suggestion to make in that regard, admiral?

Mr. RAYNER: As I mentioned previously, Commodore Plomer made many points in his presentation to this committee which were made to the Minister of National Defence over a year ago. At that time the minister called for a full inquiry into all these matters. These points broke down principally into

charges of poor maintenance, neglect of the ships and poor morale of the officers and men.

As I say, the minister carried out a full inquiry. He called for reports from the coast; he called for reports from the naval service headquarters, and in the result he approved the release of Commodore Plomer.

In regard to the question of the officers having grievances, there is provision that any officer and, indeed, any man in the navy may state his grievance if he feels that he has suffered any personal oppression, injustice or ill treatment. An individual may complain to his captain and may carry that complaint all the way up through the chain of command to the governor in council, in the case of an officer, or to the minister in the case of a man. It is specifically laid down that no officer or man shall be penalized for making a complaint, and no correspondence concerning a redress of grievance is ever made available to promotion boards.

Mr. MACINNIS: That statement is only accurate where the chain of command is properly followed, is that right?

Mr. RAYNER: That is so. If the chain of command is not followed I doubt whether there would be correspondence on file.

Mr. MACINNIS: In the case of the commodore he went directly to the Minister of National Defence and thereby broke that chain of command, is that right?

Mr. RAYNER: Yes, that is true, but I must say that the commodore did discuss this at great length with myself.

Mr. BREWIN: Mr. Chairman, I wonder whether I might ask just one further question?

At page 344 of the Minutes of Proceedings and Evidence the commodore has listed a series of suggestions regarding the method of dealing with the immediate problems. One suggestion is that effective anti-aircraft defence be given to the fleet. Would you care to comment on that statement as it appears at page 344 of the Proceedings and Evidence, particularly in respect of the statement that effective anti-aircraft defence be given to the fleet? I feel that it would be rather serious if effective anti-aircraft defence was not provided.

Mr. RAYNER: At the present time the anti-aircraft defence of the fleet is provided by anti-aircraft guns. Up to the end of 1962 anti-aircraft defence was provided for the carrier and her escorts by the Banshee fighters. These Banshee fighters reached the end of their lives in 1962 and had to be phased out. Previously a decision had been arrived at to equip new ships with surface to air missiles. At the present time there is not an existing surface to air missile which we could put in our present escorts. One is under development but has not been completed.

There is one other missile in existence which we consider has too short a range and we are waiting for the better missile to be developed.

Mr. LAMBERT: With reference to the statement made this morning, which in my opinion does not comment on certain aspects of Commodore Plomer's statement, particularly those items appearing on page 344 of the Proceedings and Evidence, I should like to deal primarily with the priority he gives to the construction of submarines and his views in regard to the general purpose frigates.

The commodore indicated that a top flight priority should be given to the construction of submarines, and he went to the extent of suggesting that consideration be given to the construction of nuclear submarines, and that the submarines should be built in Canada. I wonder whether the admiral would care to comment in connection with the scale of priority, and the statement that submarines should be built in Canada? Perhaps the admiral would also

care to comment on the role that submarines should play in the over-all naval picture?

Mr. RAYNER: We believe that submarines are essential for training. As I have explained to the committee they must be used for training A.S. forces as well as for anti-submarine operations. I am advised that submarines can be built in Canada.

Mr. LAMBERT: Can submarines be practically built in Canada? We all realize that we can build them, but it might involve a cost of $100 millions as compared to $30 millions.

Mr. RAYNER: Unquestionably it would be much more expensive to set up a production line for the construction of submarines in Canada for a small number of submarines than it would be to obtain them from abroad.

Mr. LAMBERT: Would there be a sufficient requirement for submarines to maintain such a construction line?

Mr. RAYNER: This involves a matter of opinion and policy.

Mr. LAMBERT: We have had opinions expressed here and perhaps we can now have countering opinions or concurring opinions expressed.

Mr. RAYNER: I do not think I am in a position to express my opinion in this regard.

Mr. LAMBERT: Turning now to Commodore Plomer's comments in respect of the general purpose frigates, I have the impression that he feels they are too costly and do not fulfil the role or requirement of the navy. What is your comment in that regard?

Mr. RAYNER: The naval staff has stated the requirements for the general purpose frigate. If a ship of that type is to be built, then the cost of the proposed general purpose frigate is reasonable. We have compared these costs with the costs of similar ships being built abroad. We believe that the navy needs these ships to perform the role which is at the present time laid down for the navy. A general purpose frigate built to accomplish those things we expect such a ship to do cannot be built for less than the proposed cost. If one wishes to have a ship which will accomplish these things one must be prepared to pay the cost.

Mr. LAMBERT: Would you care to comment on the relationship of the general purpose frigate and the use of the helicopter? Commodore Plomer advanced the opinion that since the general purpose frigate could handle only one helicopter it was too expensive a platform for the limited use of a helicopter.

Mr. RAYNER: The general purpose frigate was not developed primarily to carry a helicopter. It is possible of course to carry a helicopter in it, but if one were designing a ship just to carry helicopters, one would build a different type of ship altogether.

Mr. LAMBERT: Your answer leads me to ask a further question. If the navy observes an expanding use of helicopter, what will it use as a mobile platform?

Mr. RAYNER: The navy will use, in that event, some form of helicopter carrier involving some other vehicle.

Mr. LAMBERT: Does that situation detract from the usefulness of the general purpose frigate as now envisaged?

Mr. RAYNER: The general purpose frigate was designed to provide good anti-submarine capability and support for land forces as well as to provide the fleet with limited air defence capability for the future.

Mr. LAMBERT: If there is going to be more effective and extended use of helicopters for anti-submarine purposes, is it a fact that the general purpose

frigate as now designed is not really as efficient for anti-submarine work as orginally conceived?

Mr. RAYNER: I do not think that is a correct statement. When a situation such as you have described develops the navy will then need other vehicles or ships in order to carry more helicopters. You will still need the general purpose frigate to perform the roles which I have described, except that if you want a highly specialized antisubmarine ship you again would build a different type. The present Mackenzies are highly specialized antisubmarine ships but they have not some of the capabilities of the general purpose frigate. However, they are cheaper than the general purpose frigate.

Mr. WINCH: Mr. Chairman, my question in part has been answered but I would appreciate it very much if I could have an amplification. I refer to page 20.

The vice admiral informs us that there was a committee formed in April 1961 whose terms of reference were these:

> To define the purpose of the navy and make recommendations concerning role, tasks and composition of the fleet required to meet the navy's responsibilities in the future in the most economical manner.

Then on page 21 the vice admiral informs us that the report was submitted to the naval board in the autumn of 1961 and its recommendations were accepted in fact where possible, and otherwise in principle.

Mr. Chairman, that is a very definite statement. There is absolutely no hedging whatsoever. Therefore, I would like to ask this question of either the vice-admiral or the minister. As the recommendations were accepted in fact where possible and otherwise in principle, will he please now tell us, within the terms of reference, what is the purpose of the navy, its role, and its tasks. I think that information now would be most useful in view of the definite statements and submission of the vice-admiral.

Mr. RAYNER: When I say these recommendations were accepted I mean they were accepted by the Naval Board. I described the purpose and the tasks and the role of the navy in my presentation to the committee in July, and it is to be found on page 89 of the proceedings of Tuesday, July 9, under the heading "Purpose of the R.C.N., the role of the R.C.N. and the operational tasks of the R.C.N."

Mr. WINCH: This having been accepted by the Naval Board?

Mr. RAYNER: Having been accepted by the Naval Board.

Mr. WINCH: As to the role, the tasks and the composition, was that information then conveyed to the responsible minister?

Mr. RAYNER: Yes, it was.

Mr. WINCH: And of course I cannot ask you now as to what the decisions are. When do we ask this of the minister, Mr. Chairman? Now?

Mr. HELLYER: In due course, I would say, Mr. Winch.

Mr. WINCH: I think this actually is the crux of the matter, Mr. Chairman. In view of the information we have been given on pages 20 and 21, in view of the fact that we have now had the statement that these recommendations were accepted regarding the role of the navy and the composition of the fleet, and in view of the statement we have also now received that with the acceptance of the Naval Board of this report it was conveyed to the government, in view of the fact that this committee has been established for the very definite purpose of going into defence policy, just what is the use of us continuing to sit if we are going to be told by the minister that in due course we will know what is the position and the role of the navy.

Mr. MACINNIS: Does the minister know the recommendations?

Mr. WINCH: Or do we have to wait for the white paper in the spring?

Mr. RAYNER: May I answer the question on the composition of the fleet? In the report the future composition of the fleet was considered and the naval board accepted the future composition of the fleet as a guide to planning.

This is what we would like to have, but of course many other facets come into it. The financial position of the country, for example, is one of them, and how much it can afford for the navy. In making this study, the officers and the committee assumed that the same amount of money proportionately to the budget which had been spent in recent years on the navy would continue to be available. But financial limitations will have—and naturally so—a big effect on the composition of the fleet. It is a question whether the country can afford it or not.

Mr. WINCH: I have one more question. I realize the sincerity of all members of this committee in wanting us to do a job. But might I ask if the minister is in a position to give us a definition of "due course".

Mr. HELLYER: In his opening statement the Vice-Admiral gave you an outline of the roles and aims of the navy. But if this committee would like me to come back in a few days time to discuss this matter, at greater lengths, I would be pleased to do so.

Mr. WINCH: That is fine. In a few days.

Mr. LESSARD (*Lac-Saint-Jean*): Was that report of 1961 a secret or classified report?

Mr. RAYNER: It is a classified report, but I could have it looked into.

Mr. HELLYER: I would like to have a look at it first. I think that most of the recommendations are relevant, and we could probably give them to the committee, but I would like to take a look at it first.

Mr. MACRAE: I have one or two questions. In connection with the ack-ack gun. At page 8, the witness said:

> The U.S.N. and R.N. began developing the three 3"70 anti-aircraft mounting in 1947.

Was that development carried on simultaneously in both nations, or was it more so in Great Britain than the United States?

Mr. RAYNER: I would like to have notice on that. To the best of my knowledge it was carried on simultaneously.

Mr. MACRAE: In the second paragraph then, following the last paragraph down, it says:

> Subsequently the U.S.N. abandoned development of this gun in favour of surface to air missiles and the 5"54 mounting.

In what particular year did the United States navy abandon that development?

Mr. RAYNER: I would have to find that out for you.

Mr. MACRAE: My next question is this: first of all you mentioned that it cost $1.3 million per mount. That seems to me to be a very expensive gun for what it can do. Could you advise the committee if the Royal navy is today putting its main dependance for anti-aircraft purposes on the 3"70?

Mr. RAYNER: In some ships; but the Royal navy has equipped its new ships with surface to air guided missiles.

Mr. MACRAE: Thank you, that is most helpful. The Canadian navy at this particular point has placed its major dependence for ack-ack purposes on the 3"70?

Mr. RAYNER: That is correct.

Mr. MACRAE: Would this be classified information—how many ships of the Canadian navy are fitted now with the 3"70, and how many of these weapons are in active use in the Canadian navy today? Perhaps that would be information you could not give.

Mr. RAYNER: Yes. I would guess ten; there are certain Restigouches. There are six Restigouches fitted with 3"70, and there are three MacKenzies making nine.

Mr. MACRAE: Nine guns?

Mr. RAYNER: No, nine mountings. The mounting consists of twins guns.

Mr. WINCH: On that very same page, would you mind stating for clarification—a little while ago if I understand the vice admiral, he said they were not able to equip our Canadian ships with surface to air missiles because they were not suitable. Now he has just said that in the United Kingdom they are not using the 3"70 because they are equipped for anti-aircraft on their vessels with a surface to air missile. Why did you say there is nothing suitable in the Canadian navy when they are equipped—and I presume it must be suitable—when they are being placed in the navy of the United Kingdom? I would like a qualified reply.

Mr. RAYNER: Because the guided missiles which the Royal navy are putting into their ships are too large to go into our ships. The ships in the Royal navy which carry their surface to air missiles are of about 6,000 tons, while our destroyer escorts are about 3,000 tons, about half that size.

The Royal Navy have very short range point defence guided missiles, which we do not regard as effective for our purposes. It is not as long a range as our 3"70 guns.

But as I have tried to explain, we are looking ahead to another surface to air missile which is coming along, and when development has been completed, and when the right time comes, I think you will find that the navy will be asking to equip our present destroyer escorts, and the *Bonaventure*, with this new surface to air missile.

Mr. MACRAE: My question is on the personal factor, I believe that presently the strength of the navy is 21,500. Could the witness tell us the officer strength, and the other strength of the navy.

Mr. RAYNER: The personnel strength of the navy today is about 21,600, of which 2,800 are officers.

Mr. MACRAE: That leaves 19,000 of other rank. How many officers are there of vice admiral rank in the Canadian navy today?

Mr. RAYNER: One.

Mr. MACRAE: Just yourself. And how many rear admirals?

Mr. RAYNER: Nine, including the surgeon-general, who heads up the armed forces medical service.

Mr. MACRAE: And the next rank is commodore. How many commodores are there?

Mr. RAYNER: About 21.

Mr. MACRAE: A lot of chiefs for that many indians, it seems to me. What was the strength of the Canadian navy on V.E. day, 1945.

Mr. RAYNER: 96,000.

Mr. MACRAE: How many vice admirals were there at that particular time.

Mr. RAYNER: One.

Mr. MACRAE: How many rear admirals were there at that time, approximately?

Mr. RAYNER: I would not like to guess.

Mr. MACRAE: My next question is this: you would seem to have about the same number of officers of senior rank to administer a navy of 21,600 as you had to administer one of 96,000.

The CHAIRMAN: Gentlemen, it is now half-past twelve and the committee will return this afternoon as soon as Orders of the Day have been called. I would ask the members to be as prompt as possible, please.

AFTERNOON SITTING

The CHAIRMAN: The meeting will now come to order.

This morning when we adjourned I had Mr. Lloyd's name first on my list of those persons wishing to question Vice-Admiral Rayner.

Mr. LLOYD: Thank you Mr. Chairman.

Admiral Rayner at page 20 of your statement this morning you made reference to an ad hoc committee, I believe, in respect of naval objectives. The terms of reference of that committee apparently directed the committee to define the purpose of the navy and make recommendations concerning the role, tasks and composition of the fleet required to meet the navy's responsibilities in the future in the most economical manner. It might be useful to the members of this committee if you were to restate what were some of the fundamental considerations that brought the naval board to the conclusion that a general purpose frigate would fit into the future role of the navy as they felt it would. Would you give us a restatement of that situation?

Mr. RAYNER: Yes. In the report it was recommended that the anti-submarine role should continue to be the prime role of the R.C.N. It also pointed out that we should retain the versatility of the fleet with a general purpose capability. We did have this versatility, of course, in respect of the older Tribal class destroyers.

The report also recommended that this versatility should be continued. This was the principal reason that the general purpose frigates were included in the program.

The report did not go into the details in regard to the general purpose frigate but just outlined some of the characteristics and work they envisaged in the overall program.

Mr. LLOYD: Admiral, I am looking for a few more specifics regarding what you mean when you refer to the overall program. Is it correct to assume that you include in the over-all program the role of an anti-submarine ship as well as a ship that would contribute effectively and economically to Canada's role with the United States in police force duties in respect of the general purpose frigate? Did you have that in mind in reference to the ad hoc committee?

Mr. RAYNER: Yes, when I spoke of the over-all program I was speaking of a long term program for the navy which would include A/A ships, general purpose ships, aircraft and support ships as well as mine sweeping capabilities. In other words, we are referring to the whole spectrum of the naval effort.

The general purpose frigates were designed to give us additional A/S capability, and I refer to modern anti-submarine capability as well as surface capability, enabling them to engage surface targets at sea as well as shore side targets if and when they are supporting a landing. They are also designed to give us a measure of air defence for future years. We have anti-aircraft guns which are effective against what I will call conventional aircraft as opposed to jet aircraft. In order that a ship may engage jet aircraft and shoot at missiles, which is what we will have to be prepared to do in the 1970's, we will need some ship borne missiles.

Mr. LLOYD: Admiral Rayner, during the sessions of this committee we have heard about the possibility of stand-off positions in respect of an enemy having regard to the use of ICBM's. This would probably, to the same extent, apply to ballistic missiles discharged from submarines. Therefore, there is always the possibility of small outbreaks where ships of the general purpose frigate type would be useful. Did this fact weigh heavily in the considerations of the ad hoc committee?

Mr. RAYNER: Yes, that fact did weigh heavily, because we had in mind situations like the Korean crisis, perhaps not of the same magnitude, but similar peace keeping operations in respect of which we might well be called upon to provide ships to do the kind of thing our ships did during the Korean crisis, as well as perhaps actually transport soldiers to back up these operations.

Mr. LLOYD: Fundamentally what you tried to accomplish in the design and construction of new ships was to incorporate a hull, motive power and reasonable speed yet have a platform which would stand the rigours of an Atlantic storm upon which could be mounted a variety of weapon systems and which could be used for antisubmarine hunting with helicopters? This morning you indicated that the British navy was concentrating their efforts upon defence against missiles and abandoning the use of ack-ack guns. Would the general purpose frigate be suitable for locating missiles?

Mr. RAYNER: Yes.

Mr. LLOYD: Would the general purpose frigate have sufficient power enabling it to perform a similar function to those performed by existing British ships?

Mr. RAYNER: Yes, the general purpose frigate was designed to accommodate two missile systems and a surface gun.

Mr. LLOYD: We have had some information regarding the cost of these ships. If a general purpose frigate was well designed, having regard to the initial capital cost, it is conceivable that with the proper versatility and with possible future changes you might in the long run save money; is that correct? If the frigate is designed with the proper motive power so that it can readily be adapted to future anticipated needs the final cost may be less to the Canadian taxpayer, is that correct?

Mr. RAYNER: I am afraid I have not quite caught the gist of your question?

Mr. LLOYD: If you have had a practical eye in regard to future possible needs, in designing this general purpose ship, incorporating a certain type of hull, motive power and a superstructure, readily adaptable to alterations at reasonable costs, which may be required in the foreseeable future to accommodate those weapon systems which are anticipated, you will in effect have saved the taxpayer's money, is that correct?

Mr. RAYNER: You have again referred to a cost element, and I must remind you that everything in this sense entails certain expenditures.

Mr. LLOYD: Somebody has suggested that I was making a speech for Admiral Rayner. I know that all members of this committee will realize that I am not a member of the bench and that this is perhaps the only way I have at hand of getting the information I desire upon which, in all consciousness, I can decide the position I should take in this committee. I hope you will forgive me in this regard, keeping in mind that I am not a lawyer.

Mr. RAYNER: The general purpose frigate is one of the more advantageous of the ships of the size of an escort because it has been built, as you have suggested, as a floating platform which will last up to 20 years. One cannot foresee, of course, how long the weapons now available will be useful. If the

weapon system has to be changed after about half the life time of the ship, which is exactly what will happen to the St. Laurent and Restigouche class ships, and this is why we are converting the St. Laurent class at this time; this will involve certain changes. The general purpose frigates have been designed so that the weapon systems can be taken out and converted, making the ship to all intents and purposes a modern and up-to-date ship.

Mr. LLOYD: Then you propose to build a ship with maximum possible flexibility? I wonder how you propose to phase the construction of these ships. Could you tell the committee what is the phasing plan for the construction of eight frigates?

Mr. GROOS: It would take the whole of Halifax.

Mr. LLOYD: I am mindful of one of the recent statements by one of the hon. members to the effect that sometimes maritimers attempt to be parochial. I hope it is evident that I am not.

Mr. RAYNER: We would phase the eight ships over four years.

Mr. LLOYD: So that the impact on the Canadian budget would extend over this period of four years?

Mr. RAYNER: We would see the first being laid down and then the second a year later, and then at regular four-month intervals.

Mr. LLOYD: What would be approved today would take you how long before you could get into actual ship construction?

Mr. RAYNER: It would be the middle of 1965.

Mr. LLOYD: Thank you, Admiral Rayner.

I would like to turn to page 348 of the Minutes of Proceedings of this committee. It has to do with Commodore Plomer's statements, and it contains reference to the experience of admirals.

> I hope indeed the qualifications of the admirals past and present will be thoroughly investigated some time in the near future because this has been the area of irreparable damage. Let me add to what I have already written that it is after you have associated with the admirals of other navies you come back to discover with a shock, that ours talk and act like amateurs.

I am even reluctant to repeat what is in the minutes. The statement goes far afield. It says:

> —ours talk and act like amateurs.

Would you be good enough to inform the committee of your own experience and sea experience with the navy?

Mr. RAYNER: I was at sea before the war from the beginning of 1930 until the war started, except for about a year and a half on shore for courses. During the war I commanded three destroyers and I served for a year during the war as staff officer of operations in Halifax, and for about a year as director of naval plans here at naval service headquarters. After the war I commanded another destroyer, the R.C.N. air section as it was then known at Dartmouth in Nova Scotia, the tri-services college at Royal Roads, the aircraft carrier *Magnificent*. I was at N.D.H.Q. as secretary of chief of staff committee and also as co-ordinator of the joint staff, and after commanding the *Magnificent* I was promoted to flag rank. As flag officer I served as chief of naval personnel for two years and flag officer Pacific coast for three years. I became chief of naval staff in August 1960, at which time I had nearly 32 years service.

Mr. LLOYD: Have most of the admirals had extensive sea experience and command of ships?

Mr. RAYNER: The admirals who were formerly in the executive branch, line officers, had extensive sea experience. The officers with an engineering background or supplying administration background have had very little. In fact, they have had practically no sea experience in senior ranks because there were no jobs at sea for them nor, in fact, do they need the sea experience in the senior jobs.

Mr. LLOYD: Do you have personnel with extensive background in engineering, for example, or electrical engineering and the like, and mechanical engineering backgrounds?

Mr. RAYNER: Yes, the present chief of naval technical services has been an engineer since he was a midshipman.

Mr. LLOYD: Admiral, I now turn to another final phase of questioning which I have for this afternoon. It has to do with your reference this morning to the fact that Commodore Plomer requested of the former minister of defence that his case be reviewed in some way. Was this a naval board of inquiry, or how is it conducted?

Mr. RAYNER: The commodore sent the minister a copy of his report on the state of the fleet and a copy of a resume on the conversations which he had had with myself, and his observations on morale in the fleet, and the minister called for a full report from myself. I prepared this report in consultation, of course, with the officers at headquarters and also the flag officer and his staff at Halifax. I presented this report to the minister, who examined it and then asked me to discuss it with Commodore Plomer, which I did. Then the minister continued the discussions with Commodore Plomer.

Mr. LLOYD: What was the final result of that inquiry? Was there a statement made to Commodore Plomer by the minister? Or were you informed of such an action?

Mr. RAYNER: I was not informed.

Mr. LLOYD: You supplied the information and there the matter ended so far as you were concerned?

Mr. RAYNER: Not quite because there was a legal side to this question. I had recommended to the minister that Commodore Plomer be released. Having reviewed the circumstances and carried out the investigation which I mentioned, the minister directed that Commodore Plomer be released.

Mr. LLOYD: Those are the only questions I have, but before I leave the matter, Mr. Chairman, I would like to say that I hope we will not spend too much more time on the matter of the Plomer charges. I think if you do wish to spend more time on this matter I would earnestly suggest you call as a witness the former minister of defence before you decide upon any serious action, if any. Personally, I consider the matter of the Plomer charges one which concerns the present Minister of National Defence. I think we have far greater and more important jobs, as we have stated so often, concerned with the over-all policy of defence in Canada and the Canadian government and its relationship to economic considerations and in relationship to our international commitments, to the United Nations and so on. This, I think is our real job; but if you are going any further into the Plomer charges, I think one of the first steps would be to invite the former minister to appear.

Mr. MACINNIS: On a point of order, Mr. Chairman, to me and I am quite sure to many of the members on this committee it would seem that the navy had no choice but to take this very action against one of their officers, just as they would have against any naval rating, in that the chain of command or proper procedure was not followed. Disciplinary action was taken and there is no need for further action. It was just a matter of disciplinary action,

which is applicable to seamen as well as to officers. This suggestion of calling the former minister of national defence is nonsense. The navy had no choice. As the admiral said, the chain of command was broken. Disciplinary action is applicable to officers just as it is to seamen.

Mr. LLOYD: My suggestion has been called nonsense. In fact, the member who has just spoken agrees with me because I said that if you are going to go on, then you have to go further into the question, you have to call the former minister, and this would go on endlessly and we would be distracted from our main purpose. I suggest there is no nonsense in my suggestion.

The CHAIRMAN: Mr. McMillan.

Mr. MCMILLAN: I was interested in the readiness of the fleet for combat. Commodore Plomer said the other day that the fleet went on manœuvres—I think to Bermuda or in the region of Bermuda. I presume the fleet had plenty of notice. Commodore Plomer said, on questioning by myself, that the *Bonaventure* had many defects. I think he said one boiler went out of commission or had been out of commission. One destroyer had only one gun that was capable of being fired. In the case of another ship there was a lot of rust and it showed evidence of neglect on the part of the crew.

I wonder if you can make comments on the state of the fleet and its readiness for combat.

Mr. RAYNER: I inquired into this data from the flag officer, who wrote to me as follows:

> The inference that the fleet was not prepared or in a fit state for war in 1961 comes as something of a surprise. During that year Commodore Plomer carried out the annual inspection of five ships on my behalf. In four of his reports he stated that the ships were in all respects ready for war. In the fifth report he stated the ship was efficient but lacked spirit. The contradiction between these reports made in 1961 and the comments made in the reference—

this was the material I sent him—

> —are serious. Furthermore the quarterly return of operational state of escort squadrons, which were concurred in by senior Canadian officer afloat, do not support the allegations made.

Certainly there were defects in the ships in 1961 when they were serving under Commodore Plomer, but I cannot accept that the over-all state was as bad as it has been reported. Some ships would be in much better shape than others. It would be the task of the captains, the squadron commanders, and indeed of Commodore Plomer, to take action to get them in good shape.

Mr. MCMILLAN: Is there a marked defect in the *Bonaventure* boilers?

Mr. RAYNER: The *Bonaventure* had a boiler explosion last summer, in August. This is an unusual occurrence. It is the first time that one of our ships has been delayed by a boiler explosion, and in this case it was poor lighting-up practice. As a result an officer and the chief petty officer who were in charge of the operation have been disciplined. This was an accident.

Mr. MCMILLAN: I take it then that you disagree with Commodore Plomer's statement that the crew showed neglect in looking after the ship?

Mr. RAYNER: In principle, yes, sir.

Mr. MCMILLAN: How about the morale of the navy? I gained the impression that the morale of the navy was quite low.

Mr. RAYNER: This is a very difficult question to answer. It is difficult to judge morale. The morale of a ship's company when they are doing well, when they are doing a good job on exercises, is high. When the ship is out on

exercises and there is thick fog and nothing much is happening for about ten days and they do not know when they are coming back into harbour, then the morale can be low. It is quite easy to be able to maintain morale with the prospect of battle, or in peace time with the prospect of a royal visit, or on foreign cruises.

As I say, it is difficult to judge morale. If by morale you are thinking of whether the men are satisfied with the existing state of affairs, then I would say that it is at best good. If by morale you are referring to fighting spirit, then I go back to what I said this morning: I am absolutely confident that the men in the navy, if called upon today to serve in an emergency would be willing and do their job cheerfully and well.

The CHAIRMAN: Mr. Hahn.

Mr. HAHN: Admiral Rayner, I just have a couple of detailed questions on one or two specific charges that Commodore Plomer levied against the navy. First, he made reference to the cruising turbines in the St. Laurent-Restigouche class ships being put in at great expense and then being removed afterwards. Could you comment on that?

Mr. RAYNER: I have a note on these turbines. The main machinery package selected in 1949 for the St. Laurent class was so-called Y-100 design. This machinery has also been adopted by the Royal Navy and is used in a series of ships with similar performance to the St. Laurent. A feature of this design originally was the automatic clutching and de-clutching of the cruising turbine which was provided in addition to the ships' turbines. This cruising turbine offered important fuel economies at low speeds in the ranges up to about 14 knots. At speeds much above this the cruising turbine had to be disengaged because of the high rotational speeds at which it operated. Difficulties were experienced in making the clutches work automatically. They had worked perfectly well in hand, but to be effective they would have to work automatically, and this was difficult. In the meantime, the hunting speeds in anti-submarine operations had increased due to the increasing speeds of modern submarines submerged and also to the increasing detection capability of sonar at high speed. So the speed of the hunt moved up above about 14 knots when these cruising turbines would have been used, moving out of the speed range in which these cruising turbines would have been of greatest advantage. For these reasons, and in view of the fact that the problems associated with this automatic clutch have not been solved, it was decided to abandon the cruising turbines.

So the last couple of ships in the Restigouche class were completed without them. They were not put in the Mackenzies, and we are taking the cruising turbines out of the St. Laurents as they are converted.

Mr. HAHN: Commodore Plomer made certain references in his magazine article as well as before the committee about the heavy weather capabilities of the *Bonaventure,* and his suggestion was that the *Bonaventure* in heavy weather is not a good ship. Would you care to comment on that?

Mr. RAYNER: Well, this is a matter of opinion. The *Bonaventure* had a delicate bow, susceptible to damage in heavy seas. In 1959 she received bow damage, and also damage to her sponsors. But the most serious damage suffered by these ships in 1959 was to the bow. As a result the bow structure was stiffened and strengthened, and since it has been repaired, I understand, there has been no further damage. This is not to say that there won't be. I bent the bow of the *Magnificent* twice myself. The *Magnificent* is a ship similar to the *Bonaventure,* and despite the best care, we can get into a bad enough gale, when the bow will suffer. But there have been several of these carriers at sea. The Dutch are operating a similar ship, the *Karel Doorman,* on which they carried out some modifications, just as we did on the *Bonaventure.*

Mr. HAHN: Would you say that the *Bonaventure* is adequate for the north Atlantic work that it has to be doing?

Mr. RAYNER: I would say that it is perfectly adequate.

The CHAIRMAN: Now, Mr. Churchill.

Mr. CHURCHILL: Before I ask my questions I have a small matter of privilege to raise in connection with an incomplete report in the proceedings of the committee at page 332 when I asked the minister if he wished the committee to make a recommendation to him in regard to the naval program, and the minister replied that it is not necessary, and said a decision would be taken shortly, and it will be announced just as soon as it is taken.

My questions for the Admiral are as follows: first, referring to page 16 where the admiral mentioned the Cuban crisis and the operational efficiency of the Canadian navy, he pointed out that 29 ships were deployed and subsequently five others were ready within a week. How long was the fleet at sea during that crisis.

Mr. RAYNER: Operations extended from October 24 to November 12, sir, and at that time the ships were sent about their normal business.

Mr. CHURCHILL: Were there any major failures during the course of that operation requiring the ships to return to harbour?

Mr. RAYNER: There were two; one ship had trouble with her sonar, and the other ship had trouble with an evaporator. The ship with the evaporator trouble was brought in. She would not have been brought in in war; she would have stayed at sea with one evaporator. But at a time like this one does not know how long it will go on, so one tries to keep these ships as close to 100 per cent as possible.

Mr. CHURCHILL: In the course of a year, how many days would each ship be at sea, on the average?

Mr. RAYNER: I would like to have notice of that question, Mr. Churchill. I would guess two-thirds. But I would like to get you that information.

Mr. CHURCHILL: May I ask a question: could you supply the committee with a table showing each ship, the number of days at sea during the last twelve months, the number of breakdowns requiring repair at sea, and the number requiring repair in drydock or harbour.

The reason I ask these questions, Mr. Chairman, is that the most damaging charge made by the commodore is to be found on page 344 where he stated "what are the answers for a fleet so far below the proper standards compared to those of other NATO navies?"

It seems to me that unless we can have some information as a committee we cannot decide whether our fleet is up to standard, above standard, or substandard. I did ask the commodore last week about the NATO exercises and whether our fleet suffered in comparison with the fleets of our allies. In the admiral's statement he said that the performance of our ships in operation in recent years has stood up well in comparison to the ships of other navies. Is there any method by which we could compare the standard of the two others than on the basis of remaining at sea and not be laid up for repairs?

Mr. RAYNER: On the question of breakdowns, would it suffice if I gave you the number of failures to main equipment over the last two-and-one-half years which have all meant the ship returning from sea, or have prevented her from going to sea?

Mr. CHURCHILL: Very well, that will be all right.

Mr. RAYNER: I have here a list which reads as follows:

Number of Failures

	1961	1962	1963 to Sept. 15
Turbo Blowers	5	10	4
3"70 Gun	4	13	3
Main Feed Pump	10	5	2
Hull Outfits 7A Sonar	5	9	3
Main Turbines	3	2	2
Evaporators	6	5	3
Boilers	8	9	7

The question of comparison with other navies is very difficult to establish. We have a figure for the operational availability of our ships. We have that and we can compare that figure over the last three years, and I have a comparable figure for similar types of ships in the United States Navy, and I also have a figure for ships in the Royal Australian Navy.

Mr. CHURCHILL: Are you satisfied that our navy bears comparison with the two you have mentioned.

Mr. RAYNER: Yes, I am.

Mr. DEACHMAN: May I ask a supplementary question in regard to that table? I do not think that table is very meaningful unless we have a table showing the number of vessels involved and the number of days steamed.

Mr. CHURCHILL: I think that will show in the record. I said the number of vessels and the number of days at sea during the last 12 months.

May I ask another question if this is not classified information? Is the navy expected to take part in exercises this fall with NATO forces and, if so, for how long?

Mr. RAYNER: The ships are taking part in a NATO exercise at the present time. The *Bonaventure* and four destroyer escorts are operating with NATO forces east of the United Kingdom. They are operating between Scotland and Norway on a NATO exercise. At the same time three destroyer escorts are on the point of leaving Long Beach with a United States hunter-killer group which comprises a carrier and destroyers. It will exercise with these ships on the way to Pearl Harbour in Honolulu.

Mr. CHURCHILL: Why not order the remaining ships to sea during this same period and let this committee have a report twice a week during the next month as to what they are doing, their capabilities, and the failures, if any? Then we would have some knowledge of what our navy can do. Without further evidence I am not prepared to accept the charge that our navy is below the proper standards compared with all other NATO navies, and it is too serious a charge to be brushed aside.

Mr. RAYNER: Our other ships all have programs. The programs for the fleet are planned up to a year ahead. We can make changes, and indeed we do make changes, but to do something like that would cause quite a disruption.

May I run through this operational program which is this week's program for the fleet? The *Bonaventure* is at Invergordon for the exercise I mentioned. She has with her the *Algonquin, Micmac, Cayuga* and the *Saskatchewan.* The *Yukon*, a new ship, is under maintenance at Halifax and will commence working up on the 11th of November. I beg your pardon, she will start working up on the 15th of October. The *Qu'appelle*,, another new ship, is storing and carrying out pre-WUPS and post-commissioning trials, and then she will start working out of Halifax on October 25. The *Nootka* is in Halifax for maintenance until October 28. The *Athabaskan* is in Portsmouth and due to leave on the 25th and return to Halifax on October 31. The fifth escort squadron, the *Chaudiere, Gatineau, St. Croix, Terra Nova, Columbia,*

Kootenay and *Restigouche* are all carrying out the duties of a ready group of the Maritime Command Atlantic. They are ready for operations. Three of them are at sea and two are at short notice for steam at Halifax. In respect of the frigate squadron, five frigates on the east coast are carrying out squadron exercises at sea. Another frigate squadron of four frigates is carrying out maintenance at Halifax until the 14th when they become the ready group.

The minesweepers have visited Quebec city and now are carrying on an exercise in the gulf. I mentioned the three destroyer escorts on the west coast on their way to San Diego, Long Beach and Pearl Harbour. The *Assiniboine* is on her way from the west coast to the east coast to commence helicopter trials.

The *St. Laurent* is carrying out commissioning trials. Three frigates are on the west coast carrying out trials. Three are alongside giving leave. The minesweeping squadron is carrying out mining exercises on the straits of Georgia until the 18th of October. Those are the groupings of the command's ships. The point I want to make is that these ships all have carefully co-ordinated programs.

Mr. CHURCHILL: Would you say that during the course of a year they would be at sea about two-thirds of the time?

Mr. RAYNER: I think about two-thirds of the time.

Mr. CHURCHILL: Then the navy is not as inefficient and incapable of action as we have been led to believe by the statements of the commodore?

Mr. RAYNER: I certainly do not think so. This is the point I have been trying to make, sir.

Mr. DEACHMAN: May I ask a supplementary question on this? You have reported the *Saskatchewan* as one of the ships that is where—where is the *Saskatchewan* now as reported in that table?

Mr. RAYNER: She is overseas. She is in Portsmouth until the 18th of October, and then she proceeds to take part in exercise Sharp Squall.

Mr. DEACHMAN: I understand from a friend who has a son aboard the *Saskatchewan* that it had serious boiler troubles and is in port for repairs. Can you comment on that?

Mr. RAYNER: Yes. The *Saskatchewan* went over for exercises in the United Kingdom and on the way across she developed trouble with superheater tubes in one of the boilers. This defect, I am assured, is due to material failure. It is almost 100 per cent certain that it has nothing to do with the crew. The *Saskatchewan* is a new ship. The boiler is under manufacturer's warranty. The sections of the tubes are now being subjected to analysis and research, and if it is proven that these tubes are faulty then, of course, the manufacturers will have to pay for the repairs. It was, however, no fault of the ship that she had trouble.

Mr. CHURCHILL: I have one final question for the minister on morale, and with morale of the three services. Would he say that the morale of the navy is low and lower than that of the army or air force, or would he assure the committee that the morale of the three services is high?

Mr. HELLYER: Mr. Chairman, I would have no way of assessing that in terms which are absolute. I think in general terms the morale of all three services is high. As the admiral has said, there are times and areas where it is less high than others. When we isolate these areas and find out where they are, we will make sure our men are as effective in the fighting services of our country as we possibly can.

Mr. GRANGER: I would like to ask Admiral Rayner if the general purpose frigate can carry a full complement of troops as well as a full crew; that is, the troops she is designed to move?

Mr. RAYNER: Yes, she can.

Mr. GRANGER: I asked Commodore Plomer the other day whether this general purpose frigate could be modified to carry more than one helicopter. He did not think she could, Can this ship be modified to carry more than one helicopter if changes were made?

Mr. RAYNER: She could be but I cannot think that we would wish to do so.

Mr. GRANGER: Mr. Chairman, without going over what was said and the charges made there is one aspect I would like to have clarified and that is who is responsible for maintenance? Are there rules and regulations which say that such and such is to be done ashore and such and such is to be done afloat? Is the captain of the vessel responsible for keeping his ship in good shape? Is there not some particular department that looks after the ships to see that they are in good shape, thereby eliminating this problem of the varying conditions of the ships.

Mr. RAYNER: Yes. The captain is responsible for everything that goes on in his ship. The engineering officer is responsible to him for the maintenance of the engineering department. Then there is the hull department and the weapons department. The departmental heads are all responsible to the captains for the maintenance and the efficiency of their equipment. In turn, the captain is responsible for the whole of his ship to the squadron commander. But, if the ship is not part of a squadron he is responsible directly to the flag officer, who is responsible for all the ships and establishments in his area to naval services headquarters, where the chief of naval technical services is responsible for the maintenance and repair of the fleet.

Mr. GRANGER: Then there would be some repairs carried out on board during cruises; there would be some day to day maintenance and so on, with the major work being done ashore?

Mr. RAYNER: Quite a lot of the maintenance would be carried out on board from day to day. Ships are given so many days a year in harbour; in the case of the Atlantic fleet it is 90 days in harbour. The purpose of this is to allow the ship's company to carry out maintenance. They can do the bulk of this maintenance themselves. However, if there is any maintenance they cannot perform because they have not the necessary skill or because they have not the necessary tools they advise the flag officer, whose staff arrange for the work to be taken in hand either by the repair ship—and we have one on each coast—or by the dockyard.

Mr. GRANGER: The next question is this. It has been said that the top priority or the greatest need the navy has in ships; are there adequate dockage facilities as well?

Mr. RAYNER: Dry docking facilities?

Mr. GRANGER: Yes.

Mr. RAYNER: No, we are short of dry docking facilities in eastern Canada.

The CHAIRMAN: Would you proceed, Mr. Matheson.

Mr. MATHESON: Mr. Chairman, the admiral set out at page 90 of his evidence on July 9, the following:

Operational tasks of the R.C.N.

The admiral listed nine operational tasks the last one being to carry out and support operations in the Arctic. But, save for that the admiral listed numbers seven and eight at the bottom of the priority list, (7) being the transport, land and support Canadian army contingents as required and, I believe a related subject, (8) to provide mobile command and base facilities for external undertakings. Perhaps you will recall that I asked the government

this question: "in what military operations have the Canadian forces participated since the signing of the Korean cease fire agreement on July 27, 1953?" A reply came on October 10, which lists nine independent U.N. operations and in only three did our navy participate. The army was involved in eight, the R.C.A.F. in five and the navy in three, the naval operations being Viet Nam, with only two to three officers participating at a cost of $33,600 per year; an important U.N. operation in Palestine with H.M.C.S. *Magnificent* for an expenditure of $605,561, a one time cost and, finally, the United Nations Yemen observer mission in July, 1963, with one petty officer, at a cost of $262. Admiral, this results then in a cost in 10 years of approximately $1 million, and I am wondering, sir, in light of that, whether we are failing as a member of the alliance of NATO and also as an active member of the United Nations to play our part.

Commodore Plomer said at page 386:

> At one time, a few years back, one of the Canadian National steamships was offered to us as either a supply ship or transport ship for the nominal sum of a dollar.

He regretted this offer was not accepted, and he said the Canadian National steamship would have made a beautiful troop carrier, would have carried a good number of troops with equipment and at a speed of 16 or 17 knots, which is a fairly good speed. May I ask this question: Does this G.P. frigate carry both a helicopter and 200 men at the same time? May I ask further what we really are doing to build up our naval capacity to participate in U.N. peace keeping operations. My impression is we have done virtually nothing in the last ten years except for the H.M.C.S. *Magnificent* sea lift in the Atlantic operation in 1956-57.

Mr. RAYNER: The G.P. frigate would carry 200 men and a helicopter at the same time. But, if the ship was required to carry vehicles along with the 200 men then the helicopter would have to be left behind.

The question of naval forces for the United Nations is one of government policy. We have accepted commitments to NATO; we have accepted no commitments to the United Nations other than to provide forces when asked to do so. This is all that Canada has been asked to provide in the way of naval assistance during those years.

If we were asked to provide assistance we would have to take forces allocated to NATO and use them and, indeed, they could be used. We could use the *Bonaventure* in the trooping role; she could carry up to 700 men. However, that would take her out of the anti-submarine role. We could use one of the escort maintenance ships, which would carry up to 260 men, but it would be a very slow journey because these ships have top speeds of nine knots. However, they would be very useful. They have excellent workshops on board and would be very useful as repair ships.

The new supply and replenishment ship, the *Provider,* would be excellent in a replenishment or supply role on the United Nations Operations. We could use any of the destroyers or frigates to carry a limited number of men for a short period of time. These ships are not fitted for this purpose but the men could be crowded in for a short period of time. If the situation required that a large number of armed forces be transported from one place to another we might then leave some of the sailors ashore, but the action would depend upon the anticipated circumstances.

Mr. MATHESON: May I ask you if I may properly conclude that we really have not failed to honour any requests from the United Nations?

Mr. RAYNER: That is true to the best of my knowledge. We have not turned down any requests but I should point out that when a demand is made on Canada for service to the United Nations forces the government is fully

committed to her NATO role and we can only provide men by taking them away from that NATO role. The decision in this regard in the past has been not to take men from that role.

Mr. MATHESON: May I finally ask, if we in Canada were thinking of our role in terms of fundamental integration between the services and playing a larger part in the United Nations business of peace keeping operations, would it make sense that we would tend to move in the direction of the frigate type program rather than a submarine program, or can you come to such a conclusion?

Mr. RAYNER: One of the reasons for the review of defence policy lies in this situation. Whether the most important role is the specialized so called hard military role with strict specialization in anti-submarine warfare as far as the navy is concerned, or a strike role as in the case of the air force, as compared to carrying out more operations in the field of policing work, is a decision which has to be made by the government.

Our present ships are adaptable to the peace keeping or policing operations. If there was going to be more emphasis placed on that role then we would move to a certain type of ship. If we were going to remain with the priority being given to an A.S. role we would give priority to another kind of ship.

Mr. DEACHMAN: Admiral Rayner, when you were before this committee prior to the recess of parliament you suggested that the members of this committee should be given the opportunity of visiting naval establishments. I took you at your word and a few weeks ago in September I made several visits. If the Chairman will permit me I would like to use this occasion to thank you for that opportunity.

I spent one half of one day cruising along under water in a submarine and another half of one day aboard the *Mackenzie* looking for the submarine. I also spent some time on shore being briefed by the west coast flag officer. Following that I visited the maritime division of the R.C.A.F. and went on board one of their Neptunes on a submarine hunting exercise. I now have a fairly good idea as to what this type of exercise involves.

I have been left with the impression that if I were required to enlist tomorrow I would enlist in the submarine service because there is not the slightest doubt in my mind as to the superiority of submarine over surface craft. It seems to me that our efforts are only a spit in the ocean in the war against submarines. I really cannot see how we as a Canadian Navy with an all purpose vehicle such as the general purpose frigate are going to be successful against submarines. I wonder if you could just indicate to us how we are going to fight a war at sea against submarines with a vehicle of that kind?

Mr. LLOYD: We might as well have a shooting war in spite of party lines.

Mr. RAYNER: It is quite obvious, Mr. Deachman, you have been talking about a keen submarine crew.

Mr. DEACHMAN: I have talked to keen submarine crews and individuals equally keen on surface vessels, as well as equally keen airmen employed in the submarine hunting field, and it is quite obvious that the submarines have a tremendous advantage over surface vessels such as the general purpose frigate.

Mr. MACINNIS: The fishermen could not even fish out on the west coast until some eastern fishermen went out there and taught them how, and the same probably applies to this situation.

Mr. DEACHMAN: In view of my recent experience on the west coast, which I have just described, you must be more convincing than you have been in order to convince me that the general purpose frigate can serve a useful purpose in submarine warfare.

Mr. RAYNER: The general purpose frigate would have a good A/S capability. The frigates will be equipped with a good sonar system as well as anti-submarine weapons. The frigates would serve with either a convoy screen or with a carrier screen, screening them from submarine attacks. In addition to that screening against submarine attack, of course, there would be provided some protection against air attack.

Mr. DEACHMAN: I should like to ask you a question or two based on that statement.

I understand that the speed of these vessels would not be adequate in order to enable them to keep up with a carrier force. You mentioned that a frigate would be used with a carrier force. It is my understanding that such a carrier force would have to slow down and wait for the frigates; is that correct?

Mr. RAYNER: I perhaps should have said they would operate with an A/S carrier force. These ships would be screening an A/S carrier such as the *Bonaventure*. It is unlikely that they would be operating with a strike carrier force. If they were required to do so at times they would not be able to keep up, but the fast strike carriers with speeds of 32 knots would not proceed at top speed all the time, but only for relatively brief periods.

Mr. DEACHMAN: Therefore the frigate would not have a useful capacity in operation with a carrier force and we cannot consider it as being capable of integration with a carrier force, is that right?

Mr. RAYNER: That is an accurate statement in respect of a strike carrier force, but they are useful with an A/S carrier force.

Mr. LAMBERT: Mr. Chairman, I should like to ask one supplementary question arising out of the testimony given by Admiral Rayner this morning.

A statement has been made that perhaps greater and greater use of helicopters will be made in the antisubmarine role. Mention was also made of the fact that if the use of helicopters is to be extended, rather more specialized helicopter carrying ships will have to be used. Is there any provision in the proposed program in this regard in the future?

Mr. RAYNER: The answer to your question briefly is that consideration is being given to this situation.

Mr. LAMBERT: I take it that it will be some considerable time in the future before this change is made?

Mr. RAYNER: Such a programme will not take place until some time in the future.

Mr. LAMBERT: Referring now to the questions I really intended to ask at this time, considerable mention was made by Commodore Plomer in respect of man-management study. Are man-management studies being made on a continuous or periodic basis by the Royal Canadian Navy?

Mr. RAYNER: Yes, man-management studies are being carried out regularly. If I may I should like to outline man-management in the navy.

In January 1957 the Royal Canadian Navy began a management engineering program to help management find and install better and more economical ways to carry out its task, and the management engineering section was set up in the naval headquarters in the naval comptroller's department.

After it had been in operation for about one year it was found that owing to the geographical distances involved in Canada, it was more economical to establish command teams to meet the requirements of the flag officers on either coast. Early in 1959 the naval board directed that work study teams were to be established in the Atlantic and Pacific commands.

The newly formed work study teams started operating in the Atlantic and Pacific commands in October, 1959.

I would like to give some examples of the work these teams carried out because it has been very worth while. The Atlantic command looked at the availability of manpower in the *Restigouche*. The aim was to increase the availability of manpower for maintenance, repair and training. This was commenced in February 1960. They did a study of the engineering planned maintenance of the *Terra Nova*. She is also on the east coast. They did a study in the Pacific command of the administration of a destroyer escort's planned maintenance which aimed at improving and centralizing the administration of ships' maintenance in the St. Laurent class.

They did a study on ship repair planning and management control to reduce non-productive time of dockyard labour force and to eliminate or reduce delays in work. Also in the Pacific they did a study on duty watch requirements for all classes of ships in home ports which aimed to determine minimum numbers of men required in home port duty to meet ship readiness and security requirements.

Complementary to the work study program being conducted in operational units by the command teams, preparation for a work measurement program of the navy's industrial activities was begun in the fall of 1959. A full scale program was started in the fall of 1960 to produce engineered standards for all operations in naval ammunition and naval supply depots. This program is providing large savings in manpower costs over a relatively short period.

A survey of all ship repair activities has recently been completed in Halifax dockyard by a firm of management engineering consultants. Their recommendations for work measurement and engineered standards for all ship repair activities are now under study.

In summary, the costs and gains for the management engineering effort in 1962 is as follows: In the Atlantic command the study costs amounted to $49,000, the first year gains are $65,000, and the recurring annual gains are $39,000. In the Pacific command the study costs amounted to $66,000, the available first year gains are estimated at $217,000 and the recurring annual gains at $207,000.

I also have the study costs and available first year gains and recurring annual gains for the work measurement, but the total of these costs are as follows: The total study costs for work study and work measurement was $220,000, the available first year gains amounted to $473,000, and the recurring annual gains amounted to $517,000.

I hope this will indicate that work study and work measurement are being carried on in the Royal Canadian Navy both in our ships and in the shore establishments.

Mr. LAMBERT: Is this a continuing procedure?

Mr. RAYNER: Yes.

Mr. LAMBERT: At page 345 of the transcript of evidence, in Commodore Plomer's statement, there is a charge that the work study group sat on its hands in Halifax because it was not allowed to go aboard ships. This is a rather direct and serious charge. Nothing beyond the statement was offered as evidence of it, but what is the reply to that, if there is one?

Mr. RAYNER: The reply is that since early 1960 an Atlantic command work study team carried out four studies in ships of the fifth escort squadron, as well as in some other ships.

Mr. LAMBERT: In other words, you do not accept this statement?

Mr. RAYNER: Not at all.

Mr. GROOS: Well, Mr. Chairman, I hear five o'clock striking and I feel that if any good is to come out of this discussion of ours it has probably to a large extent been done. We have heard a lot of opinions being aired and a number of questions have been asked and some answers have been given.

The question now before us, as I see it, is where do we go from here? I do not think any of us, certainly not I, want to be a member of a MacCarthy team which names names and investigates persons, their decisions, their motives and their characters, particularly if those people have not much of a chance to defend themselves. That, as I see it, is not our job as a committee. We have a great deal of important things to do. Now, I cannot speak for the rest of the members of this committee, but I would like to see the new navy, if you want to call it that, get on with its task, which includes the task of improving itself. This is a job which I feel they are perfectly capable of doing. I know there are many improvements to be made, I do not think anyone here will argue with that, but I would like to see them get on with it, and if this results in a better navy, I think we will all be satisfied. I am sure I, for one, will be.

I would like to present this at this time because I am not sure where we are going to go from here.

Mr. SMITH: I am sorry to follow Mr. Groos with a pedestrian sort of question. It relates back to Mr. Matheson's question a few minutes ago. It concerns a matter of carrying troops on destroyer escorts. Would it not be the ideal situation, Admiral Rayner, if we had a specialized kind of merchant ship for carrying troops and military supplies that was easily adaptable for these purposes?

Mr. RAYNER: The ideal situation would be if we had our own troop transport.

Mr. SMITH: But failing that in the navy would the next best be adaptable merchant ships?

Mr. RAYNER: Under Canadian control yes, it would.

Mr. SMITH: Has consideration ever been given by the navy to using the docks at Kingston, Port Weller or Port Arthur?

Mr. RAYNER: Not in recent years. They are a long way from the sea.

Mr. SMITH: Except that the seaway has brought them somewhat closer.

Mr. RAYNER: Yes, but it means further for the ships to steam and further to transport men and materials to and fro.

Mr. SMITH: Is that a very substantial cost?

Mr. RAYNER: Yes, it is, because if the ships are going to be in dock for any time you move the crews back to the coast so they can progress their training.

Mr. SMITH: The other question relates to something said the other day. The witness, Commodore Plomer, said that it was a very simple matter to fit merchantmen with helicopters. Perhaps that was dealt with this morning, I do not know. Do you think it is a simple matter?

Mr. RAYNER: Relatively simple, yes.

Mr. SMITH: And relatively cheap?

Mr. RAYNER: Relatively cheap, yes; but when you finish, all you have is a merchant ship which can carry helicopters.

Mr. SMITH: In other words, you have not the control systems and the communications?

Mr. RAYNER: Neither the control systems nor the communication systems; and you probably have not the speed either.

The CHAIRMAN: I still have one member who wishes to ask questions on this statement by Vice Admiral Rayner. It is Mr. MacInnis.

Mr. MACINNIS: I just want to follow up on the policy mentioned a moment ago and the matter of transporting troops. Is this a requirement the navy is

looking forward to, keeping in mind that our transport before was carried out by ships provided from outside of the military class? In other words, there were liners and merchant marine ships which were used for the purpose of transportation. With that in mind, and bearing in mind the arguments on behalf of the submarine, does the admiral think that surface ships would play a much greater role in protection of a convoy, whether it be a troop convoy or a supply convoy? Does he see any advantage there for submarines over the surface ships.

Mr. RAYNER: The great advantage of a surface ship in escort role is as a communications and control center. A surface ship can talk to aircraft and can communicate with submarines. The difficulty about the submarine in communications; it is difficult for a submarine to communicate with any aircraft. When we solve the problem of communications between submarines and aircraft, then submarines will be much more effective. They are very good in the antisubmarine role today, but they would be more effective with improved communications if used as part of an escort along with surface ships and aircraft, than they are at present.

Mr. MACINNIS: I would like to emphasize the escort role for a convoy. Does the surface ship have all the advantages there? Friendly identification of a submarine would come into the problem there. The surface ship definitely has a far bigger and more important role in the protection of convoys, does it not?

Mr. RAYNER: That is perfectly true.

Mr. MACINNIS: Does the navy still look to the possibility of troop convoys and supply convoys as one of the roles in the future?

Mr. RAYNER: Yes.

Mr. MACINNIS: Then this would put the emphasis on the surface ship rather than upon the submarine, would it not?

My question comes about because of the difficulty of identifying friendly submarines as against enemy submarines in the vicinity of any given convoy.

Mr. RAYNER: That is true; it is very difficult to identify friendly submarines. It is far better to put the submarines out on a barrier with no other friendly shipping around, working with aircraft.

Mr. MACINNIS: Since the navy still foresees a role of escort duty in respect of convoys, then it also must see the need for more surface ships, must it not?

Mr. RAYNER: That is perfectly true.

The CHAIRMAN: I understand members of the committee have no more questions to ask of Vice-Admiral Rayner on the statement he made this morning; but on October 8, Mr. Brewin requested that he be allowed to ask a few questions on the previous statement of Vice-Admiral Rayner. I hope members will allow Mr. Brewin to proceed with his questions.

Mr. BREWIN: I want to ask the Vice-Admiral about the type of war that we may anticipate, arising out of what he said at page 115 of the record. He said there:

> Well, this gets us to the question of what kind of an attack it is going to be. Nations are working towards trying to prevent a nuclear holocaust. If that is successful—and there are indications that it may be; certainly that is the effort on both sides—and if war occurs we are going to be in a war something like the last ones but with modern conventional weapons. However, essentially it will be a question of North America having to supply Europe, and the enemy trying to stop Europe being supplied from North America.

First of all, admiral, I call your attention to that and I take it that our present antisubmarine role—which is a major role that we are undertaking to meet—does contemplate that sort of war, a conventional war something like the last one. Is that correct?

Mr. RAYNER: That is so.

Mr. BREWIN: I just wonder—and I think it goes to the root of the problem here and I would like to get your thinking on it—whether it is realistic to think of the navy steaming backwards and forwards again and a war somewhat like the last one. If Europe is involved to any substantial extent in a war, is it realistic in this age of nuclear weapons and so on to envisage the same type of war as we saw before, perhaps an example of fighting the last war rather than fighting what is likely to happen in the future.

Mr. RAYNER: I think we have to be prepared to fight a war like that because weapons have changed but geography has not changed. The situation of countries has not changed. If Europe is involved in war with a land power, as part of NATO there is still the problem of taking supplies to Europe.

Mr. BREWIN: The way I would put it to you is that if the war reaches the stage that the Russian submarines were attacking convoys in the Atlantic it is likely, is it not, to escalate into an all-out war very quickly if it reached that stage.

Mr. RAYNER: This is the big question. However, the NATO commanders are convinced that antisubmarine forces are necessary in great numbers to convoy in the North Atlantic. It is a question of maintaining control of sea communications. You cannot maintain control of sea comunications without sea forces, which implies both ships and aircraft.

Mr. BREWIN: Then I will change the subject for a moment if I may and go to what you said at page 89 where you dealt with the role of the R.C.N. and, in (a), her capability of defending Canada's interests against attack from the sea. Does Canada's "interests" there mean Canada's shores? What is meant by "interests"?

Mr. RAYNER: It means Canada's shore and Canada's shipping.

Mr. BREWIN: I wanted to ask you if that is a realistic concept. Would not an attack on Canada from the sea be a most unrewarding military venture with the maximum of dangerous consequences for anyone making such an attack?

Mr. RAYNER: In a war it could be of great nuisance value. An attack on Newfoundland or Labrador or the British Columbia coast would tie down Canadian forces which would be needed overseas. An attack like that would tie the forces down at home. This is what happened in the last war to some extent.

Mr. BREWIN: I would suggest, admiral, that if an enemy were going to make any attack on the Canadian shores, that would be an order of magnitude that would require a major response.

Mr. RAYNER: We would be in a major war, certainly. I cannot conceive an attack on Canada without a major war occurring.

Mr. BREWIN: If we have a major war, is that sort of attack going to be of any significance, do you think?

Mr. RAYNER: I think it would be of significance to Canada; yes, indeed, I do. I will put it in this way: if we do not have the ability to respond to an attack like that; it invites an attack.

Mr. BREWIN: To change the subject almost entirely, perhaps even going to the frivolous, I noticed at page 94 a phrase that interested me and I wondered if you could perhaps elaborate.

The sailors nicknamed these ships "Cadillacs"

That is the St. Laurent's.
I just wondered if it suggested that there was some unusual and unnecessary luxury. I have always associated Cadillacs with that.

Mr. RAYNER: I think every sailor aspires to a Cadillac. These were super ships; they were the latest of their kind. The sailor—and indeed a lot of other people too—looks at the 1963 Cadillac, and that to him is the acme of the motor car world.

Mr. BREWIN: Can Canada afford Cadillacs? Does it not imply a view of unnecessary elaboration and luxury?

Mr. RAYNER: No, I think a great many young people in Canada would like to have a Cadillac.

Mr. BREWIN: But it might be very foolish for them to try to have a Cadillac.

At page 97 you said:

> Our present destroyer escorts have a very limited capability against nuclear submarines, but they are first class against conventional submarines . . .

May I ask you in connection with that if the range required for anti-submarine work is coextensive with the submarine's range of torpedo fire? My understanding is, in fact, that it is not so, and that many of these destroyer escorts have a very limited range of fire when compared to the range of torpedoes on the submarines which they may be attacking.

Mr. RAYNER: Normally destroyer escorts hunt submarines in groups. I have not quite got your question. Is it that the submarine can stand out of range of the destroyer escort and fire torpedoes at it?

Mr. BREWIN: Yes, that is my point.

Mr. RAYNER: But that is not what normally happens. You normally have two or three destroyers attacking a submerged submarine, and they are running into the attack; they are faster than the submarine, which helps, and now they will have helicopters which are much faster, which they will send out ahead of them to attack the submarine.

Mr. BREWIN: I have another question: with respect to the operational tasks of the R.C.N. including the transporting and landing of supporting Canadian army contingents as required, have we now adequate transport and the means to support a Canadian army contingent?

Mr. RAYNER: No, we have not. We can carry some troops in our ships. We would have great difficulty in landing them unless we could take them into port.

Mr. BREWIN: I know. The general purpose frigates would be designed with that in view, if that was the main role.

Mr. RAYNER: Now the general purpose frigates would have landing craft; but the ideal way to get troops ashore would be to put them alongside a pier.

Mr. BREWIN: I understand that the present projected general purpose frigates have substantial antisubmarine capacity. Would they need that, if their main purpose was that of a supporting role to the Canadian army?

Mr. RAYNER: Their main purpose is not a supporting role to the Canadian army. Their ability to transport troops is a dividend, because of the size of a ship. It is something you can build into the ship without making the ship any larger.

Mr. BREWIN: I have one final question, the matter of a very general statement and perhaps it does not mean too much unless you apply it within

the NATO alliance. Is there not much to be said for allocating specific tasks to the various member countries so that they can specialize in a specific task that they can do well?

Mr. RAYNER: Yes, there is, and it is something that has been done. We took on the role of antisubmarine warfare several years ago with the full support of NATO.

Mr. BREWIN: That is all. Thank you.

The CHAIRMAN: Gentlemen, you are aware that Commodore Plomer is present. If some members wish to question him, he is ready to take the stand now. Otherwise the meeting will be adjourned.

Mr. LLOYD: Mr. Chairman, I think the steering committee should give some serious thought to that step before we decide on a course of action. I think you should consider the implications of starting now to question Commodore Plomer, because I think you would be heading yourself into a long road of personal investigation and probing, something which is not the purpose of this committee.

The CHAIRMAN: I take it then that no member wishes to have Commodore Plomer again before us.

Mr. LAMBERT: Let us have a look at that.

The CHAIRMAN: On Thursday morning Lt. General Guy Simonds will be here. He will not have a prepared statement, but will be available to answer questions. The meeting now stands adjourned.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 14

THURSDAY, OCTOBER 17, 1963

WITNESS:

Lieutenant General Guy Simonds, C.B., Toronto, Ontario

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29516-2—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin *(Notre-Dame-de-Grâce)*,	Groos,	MacRae,
Baldwin,	Hahn,	Martineau,
Béchard,	Laniel,	Matheson,
Brewin,	Lessard *(Lac-Saint-Jean)*,	McMillan,
Churchill,	Lloyd,	Patterson,
Deachman,	MacInnis,	Smith,
Granger,	MacLean,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of the Committee.

CORRECTION

PROCEEDINGS No. 13—Tuesday, October 15, 1963.

In the Evidence—Page 404 of the Proceedings—The name "Mr. Plomer" at the beginning of line 6 should read "Mr. Rayner".

MINUTES OF PROCEEDINGS

THURSDAY, October 17, 1963.
(18)

The Special Committee on Defence met at 10.35 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Baldwin, Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch—(23).

In attendance: Lieutenant General Guy Simonds, C.B., Toronto, Ontario.

Also in attendance: A Parliamentary Interpreter and interpreting.

Mr. Lambert drew to the attention of the Committee the presence of Shri H. C. Mathur, a Member of the Federal Parliament of India, Shri S. K. Sambandhan, a Member of the Legislative Council of Madras and Shri S. R. Damani, a former Member of Lok Sabha, all of whom are Members of the Commonwealth Parliamentary Association.

Mr. Brewin raised, as a question of privilege, the contents of certain newspaper reports respecting this Committee's hearing of Commodore Plomer and of the reply thereto by Vice-Admiral Rayner. This matter was referred to the Steering Subcommittee.

The Chairman tabled a document which was prepared by Professor D. B. Scott, a physicist from the University of Alberta. This document was identified as *Exhibit No. 5*.

On motion of Mr. Smith, seconded by Mr. Winch
Ordered:—That the above-mentioned document be printed in this Committee's record (*See Appendix "A" to this day's Proceedings*).

Lieutenant General Simonds was introduced, and he answered questions respecting defence.

The examination of the witness continuing, at 12.35 p.m. the Committee adjourned until 4.00 p.m. today.

AFTERNOON SITTING
(19)

The Special Committee on Defence resumed at 4.15 p.m., the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch—(21).

In attendance: Same as that morning sitting.

The questioning of Lieutenant General Simonds was continued and completed.

29516-2—1½

The Chairman announced that the Steering Subcommittee will meet at 9.30 a.m., Tuesday, October 22, 1963.

On motion of Mr. Lambert, seconded by Mr. MacLean,

Resolved,—That Lieutenant General Guy Simonds, General Charles Foulkes and Mr. John Gellner be called to appear before the Special Committee on Defence on October 17, 22 and 24 respectively; and that reasonable living and travel expenses, together with a per diem allowance, be paid to those persons in relation to their appearance before this Committee (as provided in Standing Order 69(2)).

The Vice-Chairman, Mr. Lambert, expressed the Committee's appreciation for the testimony by Lieutenant General Simonds. In reply the witness thanked the Committee for the hearing accorded to him.

At 6.10 p.m. the Committee adjourned until 10.30 a.m. Tuesday, October 22, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

THURSDAY, October 17, 1963.

The CHAIRMAN: The meeting will now come to order. Mr. Lambert?

Mr. LAMBERT: Mr. Chairman and members of the committee, may I say a few words off the record?

The CHAIRMAN: Very well.

(Remarks made off the record)

Mr. BREWIN: Mr. Chairman, I am sure we are all looking forward very much to hearing what General Simonds has to say this morning, but before proceeding, may I raise a brief point of privilege. Last Thursday, as you know, we heard the evidence of Commodore Plomer, which contained some rather serious attacks on the efficiency of the leadership of the navy; and then last Tuesday we heard what might be called reply or rebuttal evidence from Vice-Admiral Rayner.

Mr. Chairman, at the end of the evidence of the Admiral, I recall your saying that Commodore Plomer was here and was available to be recalled at that time, which was about a quarter to six, if any members wished to recall him, but none of them did.

I think the matter was left with the steering committee to decide whether or not to recall Commodore Plomer if they saw fit. I hold in my hand a report from the Ottawa *Journal,* of October 16, under the heading "Plomer's Salvo Dismissed, Rayner's Rebuttal Ends Navy Attack". This is a story from the Canadian Press and it reads:

> "Charges by retired Commodore James Plomer of navy negligence, bad leadership, ignorance, arrogance, lack of ethics and stupid and dishonest decisions were in effect dismissed Tuesday by the Commons defence committee."

And it goes on to say:

> "Committee members said privately that they had in effect absolved the navy of Commodore Plomer's charges. They said Commodore Plomer had a case but had overdone it by indulging in personalities."

I would like to protest against this interpretation. So far as I am aware the committee did not discuss the evidence by the commodore, or the vice-admiral, or, let alone, come to any decisions one way or another on the matters brought up. So far as I am concerned, I took the evidence of the navy witnesses seriously and I am sure that I speak for the other members of the committee when I say we want to look into this serious affair in a serious manner.

May I add that if the report is accurate in stating that some committee members told the press that they had in effect absolved Commodore Plomer's charges, might I suggest that if they have made up their minds at this early stage, they should keep it to themselves, and last of all, at any rate I do not think they should purport to speak for this committee until we have had a chance to make up our minds on these issues.

Mr. WINCH: May I add to the question just raised by Mr. Brewin by expanding it to this degree: I would ask, sir, that you take under very serious consideration the fact that we have two meetings scheduled today, this morning and this afternoon, and that we do not want to delay hearing from the distinguished witness we have this morning, but that a time be made available at least not later than this afternoon's meeting for discussion by this committee

of the situation with which I am afraid we must very definitely face. I say that, sir, in addition to the matter has been raised by Mr. Brewin, because if you have all read his morning's *Globe and Mail,* you will notice on the first page of that paper a definite statement under a Canadian Press dispatch that:

> "The Government plans to switch half the Royal Canadian Air Force strike force of low-level jet bombers in Europe to a non-nuclear role."

In view of the fact that this committee is working under very definite and most important and serious terms of reference which cover, in my estimation, at least all phases of policy, and of what leads up to policy in defence matters —and I speak of information which has appeared, not just this morning but day after day, on defence policy—it is high time that we find out, and find out not later than this afternoon, whether or not there is any substance in these reports. If so, why was this committee not informed first, or at least why has the House of Commons not been informed? Secondly, we should get an explanation from the minister on this matter, and if he says that it is not correct, then, sir, perhaps we should ask the executives of the gallery to state whether or not they are just issuing statements on their supposition, or whether they are putting out private feelers on behalf of the government on defence policy, and whether or not they want to hinder or to help this committee in trying to do the job which has been referred to it by the house. In view of all the circumstances, sir, I believe that I am making a reasonable request, when I ask that provision be made some time today for this committee to go into this matter, obtain satisfactory answers and decide whether we are expected to do a job, whether we will be allowed to do the job, or whether or not we might as well disband.

The CHAIRMAN: I feel it might be advisable to call a meeting of the Steering Subcommittee before this afternoon's meeting so that we can examine this matter in detail, and then if necessary have a further meeting of the committee this afternoon, if this is convenient and if the Minister is ready to appear before us this afternoon. But prior to calling another meeting on that matter this afternoon I think it would be advisable for the Steering Committee members to meet.

Mr. PATTERSON: I would like to offer a comment on the matter raised by Mr. Brewin. I gained the impression during the course of the evidence that Commodore Plomer left the navy under somewhat of a cloud. The impression was brought out through the evidence that he had no other alternative under the circumstances, and that it was somewhat of a disciplinary action.

Later on in the press an article appeared, and reference was made to an interview with the former minister of national defence in which he gave another side to the picture and indicated that perhaps the commodore—in fact, he stated that the commodore had been asked to remain with the navy but had declined. In view of the fact that we have this situation arising, and also in view of the statement this morning with reference to other newspaper articles, I do not think we ought to leave the matter just as it is. I think the whole matter should be clarified.

Mr. SMITH: Mr. Brewin's matter of privilege should not get lost in the subsequent shuffle.

The CHAIRMAN: Members of the committee will be receiving this morning a note addressed to the members of the special committee on defence, sent by D. B. Scott on behalf of a number of scientists from the University of Alberta. This will be *Exhibit No. 5* of the committee records.

Mr. SMITH: Will it be printed?

The CHAIRMAN: It will not be printed unless it is so ordered.

Mr. SMITH: I think that the particular document ought to be printed as an appendix.

The CHAIRMAN: Do I hear a motion?

Mr. SMITH: I so move.

The CHAIRMAN: It has been moved by Mr. Smith and seconded by Mr. Winch that this document be printed as an appendix to the minutes of the committee.

Motion agreed to. (*See Appendix "A"*)

This morning we have before us as a witness Lieutenant-General Guy Simonds, who is a former Chief of the General Staff. As I mentioned at our last meeting, General Simonds is here to answer questions put by members of the committee; he has no prepared statement.

Mr. SMITH: Is there not any extemporaneous statement to be given?

The CHAIRMAN: I have asked the general, but he said to me just prior to this meeting that he would prefer to answer questions from members of the committee right from the beginning.

Mr. SMITH: I wondered if General Simonds might make a general statement on what his views are on what ought to be the role of the Canadian armed forces and perhaps, in particular, he might deal with the military usefulness of maintaining an armed brigade in Europe. Also I would like very much to hear his views on what he would think of unification of the armed services, and if there was to be unification, what his views are as to how it would increase the usefulness of the armed services.

LIEUTENANT-GENERAL GUY SIMONDS: Mr. Chairman, and gentlemen, I will try to deal with these three points. The first is: what should be, in my personal opinion, the role of the Canadian armed forces.

I believe that a role which is suited to a country of our size and having regard to the financial burdens possible to be borne over a lengthy term, would be a tri-service force whose main objective was peace-keeping. I believe its organization should be very much like that of the United States marine corps which is a mobile force complete with all its ancillaries and able to meet what are commonly called brushfire situations.

That is not to say that you would still not have to have reserves, because, although I think there is a tendency now to envisage all these policing operations as being small operations, some of them—as in the case of Korea and other instances in the past—can grow to operations of considerable size. I do not believe that any nation can afford to keep in peace a force of such size beyond that which it may need as a regular force to meet a short-term situation that might arise. You must have a second line of part time sailors, soldiers, and airmen which can form the framework and be capable of expansion to meet a situation where it is beyond the strength of the regular framework to meet it. The regular force in being can act as stopgap to gain the necessary time while expansion takes place.

When it comes to the matter of integration, I am not in favour of 100 per cent integration of the three armed services, and I shall try to explain simply why.

Take first of all the junior officer in the army, the navy, and the air force. Their roles are in many respects completely different. The junior naval officer on a ship has a somewhat specific role which he is going to fulfil, but he really has no role in the direction of the ship. The ship is under the control of the commander or the captain, who takes the ship in and out of battle. While the junior officer on that ship has a role which he fulfils in the team as a whole, he is not capable, you might say, personally to exercise leadership in the ship.

In the air force, take the fighter formation; the pilot officer fights the airplane; he takes it off the ground and takes it on its mission. Most of the airmen are concerned with maintenance on the ground, and they have a different kind of discipline of their own. Their discipline is based on the idea that when an aircraft leaves the ground it must leave in 100 percent flying fitness, so as to ensure that the aircraft, when it takes to the air, is well equipped and able to carry out the tasks assigned to it.

In the case of a junior officer in a battalion, or a platoon commander, he may be commanding from 30 to 35 men, and he must personally lead them into battle. If they are in an attack, whether they get to their objective or not depends very largely on the personal leadership which he gives to that group.

If you are going to train your tri-service junior officers so that everyone is capable of fulfilling these very different roles, you would not have an officer getting into service until he was about 45 years of age, if he must be an expert in doing all these things.

It is at the higher level that I believe we need the training and coordination so that there would be the equivalent of the full colonel's rank in the army, and of the brigadier's and the commodore's, or the air commodore's, so that in due time the officer of every service should be so trained in the roles of the others that he could fulfil a tri-service role and have the maximum command involving all three elements.

The higher level is where we have need of experienced men. I would say that the more we can work out co-operation at the lower levels between the three services the better it would be, because the higher up they go, the greater the need for co-operation becomes.

In fact it is my personal opinion that in the post war years we have never had a tri-service defence policy. We have had an army defence policy, a navy defence policy, and an air force defence policy, but never have we had a tri-service defence policy.

Mr. SMITH: Would you give us your views on this question? You have dealt with command, with junior officers, and actual combat.

What are your views on the co-ordination or unification of the services, and the armed forces and of what is known as a service corps, teaching certain trades which are common to all branches of the services?

Mr. SIMONDS: In a lot of services—I certainly know that in a lot of the services of supply—there could be a higher degree of integration. I recall some years ago when there was a commission set up to study the integration of the medical services, and the conclusion reached was that it could not be done, that they could not be integrated, because the various services claimed that their medical personnel needed certain special types of training. But we do not have that in civil life. We do not have a completely different set of doctors to look after the air crew of the T.C.A. or of any other air line in civil life. The general training and medical provision is such that every individual has to depend on the medical service as a whole, with specialists who deal with certain particular fields. I cannot see why the same thing is not possible to the services.

Mr. SMITH: Surely specialization could be done within a single service as required.

Mr. SIMONDS: Yes. There is no use sending out a doctor who is subject to constant sea sickness or air sickness. That is a matter of common sense. You do not pick that particular individual; and just because there happens to be one or two who happen to be air sick or sea sick, it does not mean that you would put them in a position where they would be the least fitted.

Mr. SMITH: The third part of my question deals with military utility and usefulness of keeping a Canadian army brigade in Europe from the point of view of training and from the point of view of military effectiveness as a military unit in time of war.

Mr. SIMONDS: There are, I believe, various strong arguments for maintaining a Canadian brigade in Europe. First of all, there was the decision on the part of Canada that we were going to join and become partners in the NATO alliance. And although the brigade in itself, standing by itself militarily, may not be of overwhelming significance, I believe in the years since it has been there it has had an extremely good effect in helping to develop the co-operation and expansion of the forces of these countries which learned to respect Canadian troops in two world wars. I think the presence of the brigade, when it first went there, its effect on the Belgians, the Netherlanders, and even on the French forces, was very significant, because at that time they were at a very low ebb. Although the part it might play in a sudden conflict might be small, the moral effect of its presence, in my opinion, has been very great indeed.

Mr. MCMILLAN: I cannot see why we should not have integration in hospital or nursing, and dental services. Have you any ideas on that?

Mr. SIMONDS: I do not see why we cannot, at all. I am in agreement with you.

Mr. MCMILLAN: And also medically.

Mr. SIMONDS: That is right.

Mr. WINCH: I have two questions: first of all, is it permissible for the general to tell us whether or not he held these views on the tri-services while he was chief of staff, and if so, what were the objections to them? If he cannot answer the first part, can he answer the second part as to what are the objections raised to tri-service policy?

Mr. SIMONDS: In trying to answer that question I would not want to be unfair, but I think to a certain extent the individual service ambitions do operate and play a part. Now, please let me make it clear that I am expressing my personal opinion entirely; but the tendency of the air force, so to speak, was to put emphasis—and this was largely following the second world war—on the bomber and fighter role as opposed to to transport and reconnaissance, which would be the main effort in a tri-service organization; and this possibly arose partly by the desire to have a role of their own.

Perhaps I might go back a little bit historically. It fell mainly on the second Canadian corps during the final stage of the war in northwest Europe to overrun the bases of the V1 and the V2, and we took a very considerable interest in studying the whole organization and so on of those weapons.

And with the coming, at the end, of the V2 missiles, I certainly formed the opinion that the first role of the air force, as it then existed, would disappear to be superseded by missiles, especially the bomber and fighter role.

I organized a study in the post-war period when I was at the Imperial Defence College, of a group of senior air force officers, and I set the problem in this way: I said, disregarding the effects of range and accuracy, which were the most efficient means of delivering a ton of explosives into a target area as between any of the bombers used by the allies during the war, and how did they compare in efficiency in that respect with the V1 and the V2? I purposely ignored the features of range and accuracy. I am not talking now about pinpoint accuracy because history has shown that once a weapon has been developed, those two factors are susceptible to fairly rapid improvement.

From that study it followed—I am sorry but I omitted to say that I asked them to express this efficiency in terms of man hours of effort to deliver this ton of explosive into a target area, from the inception of a particular weapon until the time the pay load was delivered—expressed in those terms,

the most efficient bomber proved to be the Mosquito, which was about twice as efficient as any other member because of its low loss rate. But the V1, the flying bomb, measured in those terms was twice as efficient, and the V2 was five times as efficient, because there was no defence against the V2 at all, once it was launched and went to the attack.

Another interesting thing which evolved from this study was that at the end of the second world war, the range and pay load of these missiles were both greater than the range and pay load of the best bombers that were developed at the end of the first world war, with a gap of some 20 years. It seemed to me obvious that because of these potentials and the fact that there was no defence against them in sight at the end of the war, the role of strategic bombardment was bound to pass to the missile, eventually to the inter-continental ballistic missile, and that the problem of the future was going to be to evolve a defence against that form of attack. So it seemed that though the role of the manned aircraft in warfare, the role of reconnaissance and the role of transportation, would have to continue very very far into the future, the role of bomber and defensive fighter would pass to the missile.

If we adopted a tri-service co-ordinated force it should be a free striking force similar to the United States Marine Corps, with emphasis on reconnaissance and transport rather than on fighters and bombers.

Mr. WINCH: I know that all of us have been most interested in the various public announcements and writings of the general. Therefore would he give the members of this committee an enlargement of his views on the policy of the Canadian forces and equipment being offered to them either in the offensive or defensive realm and on nuclear warheads, and what his opinion is concerning them?

Mr. SIMONDS: I believe it is fairly well accepted now that in aerial warfare represented by missiles, the I.C.B.M. has a tremendous advantage over defence, and that in fact there is no effective defence at all existing as of now. Also I believe there would be a division of opinion on all sorts of grounds as to whether or not Canada should get involved in thermo-nuclear weapons. But if we are going to adopt thermo-nuclear weapons, there is only one sort we should adopt, and that is the offensive ones. The British, who are infinitely more vulnerable than our country, made the decision to go into nuclear weapons and develop a V bomber force and develop an offensive force. Moreover, General deGaulle—whether we agree with him or not—has made the decision that France is going to be armed with nuclear weapons, and will develop an offensive force. If we are going to take a decision as important as this and one, in which it seems to me, you are the political judges, then it would appear to me that with a country as possibly divided as we are, with views cutting right across party lines we should adopt something that is going to be effective and not get involved in something which is totally ineffective.

Mr. WINCH: Would I be right in assuming your conclusion is that with any country—not directly referring to Canada—its greatest need is to adopt a policy of offensive capability, and not defensive?

Mr. SIMONDS: If we are going to go into the nuclear field.

Mr. WINCH: What is your view? We have had some information before, but what is your view as to what type of war we may have, and from there, what our policy should be?

Mr. SIMONDS: We should not be in the nuclear field at all. The most useful contribution we can make to any coalition or alliance of which we become a partner is in the field of being able to make a contribution to preventing a situation developing which would lead to thermo-nuclear exchange.

Mr. MARTINEAU: On a matter of privilege, Mr. Chairman, in view of the general's remarks, about whether we should go into the thermo-nuclear field

and whether we should go in with insufficient weapons, does the general believe that Canada has the industrial capacity to develop such weapons?

Mr. SIMONDS: I do not believe we have the industrial capacity at the present time to develop either offensive or defensive nuclear weapons, which is another reason why we should not be in the nuclear weapons field.

Mr. MATHESON: I have two unrelated questions. First: have you any views on the problem of sea communications under modern conditions? I appreciate the fact that you are not a sailor, but you have been the head of communications and policy.

Mr. SIMONDS: This is a question involving naval rather than army problems, and my reason for trying to give an answer to it is of course that I think that most of you are aware that I was for three years at the Imperial Defence College after the war, which is not only tri-service, but covers the whole field of defence, industrial and political as well.

If we went in for a tri-service force of the type which I mentioned earlier, the problem of how we are going to support and operate this force overseas—how our sea communications are going to be maintained is most important, because in two world wars probably the two most powerful alliances that ever existed in the world were nearly brought to their knees by submarines.

So the problem of justifying surface ships against the submarine has become more and more difficult as the years have gone by. The submarine has become increasingly efficient as an offensive weapon, and up until now all our efforts in building ships have been in an attempt to protect the surface sea line of communication against this submarine threat; in addition to that we have the problem now of the missile-launching submarine as an offensive weapon against the land.

From the study of the impact of submarine warfare in two world wars, some of us—and many groups of very senior naval officers—felt that the potentiality of undersea craft had never been fully or objectively explored. Up until the development of atomic power there were very definite limitations on the submarine, because it had to be propelled by an air-breathing engine, and under water it was propelled by electrical propulsion, charged by diesel engines while on the surface. It was a very inefficient form of propulsion; and consequently, you might say that in relation to its pay load the submarine's efficiency was very small.

But on the other hand if you take nature—which is often a very good guide in these things—as a guide, there is no amphibious creature which makes a long journey on the surface of the water; if it is going on a long journey it either takes off and flies over the water, or goes underneath; it does not try to fight surface tension and the elements on the surface of the water and carry out a long journey.

And then, how fast can a boat actually travel under water? For years it had been common knowledge throughout the navy that the Whitehead torpedo could travel faster than any surface ship.

But how fast does a salmon travel when it makes one of those great leaps up a waterfall from a stream? In other words, we needed a fundamental study of underwater travel; and when you come to atomic power, about which I know practically nothing in detail, judging from the cruises now carried out by these atomic submarines, the ratio of pay load for undersea craft has had a revolutionary change. Would the answer to our problem of sea communications be putting our effort into trying to defend surface vessels, which in two world wars has very nearly failed, rather than putting our efforts into developing underwater transports of higher speed?

It is admitted now that the atomic submarine can develop a speed which our fastest submarine escorts cannot match. Why not put our effort into developing the underwater craft both from the point of view of keeping sea

lines of communication open and also developing a form of defence against the missile launching submarine of today? This is in many ways a heretical idea, but I cannot see that technically there is today any reason why this should not be possible.

In an equivalent field, until the coming of the jet and the rocket engine the whole limitation of flight had been engine power. Today there is more potential engine power at the disposal of the aircraft designer than he can use, and the problem is entirely an aerodynamic one. By the same token, I believe the basic possibilities of undersea travel have never been properly explored or developed.

Mr. MATHESON: General, perhaps you will permit me to switch to another problem, a perhaps more mundane topic.

I have received representations from friends who, I know, have served the Canadian militia very well and faithfully. They are devoted to the militia. They comment to the effect that the Canadian militia lacks policy and clear direction; it lacks funds to do the job; and whatever planning there is cannot be backed up by supplies of equipment, particularly vehicles. Present regulations restrict them to forty days a year, including summer camp, which leaves only thirty-three days for training. What is really happening is that we are breaking the heart of our militia people and accomplishing perhaps very little.

I am wondering whether, as a result of your very wide and deep background, particularly in the army, you can see today an important militia role and, if so, what it would be. How would you contrive to make our militia more effective.

Mr. SIMONDS: First, I do see an important continuing role for the militia, and I believe it to be the same role that it has always played historically. It is the framework on which we carry out an expansion to back up our first line in the event of an emergent situation that is beyond the power of our forces in being to handle.

I believe that role is still a necessary role, but as an onlooker over the past few years I would say that the role of the militia does need to be reconsidered and clearly stated. If it has no part to play in the defence organization, it is better not to spend the money on it. If it has a part to play in our organization—and I believe it has—then it has to have the chance to be efficient and its morale has to be of a high order.

I am and have been in sharp disagreement with the idea of making the militia a national survival force. If the militia is to fulfil the role of a second line, you want it manned by keen young men, and keen young men do not take to a role which is equivalent to something like the home guard in England during the second world war.

I can speak with first hand experience and say that if you have a well trained body of troops, without any great concentration of training on national survival operations, they can do the job. In the winter of 1940, when I was commanding a field regiment, we were moved up into winter quarters in Beckenham, on the outskirts of London. We were bombed every day and every night, and we had the troops out every night bucking up the civil defence organization in rescue operations. They were doing all the kinds of things the civil defence had been trained to do. They had no specialized training for this, but they did a first class job. Their morale was high and they were disciplined, and they could step in and do the business. In consequence, every member of that regiment today is a free citizen of Beckenham. It is unnecessary to spend the time that is now being spent on this sort of training; it is undermining the morale of the militia.

Basically, the training must be military and for the arm of the service they join, whether it is engineers, artillery or armour. If they are trained in that role and they become a disciplined unit, a unit of high morale, they will take on any national survival task that may fall to them without a lot of specialist training.

Mr. GROOS: General Simonds, I was very interested in what you had to say. I recently came back from a visit to the NATO bases in Europe with a parliamentary committee, and it was very evident to me that NATO was weak on the wings in particular, for various reasons, both political and economic. It also seemed to me that if smaller countries such as Canada were to play a useful part in this alliance, perhaps their maximum role would be in the field of early intervention to prevent escalation, to prevent conflict going from conventional to nuclear weapons.

This seemed to me to indicate that we would need this highly mobile integrated force that you are talking about, and it follows from that that if they are going to be highly mobile they will not be able to take heavy equipment with them, which would indicate stockpiling of heavy equipment in or near these areas where we are weak. That in turn suggests the absolute necessity for standardization between the countries of the alliance, standardization of equipment.

I am going to ask you if you would comment on that first before I go on to my second question.

Mr. SIMONDS: I agree entirely with what you say, The original concept of NATO was that each of the partners, particularly the overseas partners—ourselves and the United States and, incidentally, from an economic point of view, Britain at that time—could only afford to keep a limited force permanently stationed in Europe, and that they would be of such limited size that they would have to be very rapidly reinforced in the event of a real crisis developing, but that by working out, you might say, the time and space program there should also be on the continent the necessary equipment stockpiled to equip the first reserves to follow up. The personnel could then be flown in and take over their equipment on the ground.

I say it is a nice problem of time and space to work it out because if you have a weak force on the ground, with all its equipment stockpiled too far forward, there is the danger that your equipment may be over-run before the personnel can get to it. But it is not an insoluble problem at all; it can be done.

One of the reasons I commend this idea of an integrated force as the most sensible contribution Canada can make is that it meets a NATO role and it meets our United Nations responsibilities. It enables us to play our part and fulfil any commitments which we can foresee becoming obligations to us.

If I might revert for a moment, because of the present—and as far as one can see ahead—preponderance of the power of offence over defence in nuclear warfare, if it comes to nuclear exchange we have had it. Therefore our primary objective must be to prevent a situation ever arising which will lead to a major thermo-nuclear exchange between the great nuclear powers.

Following on from that again is the problem of escalation. There are some who maintain the idea that you can have such things as tactical nuclear weapons and not become involved in strategical nuclear weapons in a crisis. I do not believe that is possible. I say that we first have the business of interdicting—and of course by interdicting I mean cutting communications. The idea, of course, as I have read it, is that our air strike squadrons in Europe are basically there to deliver tactical nuclear weapons on the centers of communication, what we call interdiction of battlefield—to cut off communication into the battlefield. By the very nature of things, every area of communication is a populated area. Therefore if our tactical strike forces attack centers of

communication in east Germany, Poland and on the borders of Russia, is it not militarily justifiable that Russia uses nuclear weapons to attack Le Havre, Antwerp and London, and so on—the ports which are going to serve our forces in Europe? Then if you are going to attack London, Le Havre and Antwerp, why not attack New York and Halifax?

I cannot see that you can stop this escalation if you get involved in the use of tactical nuclear weapons. Maybe a point would be reached at which the political heads on both sides would say that we have had enough and we will stop now; but if you are going to envisage the attack on vital centers of communication as part of your battle—and it always has been and always will be—and you use nuclear weapons for that form of attack, then I cannot see how you are going to stop escalation into a full nuclear exchange, and that again is why I think the basic defence in western Europe should be—and one always maintained it should—based upon very high class conventional forces, not dependant on nuclear weapons.

Mr. GROOS: The second part of my question you have already answered in part because I was going to go on to say that this highly mobile integrated force would seem to me necessarily to be conventional if it was to play this role of separating the major opponents in the early stages and to prevent escalation. It seems to me that we are now in this rather ridiculous position, if this is the role we are supposed to play, where we have an air force in Europe which is equipped with nuclear tactical weapons which surely would only be used in the final stages of escalation. Therefore, it seems to me that if we are to adopt this role which I suggest is an appropriate one for Canada, we are eventually perhaps to get out of this tactical nuclear weapon role for our air force. Will you comment?

Mr. SIMONDS: I believe that to be so. I think the argument has been made that the supreme commander in Europe requires this. I would say, however, that there his hand has been forced by the inadequacy of the conventional power on the ground. He has been made responsible for defence of western Europe, and he says "I have not the conventional strength to carry out the role with which you charge me, therefore you have to find something to make up the counterbalance". That is how this situation developed.

If the necessary conventional strength was there—and there is no reason why it could not be found—then this situation would not arise at all.

Mr. GROOS: One point of difference I may have with you is the matter of nuclear weapons in their entirety, the whole field. It seems to me there is a difference between tactical offensive nuclear weapons and the defensive type of anti-aircraft nuclear weapon that we are staging in Canada these days. As I see it, as long as there is a threat from the manned bomber and as long as there is a good likelihood of that manned bomber with its bomb load being destroyed by a nuclear weapon of a size such as these present defensive nuclear weapons, there is a need for them in Canada. Will you comment on that?

Mr. SIMONDS: I would be very glad to comment on that but I would like to go back a little further; and I will put a question and try to answer it myself.

Can you see the United States being such as it is, a democratically governed country, launching a preventive thermo-nuclear war? I would say definitely you cannot. Therefore, if this sudden surprise, this sudden thermo-nuclear exchange, takes place, the initiative will rest on the other side. It will be their decision. We know that for some years now they have developed these high thrust intercontinental ballistic missiles. If the initiative rests with the other side and, say, in September, 1963, they are not going to have enough intercontinental missiles to deliver a knock-out blow against North America, will they provoke a conflict in September, 1963, when they foresee that in

1965 they will have enough? If the initiative rests with them in this particular issue, it to me makes strategic logic and sense that, as in every case in the past of an out-and-out aggression, when the aggressor launches a surprise blow of this kind he is reasonably assured that he has the power to knock out his enemy.

Following from that again, the first attempt must be with intercontinental ballistic missiles. Assuming you have a mixed force of missiles and bombers, if you lead off with your bombers you give four or five hours warning at least to the defence. You alert the whole defensive system. You allow four or five hours for such civil defence measures as can be put into operation. You allow four or five hours for strategic air command on the alert to get away to its targets. You start the attack under the most adverse possible conditions because you lead it off with a force to which there is some measure of defence, ineffective as it may be. So you strike first with missiles, even if you follow up with bombers.

Therefore one of the first things you strike at, if you are going to go on with bombers at all, is the defensive bases so the Bomarcs, sitting with their atomic warheads, will be cooked before they ever get a change to get after the bombers.

The idea that we should involve ourselves in heavy expenditure against a bomber threat at this particular time I would not agree with as making good sense.

One of the most important steps recently taken, of which I have read, is the integration of the intelligence services in the United States defence organization. You never have the whole picture, and intelligence really consists of two aspects—trying to get the best information you can and then interpreting it—and there is always the tendency in each service to unconsciously slant intelligence to make sure you will not be caught out.

It seemed to me over the years that if the Russians showed one or two new airplanes on the May day fly-past, it would almost always be assumed next day that they had a fleet of a thousand. But we know there is a long gap between prototype and production type, although you can argue they do not show them until they are in production.

There is another way in which I think the bomber threat is exaggerated. You may develop a bomber force with its aircrew and everything ready to go, and do not forget there are situations which we have been discussing which are conventional. I think there are probably a good many others in this room who know that conventional bombing can be extremely unpleasant, and there may be a role for the conventional bomber in these policing operations. If you have the force there and you do not suddenly want to throw all your aircrews on the unemployment line, you might just as well keep it in being until it naturally runs down. In that way, the bomber threat can be exaggerated long after it has ceased to be an effective thermo-nuclear bomb threat.

Those are entirely personal opinions, but I would say that they have this to back them: In my opinion there was a very marked tendency towards slanting intelligence to back up what a service wanted to do, and I can tell you that I had argued for a long period on the missile threat and the study of defence against it. Articles I wrote years ago will support what I say. There was absolutely no response to the possibility of the missile until Sputnik I was fired into the air. That was the first time it ever received any effective attention, in my opinion, from either our own or the other air forces.

Mr. LLOYD: General Simonds, I take it from the evidence you have given so far that you strongly advocate a conventional role for the defence of Canada, that you direct our attention to the wisdom of being concerned in Canada possibly with submarine supply ships, with submarine antisubmarines, to some degree, and strengthening the militia in a military role. These are the three

areas in which you feel Canada should occupy itself and that it should stop any further involvement in nuclear weapons? Is that in essence what you are saying to this committee?

Mr. SIMONDS: Yes.

Mr. LLOYD: You had in mind, for example, oceanographic and other research work that is going on which is necessary to evolve submarine development. During the transition period—this is a long term objective, of course—you do have problems in respect of certain craft of the navy, for example. Can you suggest what we might do in a transition period?

You have already admitted that it is a long time from prototype to production model. Can you give us from your wealth of experience some guide lines as to a transitional period while we are trying to reach the objective which you have so ably put before us.

Mr. SIMONDS: I do not believe I could answer that effectively because I am not really in the picture, you might say, as of now with regard to the exact status of all the three armed services. However, I feel that some of our difficulties would never have arisen had we had this long-term objective settled. It has been because of the lack of a consistent long-term policy of this kind that a lot of these difficulties have developed. Of course, you have to face a period of adjustment if you do this, a period which may result in reduced effectiveness in certain fields while that adjustment is being made. But I think in the long term we would definitely benefit by facing it and carrying out the adjustment with as little dislocation as possible.

Mr. LLOYD: Would you venture a comment as to what contributes to this inability to get a long term objective defined?

Mr. SIMONDS: As I say, I am going now largely on what in fact I know and also what I have read lately. It would take some time of experiment and trial before a satisfactory submarine carrier, for example, might be evolved. You have the problem of keeping shipyards in being. You have the problem of maintaining the morale of the service in a transition period like that. I think an adjustment of that kind has to be gradual to maintain the morale of the service, to maintain the highest degree of effectiveness in its existing role, as you can, but without getting into a situation in which the future you may have to make larger expenditures for a policy that is leading you in the wrong direction. Being in business now and pretty close to some of our national economic problems, I think that is a very important problem.

Mr. LLOYD: Do you share the view which I will put forward in my rather homespun way by citing the example of going to an old barn and taking off a shingle, the building does not move; but if you move any quantity of defence expenditures of Canada's economy you shake the economy. This is obvious, is it not?

Mr. SIMONDS: Yes.

Mr. LLOYD: Therefore, economic considerations may be the roadblock to long term decision-making.

Mr. SIMONDS: They are the biggest roadblock and the great roadblock. That again is why I think we should avoid, from the economic point of view, getting involved in types of equipment which are likely to change very rapidly over very short periods of time.

The forms of equipment which are almost obsolete as soon as they are made should be avoided. The sort of equipment this integrated force of which I am speaking would have would have a fairly long life compared with some of the other equipment.

Mr. LLOYD: You mentioned that you are a business man. I gather you might have observed that Canadian defence involved development of some submarine craft either for cargo or supply ships, as well as for anti-submarine

roles. Would this not have economic benefit to Canada in the long run? The side benefits would be substantial, would they not?

Mr. SIMONDS: In a period of adjustment it would certainly raise great difficulties, but in the long term it would be effective. If by the same token we went for this sort of force, a very large part of our expensive equipment could be made and developed in Canada.

Mr. LLOYD: One final question. It behooves us to take the long term view that you are advocating because of the possibility of some change in international tensions which would catch us, as it were, with our pants down, leaving us with no means of adjustment, and therefore, our defence policy should take that into account? Is that what you say?

Mr. SIMONDS: That is true. Will you pardon me if I tell you a story which will illustrate this sort of problem as well as any?

Some of you may recall that just before the second world war started the British army had decided to adopt the Bren gun. The Bren gun was originally designed by the Czechoslovakian Arms Company. I happen to know the history of the whole of this because during the time I was on the gunnery staff of the staff college of England. It was designed by the Czechoslovakian Arms Company, and the original weapon was made for rimless cartridges. Ever since the end of the first world war the British had retained and built up from time to time large reserves of small arms ammunition. By the time the Bren gun had been accepted in its original form, they could not risk changing to a new small arms ammunition because all their reserves would be obsolete, and the situation in Europe at that time was getting critical. So they had to spend considerable time redesigning the gun so it would take a .303 rim cartridge, and that is the way it went into the war. Had they in the intervening period made a decision to go to a rimless cartridge, which nearly every army in the world had then changed to, and redeveloped the small arms weapon, they would not have been caught in that position; but they at no time made the decision to make the transition until they were faced with a situation which was so critical that they could not risk it.

I believe by postponement these long term policy decisions can prove very very costly in the long run.

The CHAIRMAN: Mr. Lessard.

Mr. LESSARD (*Lac-Saint-Jean*): General Simonds, I was very interested in your statement about the defence role of Canada and the impossibility of defending against the I.C.B.M. This is my opinion too.

If it is not possible for Canada to have a defence role against I.C.B.M. do you say the only role we can have is an offensive one, offence being the best defence of all? Do you think that Canada has the economic means to take on an offensive role with offensive arms, which would be the I.C.B.M. for instance? Do you think it is possible, economically speaking?

Mr. SIMONDS: With nuclear weapons?

Mr. LESSARD (*Lac-Saint-Jean*): Yes.

Mr. SIMONDS: No. As far as one can tell now, the two major nuclear powers have enough to more or less destroy the world. Do you mean in nuclear weapons?

Mr. LESSARD (*Lac-Saint-Jean*): Yes.

Mr. SIMONDS: No, I do not think so. As far as one can tell now, the two major nuclear powers each have enough to destroy the greater part of the world and, to my mind, any addition we make to that one way or the other does not make any sense. What does make sense—and I repeat—is to make our contribution toward trying to prevent the situation ever arising which would lead to this disastrous thermo-nuclear exchange.

Mr. LESSARD (*Lac-Saint-Jean*): In other words, if we went into a nuclear war there would be no issue?

Mr. SIMONDS: I would think that if there was a full scale thermo-nuclear exchange between Russia and the United States we could forget about things.

Mr. LESSARD (*Lac-Saint-Jean*): We were told in a recent meeting of this committee by, I think, General Walsh, that if an emergency came about in some part of the world in which Canada might be involved in so far as assisting was concerned we are not equipped now with adequate transportation facilities, among other things, and reference was made a moment ago to stockpiling. Do you think we have proper transportation facilities, and what is your feeling in respect of the supplying of our forces with the necessary things?

Mr. SIMONDS: I think it is very essential that we know where we can get the transportation to maintain, support and move what must be moved.

Mr. LESSARD (*Lac-Saint-Jean*): Is it your feeling that we do not possess that transportation right now?

Mr. SIMONDS: That I could not say. I believe we always have had it—that is, the existing source of available shipping upon which we can depend. I believe we could have obtained the necessary transportation.

Mr. LESSARD (*Lac-Saint-Jean*): But if we have to have that transportation quickly would it be possible to provide for it by air transport?

Mr. SIMONDS: With our present existing equipment?

Mr. LESSARD (*Lac-Saint-Jean*): Yes.

Mr. SIMONDS: I am afraid I could not tell you that as of now. I am not sure.

Mr. LESSARD (*Lac-Saint-Jean*): I have one further question. In a newspaper article this morning reference was made to a reduction in our armed forces by ten per cent. What is your opinion in connection with that reduction? Is it possible? Is it good and, if you think it is good, in which of the three branches of the service do you think it should apply first?

Mr. SIMONDS: The reduction, did you say?

Mr. LESSARD *(Lac-Saint-Jean):* Yes, the reduction in our forces.

Mr. SIMONDS: Of ten per cent?

Mr. LESSARD *(Lac-Saint-Jean):* Yes, ten per cent of the forces. If this came about in which of the three forces do you think it should apply?

Mr. SIMONDS: I would not think a ten per cent reduction at this time would be a good thing, to start with. I do not think this is a time to reduce conventional forces. I think, basically, we are living in an usettled and unstable world, with plenty of dangerous possibilities, if I could put it that way. If I might say so, I think between the main protagonists in the east-west situation, namely the United States and Russia, there has been a cooling off in the last few months. However, this does not apply in the fringe areas. I think we should recall that the first world war started by an act from a small country.

Mr. LESSARD *(Lac-Saint-Jean):* My last question is this. In your opinion, what should be the future role of Canada? Do you support certain feelings that we should remain a conventional force, a highly mobile force, at the service of the United Nations, for instance? Is that your line of thinking?

Mr. SIMONDS: Yes. In the sort of world in which we are living today I think we have to co-operate with like minded nations in heading off or preventing the outbreak of a major thermo-nuclear war. We alone are incapable of doing more than making a contribution toward that. It is my belief that the most sensible defence policy for Canada to have is to be able to participate in an alliance in order to deal with these dangerous situations which may arise by our partnership in the United Nations and things of that kind. I think that is the most sensible sort of defence contribution we can make.

Mr. LESSARD *(Lac-Saint-Jean)*: Do you think the army could play a role, on an economic basis, by assisting the civilians in those underdeveloped countries to build up their own economy. Is it feasible for us to play a role like that? In the case of these countries which are poor, economically, do you think the army can play a useful role?

Mr. SIMONDS: I do not think so, for this reason; if you have this balanced force of which I am speaking every element of it is an essential element to obtain the particular object you are creating with force today, and if you take out parts of it for other purposes then, basically, the force either is too large, it is larger than necessary, or you are going to leave that force deficient of some important element in the time of emergency. I was thinking particularly in terms of engineering; you might say you could take an army engineering unit and send it to an underdeveloped country to do a construction job, but if you remove that unit from your force and an emergency suddenly arises, you may not be able to make it up. It may be a very necessary part; however, if you can do that, your forces are unbalanced and too big, to begin with.

Mr. BREWIN: I read with considerable interest the interview the general gave to Mr. Harkness in the Toronto *Daily Star* under date of February 20, in which he dealt with some of the matters he has discussed here this morning, together with one or two other specific matters. I wanted to put to you some of the points you made here and to see whether they still represent your thinking generally.

At one stage you are reported as having said:

> Our poor little Bomarc bases couldn't knock out more than .0001 per cent of an attacking force. They will not defend Canada, they will not defend America, they do not make the slightest bit of difference in the present world balance of power.

Is that a correct statement of your thinking?

Mr. SIMONDS: I think some literary liberties have been taken with it; however, I would basically agree and believe these views coincide with the opinions expressed by Mr. McNamara at one time or another.

Mr. BREWIN: I think later in this article you quoted General Maxwell Taylor as saying the Bomarc weapon was "neither feasible nor economical" and that Brigadier General Thomas R. Phillips of the United States said it would be "enormously expensive".

Then you said:

> Within six months of the time Canada agrees to accept nuclear warheads for the bomarc, I am convinced the United States will declare it obsolete and recommend another nuclear weapon.

Mr. SIMONDS: I believe at one point Mr. McNamara made the statement that the Bomarc was obsolete and the only reason for proceeding with it was that they had spent so much on it that it would cost more to cancel it than to continue and put it up, and it is rather like during the second world war when they armed the home guard in England with pikes and things like that. That might have been better than the bare hands. They might have been of some use but not much.

Mr. BREWIN: Then, according to this article, you went on to say:

> Whether or not Canada accepts nuclear weapons now or ever will not have the slightest influence on the defensive capacity of America.
>
> We should therefore accept the role for which we are best suited, that is, a conventional role, and let the United States play the part for which they are best suited, that is, a nuclear power.

Do I understand these statements to represent more or less what you have suggested to us today? Is that correct?

Mr. SIMONDS: Yes.

Mr. MATHESON: Did you represent those views to the government at that time?

Mr. SIMONDS: In one way or another I have represented the same views pretty consistently for a large number of years.

Mr. MATHESON: Over what period of years did you represent that same view?

Mr. SIMONDS: The view that we should be in the conventional field?

Mr. MATHESON: Yes.

Mr. SIMONDS: Whether or not we were going to have nuclear weapons actually never arose until very recently.

Mr. BREWIN: Then generally you dealt here with a matter which you discussed this morning and you only put it more emphatically; you said:

> The Russian military leaders would be crazy (which they are not) to launch an attack upon this continent with manned bombers; giving us three to four hours warning to get ready for them or launch a retaliatory attack.

And then you went on to say that their first attack, if they make one, will be by intercontinental ballistic missiles. Do we conclude from that that you think the threat of manned bombers is an unreal threat, as far as Canada is concerned?

Mr. SIMONDS: If I may put it this way, it is unreal in reference to the possibility of attack by the intercontinental ballistic missile.

Mr. BREWIN: You went further and said that even if the attack were launched there would be some serious doubt as to the efficacy of the Bomarc. You say:

> Even should the Russians be so foolish as to tip their hand by sending over manned bombers first, the Bomarc would be of limited effectiveness.

Then you went on to say:

> Even if we "kill" two thirds of those launched against us, a bomber attack could destroy 100 cities.

Continuing, you say:

> We've got to face the fact that as matters stand now, there is no defence but peace.

In other words, the threat of massive retaliation is our only effective defence. Is that correct?

Mr. SIMONDS: Correct.

Mr. BREWIN: Then, if I may go back to something else you said in the article in reference to getting into the field of Bomarcs:

> We will be playing in a field where we would be continually faced with the same sort of crisis as now, with unremitting pressure to spend more and more and more. Canada's expenditure on nuclear arms could go sky high in months. I don't believe our economy can stand the cost.

That is still your view, is it?

Mr. SIMONDS: Yes.

Mr. BREWIN: Then you went on to deal with the great difficulty—and I think you mentioned it this morning—of differentiating between offensive and defensive weapons, and the view that our tactical aircraft such as the Star Fighters, if they were to use these weapons, would be likely to prevent escalation of a full nuclear war, and you conclude with this:

> That rules out the possibility of "defending" western Europe (or any other place) with nuclear weapons. A nuclear defence means a nuclear war. Thus the probability is that if war should come it will be fought with conventional weapons, and it is for that kind of war Canada should prepare.

I think you put that with great clarity. At this time do you still hold to that view?

Mr. SIMONDS: I do.

Mr. BREWIN: Then I have one or two other questions. There is also here a slightly political passage which I will not read, where you suggested that both former governments had no defence policy, and then you went on to say:

> In the first place, Canada has been "muddling along" on defence, in the second place, it has been too much influenced by the Pentagon.

Do you mean by that we have not had enough independent thinking of what Canada's role should be?

Mr. SIMONDS: I would say yes, we have not had enough opinions.

Mr. BREWIN: If I might now conclude my questioning: When you say it is your idea we should apply independent thinking, do you think that the main purpose of the tri-service force should be peace keeping and that that would be the role we would be most fitted to play?

Mr. SIMONDS: Yes.

Mr. BREWIN: Within the alliance we are in?

Mr. SIMONDS: Yes.

Mr. BREWIN: And that would be most useful to the alliance as a whole?

Mr. SIMONDS: Yes. May I elaborate, if I may, on one point which you raised —and this again goes back to this matter of air defence: there were most comprehensive and detailed studies made both of the operations of bomber commands, strategic air commands and the Luftwaffe by defence authorities following the second world war. In the second world war about the most successful defence against bomber attack on a particular target area resulted in something between 10 and 15 per cent attrition of the attacking force—and that was an effective defence, and with conventional bombs. But, to knock out and keep out of service an important target area requires not one attack but repeated attacks. The rate of attrition of 10 or 15 per cent per raid was sufficient to force the attack to desist. An outstanding example was the attack on Liverpool. It was just about out when finally the Luftwaffe decided they had enough and laid off. Now, that was with conventional bombers. Since world war II—and I am going back a bit now because, as I have said, too many times, the missile now is by far the greater threat—generally speaking, the development of the jet engine gave the bomber an increased advantage over the fighter because the economy and performance of the jet engine increased at the higher altitude, and the bomber, of course, has gained its altitude before it goes into its target area. So, if anything, the advantage of the bomber over the fighter had improved over the second world war. If you consider an attacking force of bombers carrying thermo-nuclear bombs only have to reach their target once with one bomb and it is finished, even assuming you could get a rate of attrition of three times, the best defence given it in the second world war, you are still going to have a devastating attack made even with bombers against the best defence you could make.

Mr. BREWIN: We have had some discussion before about the rate of attrition that may be anticipated, but we were told that is a security matter and we could not obtain detailed information on it. Could you give us an informed guess as to what rate of attrition we might hope to obtain.

Mr. SIMONDS: No, I am afraid I cannot.

Mr. BREWIN: That is, in the Bomarc SAGE missile system.

Mr. SIMONDS: I am afraid I cannot do that. But, what I could say is that the maximum or the most effective defence in the second world war on a single raid would produce about 15 per cent attrition. Taking into account the increased margin of effectiveness of a bomber over a fighter I leave it to your imagination to figure out whether or not you think that the present defence could inflict a rate of attrition of the order of 75 or 80 per cent.

Mr. BREWIN: There was one other question I forgot to ask the general. We now have our brigade in Europe equipped with the Honest John rockets, which are to be fitted with nuclear warheads under the control of the United States. You have mentioned the danger, once you cross the threshold, in the use of nuclear weapons and of the present day thinking in that regard, and if you do have tactical nuclear weapons to use as a deterent that you would keep them under separate command and not in the front line because of the danger of decisions being made at a brigade or lower level to use these weapons, thereby moving into the field of tactical nuclear war. Is not the decision at a higher level to be arrived at when the other side initiates nuclear war or if the situation is desperate. Am I right?

Mr. SIMONDS: Yes. I have seen the argument made for the Canadian forces having these tactical nuclear weapons, that we should not send our troops into battle any worse equipped than our allies are; in other words, we should give them the best equipment available. I certainly agree with that in principle; however, when you go into that closely, would you favour placing the decision on the launching of a thermo-nuclear war in the hands of a battalion commander—and it need not necessarily be a Canadian brigade but a brigade of NATO in Europe, whose task it is to prevent a certain bridge or river crossing falling into the enemy's hands. His role in life is to ensure that it does not happen. He is threatened with being overrun; he is seeing his battalion being decimated and he has under his control thermo-nuclear tactical weapons. Is he going to use them or not? My answer is that if that weapon is at his disposal he is going to use it. Now, if you are going to believe, as I think that we all do, that the decision on this matter can only be made by the President of the United States, it is not going to do him too much good if at this crucial moment he has to turn over his shoulder and say: get a message off to SHAPE and through them, to the president, and ask him if I can fire my thermo-nuclear weapon. The battle will be over by that time. So, any theory to the effect that our troops are better supported because they have these weapons is a complete hallucination. It is only of value to a fighting commander on the spot when, in his judgment, he must use it to win a battle.

Mr. SMITH: Awhile ago you spoke of the significance of the first Sputnik. Do you think the fact the Russians have developed powerful engines thereby sending the Sputniks into orbital flights many many times around the earth and in multiple numbers, at least two and possibly more, is of military significance?

Mr. SIMONDS: I can see no reason why it should not be, from what we know now of what both the United States and Russia have done with these satellites.

One other factor of great importance is the great advance that has been made in photography from high altitudes.

Mr. SMITH: Do you think that these weapons could be turned into other vehicles for nuclear weapons?

Mr. SIMONDS: Well, again I can see no reason why they could not be, say in the future, when they have a little more power.

Mr. SMITH: You were explaining awhile ago your ideas of unification; you dealt first, with the unification of command and you suggested the equivalent rank of colonel and above. Could the committee have benefit of your views as to how a unified command could be developed? What would have to be done?

Mr. SIMONDS: I think we have the machinery to do this now, in the training at the staff colleges. When I mentioned full colonel I was thinking of the defence colleges then. I think in our service that when an officer has shown the necessary qualifications and ability he should be sent to a defence college and take the course there, and when he has completed it he should be fitted to exercise a tri-service command.

Mr. SMITH: What is the block then? Why are we not getting a unified command?

Mr. SIMONDS: Because I think the existing organization at the top is working against it. But, during the war you had on many occasions a very close integration of staff, naval, air and army, for all of these combined operations.

Mr. SMITH: I suppose in connection with the unification of certain of the services you are speaking now of medical and supply services, and that would be really a matter of just imposing an order that they should unify? Would that be it?

Mr. SIMONDS: I would think so. You would simply have to say: this is going to be it and there is not going to be any argument, organize yourselves so you can do the job.

Mr. SMITH: One of the great theoretical discussions that goes on always is the division of civilian and military responsibility in the operation of the armed services, and this is one thing we in Canada have heard something about. I have been reading in American magazines lately that in the United States they have in the defence secretary's office a separate civilian secretariat which primarily functions on weapons systems evaluation; in other words, they evaluate the claims of the various services which are put forward for a weapon system or for a course of action to be taken. Do you think we could have a similar organization in the Canadian defence department?

Mr. SIMONDS: It should exist, and it could exist if some minor discussions were held and improvements made in the different inter-service committees now. But, it is a little diffcult to explain. It is largely a matter of the will to co-operate and, of course, in war that is pretty well inherent. In peace inter-service competition for the slice of the cake comes into these things and there is a tendency not to pull together but to go off in different directions.

Mr. SMITH: In other words, perhaps if we had effective unification of command, the necessity for such an evaluation system would partly remove itself?

Mr. SIMONDS: Yes.

Mr. SMITH: The final question I wanted to ask at this stage, General Simonds, related to the Canadian brigade in Europe. At the beginning I think you emphasized the political aspects of it and the conditions in Belgium and Holland and some of the smaller countries, and it being very good for morale and political stability. I would have inferred from your answer—and you might tell me whether the inference is correct—that that possibly is less important now than it was at the time the brigade was first established there.

Mr. SIMONDS: It is less important now I would say, definitely. I have been a fairly frequent visitor to Europe all through the post world war II years and I think you might say the morale of western Europe is unrecognizable

today compared with what it was after the second world war, and even at the time of Korea. They have regained their confidence and every country's approach and outlook are totally different from what they were ten years ago.

Mr. SMITH: Then if I might ask one more question on that point, would it be at all feasible—assuming the emphasis in the armed services was put more on military transport both in the air and on the sea—to maintain a force in Europe with a considerable degree of less permanence? In other words, if we had very adequate air transport and we had perhaps some merchantmen and some sea transport, would you be able to maintain the brigade there as an effective unit by more rapid interchange of personnel and without having the permanence of so many dependants there for long periods? Would that be feasible and would it perhaps be useful in training our services and moving personnel?

Mr. SIMONDS: In reply to that question I would say I personally advocated from the very beginning that we should have a shorter period of service. This is one of the differences between the three services. I advocated a shorter period of service and no dependants. To me the presence of dependants was contradictory to the role they were supposed to fulfil in an emergency. I have never been satisfied that the removal of dependants could be smoothly done in an emergency, and I advocated then a much shorter period of service and no dependants in Europe.

From the army point of view I regard it as very important that rotation should be by units and not by individuals. I put great stress on that, and not just from theory. During the Korean war I know it was the envy of the American forces that we rotated our units by complete units; whereas they went in and came out as individuals. We went in and came out as complete battalions or regiments, and so on. The result was that the build-up of morale was extremely high. At the time the United States were rotating by individuals. A formation might have seventy per cent of its personnel at any one time who had been there for less than a couple of months, by virtue of the overlap. Rightly or wrongly, I am a very strong believer in the terrific stimulus of our regimental system, to morale; so I want rotation of the army by units and on the basis of a short spell over there. On the other hand, the air force in their system want a long period of rotation, up to three years or more; and of course that does entail dependants going there.

The decision was made—of course the Canadian forces have all to do the same—and as far as the army is concerned we have rotated by units; but have had dependants there, so that was a sort of compromise which eventually resulted.

Mr. SMITH: Do you think it would still be feasible to have a shorter period?

Mr. SIMONDS: I believe it would, yes. Again, I would not be familiar with the figures of cost now if we had no dependants and a short period of service overseas.

Mr. SMITH: Something like six months?

Mr. SIMONDS: I think up to a year is not unreasonable. A great many ordinary businesses have people separated from their families for up to a year—not longer than that generally. I would not think a year too long.

The CHAIRMAN: Mr. MacInnis.

Mr. MACINNIS: My remarks are tied in rather closely with those of Mr. Smith.

It has generally been agreed that one of our most trying defence problems is meeting the demands of the individual services. Would a tri-service eliminate these ambitions?

Further, would the general agree—and I think he has already perhaps indicated that he does—that this must be a political decision without necessarily getting the opinions of the upper echelons of the three services?

Mr. SIMONDS: Yes, I think it has to be a political decision. I think it should be one made in such a way as this committee would make a decision, having weighed, after very careful consideration, all the evidence available.

Gentlemen, I believe if you have to get something done in many of these cases when you have long standing prejudices to over-ride, you have to say that this is going to be it, that there is going to be no argument, get on and make it work.

Mr. MACINNIS: Or otherwise, without asking the opinions of the senior officers in the three services?

Mr. SIMONDS: Yes.

Mr. MACINNIS: What about the matter of eliminating the service ambitions? Of course this would tend to do it.

Mr. SIMONDS: I think service morale is of great importance, as I mentioned before, but I do not think really it is in conflict with this. I think that if each service knows what its role is in overall policy, the morale can be just as high as if they are carrying out divergent policies.

Mr. MACINNIS: Do you agree, general, that one of the major problems facing the minister of the Department of National Defence is trying to meet the demands of the individual services today? In other words, this ambition is coming before the minister each and every day, or whatever the case may be, and his job is becoming more trying because he must meet these demands and make decisions on them. This is the essence of that inter-service ambition you speak of, is it not?

Mr. SIMONDS: Yes.

Mr. MACINNIS: I have one more question. Can the general indicate to the committee the administration which would be required in a tri-service set-up? I am referring to a set-up with the senior officers operating as a tri-service unit. Could the general indicate just what the required administration would be to separate, if you would, the junior ranks and the other ranks as individual units or individual forces? In other words, you foresee the possibility of a tri-service set-up here. What about the comparable ranks in the other two services? What would administer and how would it administer the junior officers and the other ranks in the individual services?

Mr. SIMONDS: I can see no problem; in fact it was introduced before the second world war in some commands in Canada which were basically army commands. They were commanded by air force commanders. From my recollection, I think prairie command was one such command in the years preceding the second world war.

Mr. MACINNIS: Would it be broken down, say, to district commands which would probably come under the jurisdiction of, say, the eastern command under the navy?

Mr. SIMONDS: I think for instance we can cut down a lot on overhead. I think instead of having three service commands in Halifax it would probably be appropriate there to have a senior naval officer in command of an integrated headquarters staffed by all three services, and he would be the one king pin responsible for all the services in the command.

Mr. MACINNIS: You definitely feel this is the appropriate way for Canada to approach the matter?

Mr. SIMONDS: I think that is perfectly practical and could be done.

Mr. CHAIRMAN: Mr. Hahn.

Mr. HAHN: General, maybe I am reading into your remarks something that is not there, but in going back to your views on the nuclear/non-nuclear situation, is it reasonable to put your remarks together in this sense: that you feel we—and by "we" I mean the western world—should face up to the fact that we are either in an all-out nuclear missile war if everything fails or, if it does not fail, we might have a preventative non-nuclear war, and therefore such things as defence against bombers and tactical nuclear weapons, which are a type of in-between phase really should come out of our thinking; that we should gear ourselves only for an all-out nuclear or a conventional type operation?

Mr. SIMONDS: I do not believe escalation can be checked once we start to use nuclear weapons; that is a basic reason for that.

May I just say there too that the greatest danger is where one of these brushfire situations occurs with the major protagonists backing one side or the other, and the situation grows to the extent where one of the major protagonists is faced with either a straight backdown, potentially a tremendous loss of prestige internationally and with all its other satellites, or continuing on.

It is controlling a situation of that kind and being able to control it without resorting to nuclear weapons, that I see as making just the difference between having a nuclear exchange and avoiding it.

Mr. HAHN: Translating then, down to weapons themselves we—and again I am not thinking just of Canada but of the western allies—might just as well do without nuclear weapons? In other words, they should not have a place in our defence role?

Mr. SIMONDS: Yes.

Mr. HAHN: On the other side of the coin, the preventive side of the coin, in view of your remarks on the usefulness of bombers, or the likelihood of them being used, NORAD should essentially then provide a warning service and possibly develop or try to produce something in the way of anti-missile defence, which we do not have; but again, conventional defences going after conventional bombers are pretty well passé now?

Mr. SIMONDS: I would make one addition to that. The time will come when an effective anti-missile weapon is developed, and it may be it will have to have a nuclear warhead.

If a really effective anti-missile weapon were developed, it would certainly be able to deal with anything of a lower grade, say the bomber. Then you might have to review our position because then it might be fully justifiable to go into nuclear warheads for anti-missile defence. That does not exist at the present time, but if it did then we might have to take a completely new look at the situation. We might have to take a new look at the situation when a really effective anti-missile defence was evolved.

Mr. CHURCHILL: The time is running out, but may I first have assurance that the steering committee will not change the program for today and that the general will return this afternoon?

The CHAIRMAN: I still have six members who wish to ask questions of the General. If it is possible to deal with all those questions in another half hour, we would proceed until 1 o'clock. If members of the committee do not feel they can conclude these questions in the next half hour, then we will have to adjourn until this afternoon after the Orders of the Day. We do not know what might happen in the House of Commons this afternoon, and the proceedings might be quite long. If this is so, we could meet at 5 o'clock or this evening at 8. We will have to ask the General to come back this afternoon if we do not want to proceed until 1 o'clock.

Mr. WINCH: If we are coming back this afternoon, the first half hour could be taken and then we could consider the recommendations of the Steering Committee.

Mr. CHURCHILL: This is one of the best mornings we have had in the committee and I think we should have the General at our disposal for a longer period.

The CHAIRMAN: We will adjourn until 4 o'clock.

AFTERNOON SESSION

The CHAIRMAN: Gentlemen, we now have a quorum.

Mr. WINCH: Before we proceed, in view of the request I made this morning about which I felt very strongly and on which I met with you afterwards, Mr. Chairman, will you make an announcement as to why a meeting of this adjourned committee was not called prior to this meeting?

The CHAIRMAN: This morning Mr. Winch brought up the question of press reports and the purpose of this committee. He suggested that we should have the Minister this afternoon. This was not possible on two grounds: first, we have with us General Simonds, who comes from Toronto to appear before the committee, and we had not finished questioning him; secondly, the minister had not been informed that he would be asked to come this afternoon. I proposed to Mr. Winch that we should have a meeting of the Steering Committee to review this problem and report to the Committee before we proceeded any further. This was agreeable to Mr. Winch, and I thought we could have a Steering Committee meeting before the meeting this afternoon, but there were other Committees meeting in the house and it was impossible to get the members together. I hope the Steering Committee members will be able to meet after we adjourn today. In any case, the Steering Committee will be meeting before our next meeting on Tuesday morning.

Mr. SMITH: On a point of privilege, Mr. Chairman, I was here this morning and I thought I listened fairly carefully to the evidence of General Simonds, yet I find as we come in this afternoon that there is a headline in the Ottawa *Citizen* which says:

Simonds urges Canada to acquire its own H bomb.

To me that was not the sense of General Simonds' evidence. I wondered if we might have a word from him on this topic. Would he assure me that I did not mishear him or, if I did mishear him, would he put me right.

Mr. SIMONDS: Gentlemen, somebody showed me the headline in this afternoon's paper. I could not imagine anything that represented my views more wrongly than that. I thought I spent the whole morning more or less saying the exact opposite.

The CHAIRMAN: When we adjourned this morning Mr. Churchill was the first member on my list.

Mr. CHURCHILL: Mr. Chairman, as a preliminary question, after which I would like to deal with some other matters, I would like to ask the general about his proposal of the tri-service aspect of the forces, peace-keeping and policing operations. What part would the air force play in that in addition to transport and reconnaissance? Is there a role for the air force in close support such as we had in the second world war?

Mr. SIMONDS: I would think the close support role will tend to be a decreasing one, again in view of the potentialities of the missile.

Reconnaissance is an absolutely vital role because in a tactical sphere you are dealing with a mobile situation where movements of troops and so on

are constantly taking place and the situation changing. I do not believe anything can be a substitute in the foreseeable future for visual observation of the battlefield by reconnaissance aircraft, but when it comes to the launching of attacks against targets located by those aircraft, I think in some cases the long-range missiles which are now being developed can do that more effectively than could the attacking aircraft during the second world war.

I think we are a little inclined at the moment to think of the missile as only the very big intercontinental type, but there is a family of smaller missiles being developed which can be very effective with conventional warheads against the sort of targets of which we are speaking now. Some of you here will recall that towards the end of the second world war we introduced these rocket batteries, which were a very effective weapon against a mass target. Of course, they were still in a very elementary stage at that time compared with what is possible today. So I would see the actual attack role of the close supporting aircraft fading out, but the reconnaissance and transport roles I think will be there as far ahead as we can see.

Mr. CHURCHILL: In that transport role—which is more than just transporting troops; it is transporting supplies—do you see a close support activity on the part of the air force to dropping supplies to advanced formations, or would this be a role that should be undertaken by the army with its own aircraft?

Mr. SIMONDS: It is my opinion that the role of supply in a forward area, regardless of the uniform worn by the man who is flying the machine—whether it is a helicopter or a short-range fixed-wing aircraft—has to be under the control of the army. I think it has always been an essential aspect of field operations that a commander must have control of his own supply system; he cannot effectively conduct the battle otherwise. He has to be able to say when and where the various types of things required by a force will be delivered to it.

It is a nice point whether the machines that carry these supplies are piloted by men wearing an air force uniform or an army uniform, but the actual operation must, I believe, be under the direction of the army commander concerned.

Mr. LAMBERT: May I interpose? That is in keeping, is it not, with the general theory of the American army at the present time? Although the American army does want control of the air component, it still does not want to compose its own army air force?

Mr. SIMONDS: Yes, I think you can have a perfectly effective and workable system where the man who is operating the machine is in light blue, if you like to put it that way, providing the commander on the spot has control of where and when the various ammunition, the food or the petrol—whatever it may be—is delivered.

Mr. CHURCHILL: I would like to ask a question with regard to the mobility of the army. I noticed in a newspaper report, which I hope is more accurate than the one just drawn to our attention in the Ottawa *Citizen*, that in a recent operation by the brigade in west Germany the infantry were being "whipped", as it says:

> The three-quarter ton trucks which whip the infantry from place to place . . .

Are we still in a position such as that in the second world war as far as the army are concerned of being roadbound? What is your considered opinion with regard to the track vehicle for almost all portions of the army so that cross-country capability is possible?

Mr. SIMONDS: I think the army is still road bound and should not be. In fact, I could read you an extract here from a paper which I think I wrote ten years ago advocating very strongly that one of the most important steps in the reorganization of the army was to free it from dependence on these long lines of

land transport and develop an air transport service. In fact, I think I can claim—and I think De Havilland would support me on this—I was one of the originators of the idea of the Caribou. I think I can claim that I had a good deal of influence in persuading both the British and United States armies of the value of development of this kind, but was not too successful in persuading our own army. At that time developments were going on in what were called vertical lift aircraft which would have the characteristics both of a helicopter and the fixed wing aircraft. However, they were very much of a compromise, and a compromise of that kind is never quite as good a machine as one that specializes in a certain role.

The great disadvantage of the helicopter is that it is an efficient vertical lift and vertical delivery machine, but it is not an excellent carrier while it is travelling horizontally. So, there was the concept of trying to develop the idea that we should have what I originally called the flying truck, a fixed wing aircraft that had a very short take-off and landing area which could operate usefully forward, and in the operational area. If we could do this we could get rid of this great administrative tail which has always been a great handicap to the formidability of land forces.

I would like to add to that that I think we definitely need at the present time a new and efficient armoured personnel carrier. I do not know where the matter stands now, but I think it is unfortunate that the development of the production of the Bobcat has not been pressed forward. I do not know about it in its later stages of development, but I believe it is a very efficient personnel carrier from the point of view of cross country, its water crossing abilities, and so on; and it is reasonably well protected. We do need that.

In respect of the great train of lorries that supplies a force fighting in the field, I believe we are rather past the time when that should be done by an air lift, and not by a long column of three ton trucks on the road.

Mr. LAMBERT: Would it not be much more effective if the Bobcat could be married up with the Caribou? I understand the breadth of the Bobcat is just too much for the Caribou.

Mr. SIMONDS: Again I think that is probably unfortunate. If I may, I could give you some past experience on this. This is prior to the second world war at the time that I was taking a course at the staff college. The navy was really beginning—this is the British navy—to develop these new landing craft. The army was building tanks and the air force was looking at air lift transport airplanes; but they were not getting together. The result was that the first lot of landing craft built would not take in the tanks the army designed. If there had been a little bit of co-ordination between the two in the field of design, we should have evolved a tank and a landing craft that would fit together. This is the same question you raise now in respect of the Bobcat and the Caribou.

Mr. WINCH: Is the reason that the Caribou, which is an excellent machine, and the Bobcat cannot fit one into the other there was no correlation between the two services?

Mr. SIMONDS: That is what I am told. I do not know whether or not the Bobcat will fit into the Caribou.

Mr. PATTERSON: On a point of order, I think it was understood that when one member was asking questions there were not to be any interjections. I requested the floor this morning for a supplementary question, but it was not accepted. Throughout the day there have been other members interjecting while members have been questioning the witness. I think we ought to have a ruling as to how far this should go.

The CHAIRMAN: This morning I tried to catch your eye afterwards in order to find out if you still wanted to ask a supplementary question after Mr. Lessard. I could not find out whether you wished to or not. That is why I recognized

somebody else. The ruling we had is that when a member has a supplementary question to ask he so indicates right away and is immediately recognized by the Chair. I am sorry this happened this morning. I think you mentioned to the Secretary that you had a question and I tried afterward to find out if you still wanted to ask the supplementary question. I was unable to get any answer because you did not see me.

Mr. PATTERSON: Because my question would have been of less significance later on, I indicated I would dispense with it. It was with reference to an immediate answer.

The CHAIRMAN: I am sorry I missed you this morning.

Mr. CHURCHILL: I did not mind the interjection because it followed along the line I had introduced. General Simonds is the originator of the armoured personnel carrier and I was one of the operators. It is a topic in which I am very much interested. I hope that any further delay in attempting to fit a Bobcat into a Caribou will not prevent the army getting the Bobcat because of the importance of the armoured personnel carrier in our infantry operations. Would you also advocate, General Simonds, similar full tracked vehicles in the artillery and any other formation within the army which is in the forward zone?

Mr. SIMONDS: I think, certainly, that a fully tracked vehicle has basically a better cross country capacity than a wheeled vehicle. In recent years—and I am going by films I have seen and some experimental equipment—they have developed some very ingenious vehicles which are multiple wheel driven. Nevertheless, the fully tracked vehicle, if it has a really light track pressure, which is very important, will always have a better cross country capacity than a wheeled vehicle, in my opinion, and it is desirable from that point of view to use them in the forward area whenever it can be done.

Mr. CHURCHILL: I have some other questions, Mr. Chairman, but there may be others who wish to pursue another line of inquiry.

Mr. GRANGER: Mr. Chairman, I would like to ask the general one or two questions. With reference to I.C.B.M.s, how accurate are they today? Can they be delivered with pinpoint accuracy? I do not mean within a few inches of the target, but within a fractional point on the target, say half way around the world?

Mr. SIMONDS: I do not think I could answer that question other than to say I think they are accurate enough for the type of target against which they would be used.

Mr. GRANGER: That is exactly the information I was seeking. Can you visualize a full scale war stopping just short of the use of nuclear weapons; in other words, could there be a major war between the major powers, in your opinion, and nuclear weapons not be used?

Mr. SIMONDS: Yes; I believe there could be.

Mr. GRANGER: Would you consider it a distinct possibility in the event of war?

Mr. SIMONDS: I think a situation might very well arise such as developed over the non-use of gas and chemical warfare during the second world war. Both sides were equipped to use it, but a situation did not arise where either side conceived they could possibly obtain an advantage by opening up the field of chemical warfare. I cannot see in the circumstances of today, with the inadequacy of the defence—and this may change in the future if or when an effective defence is developed against the inter-continental missile—that a resort to nuclear warfare is going to do anything but wreak total destruction on both sides.

Mr. GRANGER: I gather that you do think there is no real defence against nuclear attack.

Mr. SIMONDS: Against the I.C.B.M. at the present time there is no defence.

Mr. GRANGER: The only deterrent is the possibility of massive retaliation. Is it related to the suggestion that the Canadian military authorities are influenced by the Pentagon—I was going to say influenced unduly, but I do not know if that was an error in your remarks this morning. But seeing that the United States has means for massive retaliation, would that not in itself have a tendency to influence the heads of our armed forces here, and would not Canada's decision with respect to nuclear weapons free our heads of staff from undue influence by the Pentagon?

Mr. SIMONDS: I am sorry, but I do not quite follow the import of the question.

Mr. GRANGER: Canada as a nuclear power would be under less influence from the Pentagon that Canada as a non-nuclear power.

Mr. SIMONDS: I do not see why that would be so.

Mr. GRANGER: With respect to submarines for transport, I take it, of materials and so on, a submarine is an underwater vessel for the delivery of cargo. Did you have that in mind as a possibility or a long-range plan for naval activity?

Mr. SIMONDS: Yes, if I may remind you, during the first world war—that would be close to 50 years ago—the Germans built the *Deutchland,* a freight-carrying submarine which they used to carry bullion and certain important compact items. It made two or three trips to the United States and to other parts of the world, of course without interference despite the blockade of Germany during the first world war. But that was 50 years ago.

I did mention this morning that the means of propulsion available to the submarine engineer, the diesel-electric thing, was a very inefficient form of propulsion compared to what is available today. I do not know, and I could not give you an answer as to what ratio of pay load there would be in a modern cargo submarine. I am suggesting that it should be very carefully examined because I think it would be an important and more effective way to get your cargo safely to other lands than by trying to promote surface—to sail surface ships with these cargo vessels which cannot go as fast as the modern atomic submarine.

Mr. GRANGER: In the short term view the surface vessel would have to be used; would this not require the use of surface naval vessels?

Mr. SIMONDS: I would think that if you ever got into a major war again, the scale of submarine warfare at the beginning would be greater than it was at the peak period of the battle of the Atlantic in the last war, and that with the improvements in submarines which have taken place since, I cannot see much future for surface convoys. I think that for transportation you are either going to have to fly it, or put it under the ocean.

Mr. GRANGER: You mean either above the sea or below it?

Mr. SIMONDS: That is right.

Mr. GRANGER: Like a bird or a fish?

Mr. SIMONDS: That is right.

Mr. GRANGER: Thank you.

The CHAIRMAN: Now, Mr. Matheson.

Mr. MATHESON: General, I take it from your evidence this morning that you lay considerable stress as a peculiarly useful role on peace-keeping operations in the future. I concluded from a conversation I had two years ago with General Burns that this is General Burns' view is it not?

Mr. SIMONDS: I believe his views are very much the same.

Mr. MATHESON: I believe you have an answer in an answer by the minister which stated in detail the operations that we have undertaken as a nation—I

mean peace-keeping operations since Korea. If possible, I would ask that this answer by the minister be placed in our record to indicate to the members the nature of our participation. May I be given permission to have this produced. I would like to question the general on these operations, with which he is quite familiar, I believe. It is only one page.

The CHAIRMAN: Very well; Is it agreed?

Agreed.

Mr. SMITH: It was a statistical question.

Mr. MATHESON: Yes, it is a statistical question and it covers policy since July 27, 1953. My impression, when I look at that return, is one of profound disappointment that Canada participated so little in 10 years in peace-keeping operations. Perhaps I did not read the figures correctly, but it would seem to me in the light of our annual budget, this is a very small contribution to the United Nations, as distinct from our contributions to NATO and UNRA.

Mr. SIMONDS: I think it is a small contribution when you consider what we spent on defence; and if you consider the peace-keeping role as an important one for Canada, I would say our contribution has been very, very small. But in saying that, I think one is assuming partly from the fact that we have to keep this in proper perspective, because we are looking at things now in a period when there has been a considerable cooling out in the east-west antagonism developing in the last nine months or a year; and throughout this period from the outbreak of the Korean war when we had a major expansion of our armed forces since the second world war, it has been Canadian policy to commit all its forces in support of the NATO alliance.

And I believe when we have made this contribution to the peace-keeping operations we have more or less had to have the concurrence of our NATO partners, that we may withdraw temporarily from our NATO contribution forces required for these policing operations, because I think everything we had was committed to the NATO alliance. It may be that had there been a greater willingness on the part of our partners to see our NATO contribution depleted temporarily we might have been able to do more.

But as things actually stood, and not being wise after the event, if today we had a bigger share in some of these things, we would have had to create additional forces over and above what we had committed to NATO to do it.

Mr. MATHESON: General, in an article which appeared in *Macleans* on August 4, 1956 you said that in the world situation today Canada's military policy must be strongly influenced by a relationship to the United States and our other partners in the North Atlantic Treaty Organization. You said that even in NATO the economic and military power of the United States would render impracticable any strategic policy not supported by American political and military leaders. Do you feel, sir, that now the climate is right for Canada to continue to play her adequate and full part in NATO and NORAD, and yet nevertheless to tend to specialize in the direction of peace-keeping operations, or would we still run into the same problem of disengaging forces from those that have been committed particularly in Europe?

Mr. SIMONDS: I would say that with the cooling off in the east-west antagonism which has become obvious in the last nine months or so there would not be the same reluctance on the part of our NATO partners for us to play a greater part in the peace keeping operations not directly connected with NATO itself. In any situation in which there are danger portents of an outbreak spreading and widening into a major conflict, NATO itself is interested to see that a conflict of that kind should not spread. I cannot believe that they would be reluctant to see us playing a bigger part in this thing. It is in their interest as well as our own. This peace keeping operation is one in which the whole civilized world is interested.

Canadian Participation in Peace-Keeping and Truce-Supervisory Activities since July 27, 1953

Operation	Service Involved	Period of Participation	Personnel Involved	Approximate Annual Cost to Canada
(1)	(2)	(3)	(4)	(5)
United Nations' Military Observer Group in India and Pakistan (UNMOGIP)	Army	Jan/49 (Continuing)	8 officers	$ 89,000
United Nations' Truce Supervisory Organization (UNTSO)	Army	Jul/49 (Continuing)	18 officers	177,000
International Supervisory Commissions in Viet-Nam, Laos and Cambodia	Navy	Jul/54 (Continuing)	2–3 officers	33,600
	Army	Jul/54 (Continuing)	76 all ranks	818,000
	RCAF	Jul/54 (Continuing)	2–4 officers	42,000
United Nations' Emergency Force in Palestine (UNEF)	Navy	Dec/56 to Feb 57	HMCS Magnificent sea-lift	605,561 (one time cost)
	Army	Nov/56 (Continuing)	858 all ranks	3,930,000
	RCAF	Nov/56 (Continuing)	86–275 all ranks	612,000
United Nations' Observer Group in Lebanon (UNOGIL)	Army	Jun/58 to Jan/59	70 all ranks	147,000 (8 months)
Organization of the United Nations in the Congo (ONUC)	Army	Aug/60 (Continuing)	250 all ranks	1,424,000
	RCAF	Jul/60 (Continuing)	6–19 all ranks	256,000
United Nations' Yemen Observer Mission (UNYOM)	Navy	Jul/63	1 Petty Officer	262 (one time cost)
	Army	June/63	5 officers (withdrawn temporarily from UNTSO and UNEF)	Nil
	RCAF	Jun/63 to Sep/63	56 all ranks	52,000 (4 months cost)
United Nations' Temporary Executive Administration (UNTEA)	RCAF	Sep/62 to Apr/63	13 officers	42,000 (8 months only)
United Nations' Command, Korea	Army	Jul/53 (Continuing)	1 officer and 1 OR	20,000

Mr. MATHESON: Having in mind what you are doing in NATO but also your recommendation that perhaps we could lay greater strength on the movement of regiments or units as distinct from simply personalities, with our dependence being pretty well rooted to Europe in establishments, schools and so on, can you see a practical way in which we could phase out our structure—I am thinking particularly of the army—so that we would be able to carry on our duties in Europe and nevertheless be better equipped to disengage forces easily, maybe with DANOR units or other units that might politically be acceptable for United Nations task forces when we are called upon to do it? Could you give us any idea how we could become different kind of defenders?

Mr. SIMONDS: I do not see anything conceivable between the type of forces that we could provide for NATO and the type of tri-service forces that would be needed for these peace keeping operations. I think the same type of force could very adequately fulfil both roles. Also my understanding as it used to be of our NATO commitments was that we had only a brigade group as far as the army was concerned permanently stationed in Europe and we were obligated to reinforce that in the event of emergency which meant maintaining in Canada additional forces for that purpose. Now, in this peace keeping role, except in a very major one, without disturbing the actual forces in Europe and provided we had the agreement to temporarily deplete our reserves that are here in Canada, we could do most of these peace-keeping roles.

Mr. MATHESON: I have one final question on this same subject. In an article in *Macleans* of June 23, 1956 you said, and I am summarizing, that the chiefs of the three armed services are denied an opportunity to confront those responsible for political decisions with objective military advice. I am wondering, sir, if, according to your views—and I am not thinking of particular ministries because these cover of course two administrations—whether the military has ever really urged with any singleness of voice the advisability of emphasizing this peace-keeping role for Canada and that view has not got across to the government?

Mr. SIMONDS: To be perfectly frank with you in that answer, it was my feeling that a lot of the meetings and the work of the then constituted chiefs of staff committee was a sheer waste of time. A lot of the important issues simply would not get on the agenda.

Mr. MATHESON: How would you correct that, general?

Mr. SIMONDS: I think one measure of correction would be that the so-called present chairman of the chief of staff should be the chief of staff to the minister, and the minister, in cases where there were strong differences of view between the individual chiefs, should hear them, and his own chief should then advise him on what course he should adopt. The decision in all these matters—and I do not believe any responsible military person would ever attempt to quarrel or deny this—rests with the political chiefs. However, the big problem, it always seemed to me, was to get really objective advice through the chiefs of staff committee that was represented to the minister objectively. There seemed to be a tendency to steer away from the subjects which it was thought might be unpalatable or difficult.

Mr. MCMILLAN: Mr. Chairman, my question has largely been answered, but I think the general said this morning that he was against Canadian forces in Europe having nuclear arms. Is that right? Do you imply, or can I infer by that, that you are against NATO forces having nuclear arms in Europe?

Mr. SIMONDS: Yes, in Europe.

Mr. MCMILLAN: Even though the enemy had nuclear arms?

Mr. SIMONDS: If the object of the western alliance is what it purports to be, to defend western Europe, it cannot be defended with nuclear arms. In my

opinion it can only be destroyed by nuclear arms, and this can only lead to the danger of escalation and a full nuclear war. If the object of the alliance is to defend western Europe, and it has been long recognized that it is in the North American interest to do that, then it has got to be defended by conventional means. There has got to be, in the background, the threat of massive retaliation to prevent any potential aggressor from attempting to conquer western Europe with nuclear arms. The reason I believe this—and it is pretty well accepted that the defence of western Europe is essential to the ultimate safety of the North American continent—is that if at some time you look at a map of the depth of the German penetration into Russia during the second world war and you realize that with that very large area of the country overrun they were able to come back and drive the German invader out, admittedly supported by mutual aid received from the United States, ourselves and from Britain, that that mutual aid, when you add it up was not very great, you realize the potential power of a country such as Russia. If you consider, added to that, the industrial manpower of western Europe if it were brought under Soviet domination, you would see that it would be the greatest power the world has ever seen and one which would be a threat to the whole of the rest of the world. It is not from the point of view of sentimental ties with the past or anything of that kind that I think that the defence of western Europe is necessary for our own North American safety, but in sheer stark military terms.

Mr. McMILLAN: This morning I think you said that the aggressor with his I.C.B.M.'s would have the advantage, and I think you used the phrase "they would cook our I.C.B.M.'s, or those in America, and our bombs". Did you not use the word "cooking"?

Mr. SIMONDS: What I was trying to bring out there was that if they struck first, and this is the reason why we have the present situation—they cannot be sure of the destroying power of retaliation with these projected hard missile sites as they are developed now.

But, they could do great damage to the power of retaliation by any aircraft caught on the ground. I believe if an intercontinental missile with a thermo nuclear warhead struck near one of these Bomarc bases and the Bomarcs were ready to fire, and if the effect of that is to cook a nuclear warhead, then most of the warheads on the Bomarc would be cooked.

Mr. McMILLAN: But if an I.C.B.M. could cook our bombs and our I.C.B.M.'s at so many miles why could not our nuclear weapons cook or destroy planes or bombs in the air? We were talking about the attrition of attacking airplanes.

Mr. SIMONDS: They might be able to do that. The claim is made they can do that. The argument I was trying to make there was that it would not be logical for the Russians, if they decided to deliver a surprise attack to the North American continent, to lead off with bombers, and if that strike was made with I.C.B.M.'s it would certainly damage the potential of the defence before the bombers came into the picture. I simply mentioned the cooking because if it works one way it will work the other, and if there is an argument that this gives an added means of protection against the attacking bomber, then we have to envisage a certain number of these weapons being hit first with I.C.B.M.'s as a result of which they will be cooked before they have a chance to attack.

Mr. McMILLAN: But the attrition could be more than 15 per cent, in respect of cooking.

Mr. SIMONDS: Well, on that particular point I do not think I am qualified to answer. I can only say that from studies I have been able to make I am convinced that this cooking process is certainly not 100 per cent operational, and may be even of doubtful value.

The CHAIRMAN: Have you a question, Mr. Groos?

Mr. GROOS: Yes, Mr. Chairman.

General Simonds, this committee is charged with investigating all aspects of defence and I would like to take advantage of your presence here—

Mr. SMITH: And, policy.

Mr. GROOS: And, policy, and I want to get down to this manpower question.

For the past 12 years in Canada we have been training our younger officers at tri-service colleges. I know you are familiar with this type of training and I would like to have your views or comments on the efficacy of this type of training. As far as I know, no other country in the western world adopts this same system of tri-service training at that level.

Mr. SIMONDS: I always have favoured the idea of tri-service training in the cadet stage. Although there has been a great deal of what we might say talk about it since world war II, the fact was that prior to the second world war the only military college we had was the R.M.C. at Kingston. I happened to be serving on the staff there before the outbreak of war. We were doing tri-service training then. A certain number of cadets from R.M.C. took commissions in the navy and a large proportion in the air force and army. So, even at that time it was not in a tri-service college. We were giving the cadet an all round military training that would fit him to specialize and to pick up his specialization thereon with either the navy, the army or air force, the condition being that during the summer he had to undergo training with the service of his own election to get this service background to complement his general military education—and they are doing much the same now.

While we are on the subject of the military colleges, personally, I always have been against military colleges operating to a university degree level. I have advocated that the service colleges should have a course of two years duration which would give us a large basic turnover out of these colleges at a much smaller cost, and that we should then send the cadet who has the academic ability to carry his education as far as he can usefully do it to an established university. I think the combination of two years at a service college and two years or perhaps more at a university is the ideal combination for the training of the young officer.

As it was pointed out by a committee which studied the reopening of the military colleges in the post war period which, I believe, was chaired by the late Dr. Wallace, I think there is a very great national value in having these colleges where young men were indoctrinated, above everything, with a sense of national loyalty and duty; but, the higher fields of academic training, I believe, would be better and more effectively done at one of our established universities. That is a personal opinion, gentlemen and I know a great many people do not agree with it.

Mr. GROOS: I would like a little clarification in connection with my second question for the benefit of all of us. You have been referring to this tri-service highly mobile force and you compared it at one point, I think, with the United States marine corps, which is a single service. You do not envisage, do you, this tri-service force as wearing one uniform? I think that might be the interpretation certain members of this committee have put on that.

Mr. SIMONDS: I do not think it is necessary. I think there are great advantages; as I mentioned earlier this morning, I am a very strong believer in the regimental system. We have the same problem on a national scale; there is great strength in diversity and esprit de corps which develops from a competitive sense by virtue of a territorial base and allowing a unit to develop a character of its own. I am strongly in support of highlanders wearing kilts and allowing these differences to develop. I think this breeds spirit in this

diversity that is competitive and makes every unit desirous of excelling in its own way. I do not see any necessity for putting everyone in one uniform.

You make the comparison with the United States marine corps, which I very much admire, it is a corps d'elite. It has tradition behind it and it has grown up that way, but I think we lose more than we gain by suddenly putting everyone in the same uniform. I think diversity has advantages in developing this competitive spirit which makes every unit wish to excel and stand out.

The CHAIRMAN: Are you through, Mr. Groos?

Mr. GROOS: Yes, thank you.

Mr. DEACHMAN: Earlier today you mentioned research to some extent. I am wondering whether or not you would move more of defence dollars into research?

Mr. SIMONDS: I would certainly spend more of the research dollars differently. My feeling now is that too much of our defence research effort is going into work that really does not require a highly trained scientific brain. A lot of work being done, and perhaps I am wrong in this because I am speaking of some five, six or seven years ago, by the defence research board could be done equally well by the user of the particular piece of equipment being developed. The user could do the tests and trials. I think this system is too pedestrian.

On the other hand, where we have these highly qualified scientific people, they should be looking at problems such as the one I raised this morning in respect of the submarine. They should be looking at basic research developments to help the services. For instance, if the army is asking that a new type of bridge or something of that kind be developed, and a new development in the engineering field is found which is much better for crossing a water obstacle than a bridge, I feel the thought should be more farsighted and reaching in this direction than is now the case. I think our approach is too pedestrian and too tied to the minor perfection of items of equipment, and that we should rather be taking a longer range view, looking at these problems in a way which will give the services warning of a change in direction. I think this is basic to the whole problem of defence policy.

I was advocating this morning that we should make our main objective a peace-keeping role. One cannot make a sudden change in direction in defence policy without throwing everything out of gear. This must be a gradual transition. Unless you are going to seriously disrupt everything the transition must be gradual with a bending in order to handle the change and not a sudden change in direction which disrupts everything.

New scientific developments are springing at us every day as a result of research that is taking place, such as the space vehicles that are hurtling around. I believe research scientists should be looking a good deal further ahead and there should be forecasts for service developments to the extent of perhaps 10 or 15 years.

If the services do not begin to bend now, they are going to be faced with this problem of making a complete right hand turn.

Mr. DEACHMAN: When you mentioned the use of submarines as cargo vehicles, had you in mind that Canada should, for instance, get into the production of such vehicles or the experimentation in respect of prototypes of such vehicles in our shipyards here as compared with some of the things that we have done in a military way in our shipyards?

Mr. SIMONDS: I can see no argument why we should not look at this and make a thorough examination of the problem to see whether we can develop a potential of this type. On examination this may prove to be something we cannot do. My argument is that we have not even made a thorough examination of the problem.

I can see no reason, with the developments that have been carried out over the last few years in respect of what they call peaceful uses of atomic energy, why we should not go forward in this direction. We have developed the technique of producing machines that develop atomic power. We have got a ship building capacity. The two could be, it seems to me, married in order that they may work toward development in this field.

Mr. DEACHMAN: You believe then that some of the funds available for military spending, for capital spending and for research should be put into the development of atomic engines because of our existing peace time nuclear science in this country?

Mr. SIMONDS: Whether some part of the military fund, you might say, should be swung into that field or whether the atomic energy commission should be directed to develop studies in this direction assisted by the defence research board and the national research council would be the best combination to achieve their objectives, I do not think I can say. In view of the different agencies we have, I do feel that if they were all working together toward a project like this it should be attainable.

Mr. DEACHMAN: You do advocate that some agency of government should accomplish this task?

Mr. SIMONDS: Yes, and that there should be coordination between the agencies which the government is supporting so that they are not working at cross purposes.

Mr. DEACHMAN: Would you advocate the pursual of a role like this in preference to a pursual of a program such as the proposed general purpose frigate production for example?

Mr. SIMONDS: I would think it would be a very much more useful role. I thought I made it clear this morning that I did not feel that the general purpose frigate had a long term future. Let me put it this way, I feel the general purpose frigate program is going to have a very short life. Instead of devoting tremendous effort in respect of the electronic work and associated efforts, I feel that we would make a more useful effort in another direction.

Mr. DEACHMAN: I have one more question which I am afraid is not related to this subject but which I expect you can answer rather quickly.

You spoke a little while ago of the difficulty within the chiefs of staff in attempting to solve certain difficult problems, but rather tending to hide those within the committee structure. I wonder whether you are familiar with the split paper technique, and I am sure you are, of the United States chiefs of staff, and is there a similar technique is use here? When there is disagreement among the chiefs of staff in respect of a particular problem, as I understand the split paper technique, the subject is split up, the pros are set opposite each other and the cons are set opposite each other, the problem is then brought to the minister and the secretary of state in the United States and resolved in that way. Do you see this as a useful medium for handling problems of this kind?

Mr. SIMONDS: I think anything that will assist the minister to make sound decisions is a useful operation.

Mr. DEACHMAN: Do you feel that there is a lack of communication in respect of difficult problems at this time between the chiefs of staff and the minister and that these problems tend to be buried at the chiefs of staff level?

Mr. SIMONDS: I would say that I am not in a position to speak of what is happening now.

Mr. DEACHMAN: Has this been happening in the past?

Mr. SIMONDS: My experience in this regard goes back six years or more.

Mr. DEACHMAN: And we would have been better if we had got these?

Mr. SIMONDS: I would say that difficult and embarrassing problems sometimes just never get up from the bottom of the basket.

The CHAIRMAN: Mr. MacInnis, on a point of order.

Mr. MACINNIS: On a short point of order, Mr. Chairman, I think the Chair should be prepared to rule out repetitious questions. I do not mean that you should cut down on the questions of any one member, but I think a question that has already been dealt with in the day's sitting should be ruled out of order by the Chair so that we can expedite our business.

The CHAIRMAN: Mr. MacRae.

Mr. MACRAE: My question has to deal with the human factor, Mr. Chairman, which I do not think has been brought up. This is to do with compulsory military service—perhaps a very dead duck now.

My reason for bringing this out is that many here have served since the war in the active services and many of us in the militia, and we realize only too well how difficult it was to get men to serve in our militia units. Many of us here realize the great waste of funds, and so on. I would like to ask the general, who has been most helpful, most frank and a very clear witness, if in his opinion we have had a better or a poorer navy, army and air force in these past eighteen years because we could not politically implement compulsory military service in this country.

Mr. SIMONDS: I would never say that the voluntary system and compulsory military service can be operated in opposition to each other; you must have both. You must have your regular, professional element, people who will devote the better part of their lives to this particular field. You also must have reserves and a base upon which you can expand.

I would say the regular forces we have had since NATO was formed, or going back to the Korean war, have by any standard been very high class. That was the opinion that I always found in NATO, expressed by General Eisenhower, General Gruenther, General Norstad, and not, you might say, making any public statement. They all had a very high regard for the efficiency of the Canadian contribution to NATO.

Mr. MACRAE: The regular force?

Mr. SIMONDS: The regular force. I make no secret of the fact that I have been an advocate of national service. I still think we should have it against the dangers of the future. I appreciate the political difficulties, and I think a pretty tragic history is found when you delve into the past as regards this particular question. I believe in the approach to this problem, the responsibility for the high feelings that run on the subject rests probably more on the shoulders of the English speaking than the French-speaking Canadian. Looking back into the past, you have seen it openly advocated on occasion that this would be a wonderful thing because it would anglicize the French Canadian. And there is one thing the French-speaking Canadian was determined to do, and that was to preserve his own language, his religious and cultural background.

In this regard in my experience in the field in the second world war and in Korea, we have had no better soldiers out of this country than the French-speaking soldiers. The French-speaking soldier is first class. However, the French-speaking compatriots are—and I believe rightly so—very sensitive on this particular subject. Again I think I can claim that I was one of the principal motivators behind getting the Collège Militaire going because I felt one of the major steps to a military growth in the future was to provide a college where we could train the cadet in his own language. I believe, though I have not seen it for some years now, that has been a most successful operation.

Mr. MACRAE: May I pose one further question, and I will be brief because I realize there are others who have questions to ask. You have said that you still believe in compulsory military service, a feeling I have shared for years. What do you feel would be a fair and satisfactory length of compulsory military training for this country?

Mr. SIMONDS: May I answer that question in this way: I would think a minimum of two years would be desirable; in eighteen months you could probably give useful and really satisfactory military training. Assuming we did have such a system in this country, as in the past few years unemployment has been a difficult national problem, essentially I would have it flexible. When things are booming and there is a high demand in industry and other activities on our manpower resources, I would only operate the system at the minimum length of time essential—say eighteen months of full-time training. When we strike the slack periods and the surplus manpower available in the market is excessive, you could extend the period of service to take advantage of that temporary slacking off in the economy to give additional training to additional numbers. It would be serving two purposes. I believe you would be training people, giving useful military training to the reserves, and at the same time you would have a means of utilizing the fluctuations in the employment situation.

I would like to add one other thing. I do not believe that a compulsory system would ever be a substitute again for the nucleus of volunteers in the militia as well as your regular force, because you cannot train your senior N.C.O.'s and your more senior officers at the company command and the battalion commander level in a short period of compulsory military training; they have to continue on after that to improve themselves, learning more and extending their knowledge. So for your senior N.C.O. core—and I am speaking of the army and the more senior officers in your reserve, you will still need to have volunteers who would serve beyond the minimum national service period.

When arguments are raised to the effect that this would seriously interfere with the career life of our young men, I just cannot agree with it. I made a brief visit back to Canada after the army had been repatriated from Holland and before I took up an appointment at the Imperial Defence College because I was particularly anxious to see how the university scheme for training the ex-servicemen was working out. In addition to making the visit here I made visits to Oxford and Cambridge and to some of the universities in England, and subsequently in Australia, New Zealand and pretty well all around the world. I found the same story everywhere; they were the best undergraduate body who had ever been at the university. They were serious; they knew what they wanted; and they really went after it. When I meet today many of the ex-servicemen of the second world war and see the success they have made in different walks of life, I would not say the time they spent in the service did them any harm.

Mr. MACRAE: One final question. I mentioned a minute ago the effort to get men to serve in the militia and regiments after the war. Many of us felt at that time—and I think perhaps I still feel this way—that perhaps a compulsory period for service in the militia would have been practicable and would still be practicable—let us say something in the nature of five years, two evenings a week, forty or fifty days a year. What do you think about that, general?

Mr. SIMONDS: I do not think you can carry it on too long unless it is done on a voluntary basis. I think you could get a lot of volunteers who would stay on and prove themselves following a period of national service. I believe if we ever had national service it would have to be an intensive period of training

under the very best instructors and a further period in the reserve when they are subject to immediate recall in case of emergency. Then after that they are on their own; they can continue their association or they can leave.

The CHAIRMAN: Mr. Laniel.

Mr. LANIEL: On a supplementary question, with regard to the compulsory service, what are your views or would be your views on a compulsory militia service?

Mr. SIMONDS: I thought I had just answered that.

Mr. LANIEL: I am referring to a part time, militia basis, not to service for two years.

Mr. SIMONDS: I do not think it would work out because you could not give that initial concentrated period of training which is a really essential factor in my opinion.

Mr. LANIEL: Having served many years with the militia myself, I would like to ask you what you think of the militia and the officers and the senior N.C.O.'s who are staying in the militia without the possibility of personnel being available to do the work for which they are supposed to be trained.

Mr. SIMONDS: I think that under the scheme I just tried to explain, after this initial period of full time training, say 18 months, they would be obligated to continue with the militia for another two or three years; but as is the case with the militia now, it would not interfere with their getting on with ordinary occupations in civilian life at that point.

Mr. MACLEAN: Mr. Chairman, most of the questions I had intended to ask have been answered in whole or in part. Therefore I will endeavour to avoid being repetitous. This will leave what I have to ask rather scattered. Am I correct in assuming, General Simonds, that the chiefs of staff have two roles to fill; one would be what their title implies, chief of their particular service, and secondly to be military adviser to the minister.

Mr. SIMONDS: That is correct.

Mr. MACLEAN: Would you agree that these two roles might be and sometimes are in conflict? Is it not too much to expect the chief of one of the services to recommend, for example, that his service be drastically reduced, even if, from a strictly military point of view, he might feel in the over-all picture this might be valid. One of the difficulties I see is that the military advisers to the civil power are the heads of their particular service, and it is pretty difficult for a civilian without specialized training to set aside the recommendations of his chiefs of staff. He would have to have a highly qualified military adviser on which to fall back in order to have any strength in a point of view which might be in conflict to that of one of the chiefs of staff. I am thinking of a situation which might arise where it would be considered advisable—for the sake of argument—to eliminate one of the three services entirely, or cut back very drastically. In your opinion would it be feasible to bring this about under the present set-up?

Mr. SIMONDS: There are two aspects of this particular question which I think are very important. The first is that in any projects he who recommends must be responsible for execution. Otherwise, you are likely to get into a very theoretical field where you place the executive authority in a position where it is confronted with an impossible task. It certainly is a principle which you have to use in the field, and I believe is used in business; that is, the planning of a project basically and the responsibility for its execution generally should rest on the same shoulders.

I think a lot of the difficulties which have arisen come from the fact that there has been a lack of a clearcut defence policy. What over all in Canada are we trying to do in the field of defence? I will say this: If we settled on

this peace-keeping role as the role we are going to play, a plan should then be worked out as to the size of the forces which we can afford to maintain. Each service would then be told this is your role, and this is how you are going to have to carry it out.

In many cases, because of that lack of a clearcut role, each service struggles to create a role for itself. That is where the Parkinson's law and the inflation starts to come in.

Mr. MACLEAN: This is exactly my point; but even to arrive at the conclusion that our role, perhaps, should be a peace keeping one would require highly skilled military people—highly skilled people with a military background—to properly assess the implications beforehand of such a policy. I am trying to get it down to a point; who should be the people who would evaluate a given policy?

Mr. SIMONDS: I might refer to an answer I gave previously. I think the chief of staff to the minister of defence and the other chiefs working on the chiefs of staff committee should be able to evolve this.

Mr. MACLEAN: I have a couple of other questions. There may be some repetition in this for which I apologize. I believe I understood you to say you believe there is no defence against an all-out atomic war except as a deterrent—the threat of retaliation. That being so, any thought of a role by the defence organization in a situation where full all-out atomic war had occurred is theoretical, is pointless. In other words, there is no possibility of winning an atomic war; there is nothing left—after a full exchange of atomic weapons —to defend.

Mr. SIMONDS: Based upon the best opinions that are available in published works by outstanding scientists and others, if it came to a full thermonuclear exchange between major powers, there would be precious little left. Since the beginning of the world, the human race has proved to be pretty hardy. No doubt there would be survivors, and they would find a way of continuing to survive, but it would be, you might say, in the lap of the gods. I do not think you could really organize much in respect of that.

Mr. GROOS: I have a supplementary question. You mentioned the role of the tri-service highly mobile force for preventing wars in a peace-keeping role. Would you also say that although that may be our major role, there is still a secondary role for Canada in our balance of defence in contributing to the deterrent, perhaps even though we are only on the fringes in the form of what we now have in the way of radar stations, and so on, which are a part, I am sure you will agree, of the deterrent?

Mr. SIMONDS: I definitely do agree, and I agree with that role. I think our role, although you might call it surveillance, should include active aircraft, and these I would call reconnaissance fighters. They would be for the purpose of preventing reconnaissance penetration of our borders. We should carry this on all the time and be responsible for it. We should not be in a situation where we can permit a reconnaisance plane like the U-2 to come over Canada and photograph anything they like here. I think that is a proper national role for us to carry out. It is suggested that in order to do that we need thermonuclear weapons. I think there would be a great danger in that role with thermonuclear weapons. A great number of the intercepted aircraft would be those which have got away from their flight plan. They would be challenged. In many instances they are perfectly innocent and friendly machines. The last thing you would do is fire a thermonuclear weapon at them. If it did not answer the challenge, you could deal with it very well with conventional weapons.

The CHAIRMAN: Now, Mr. MacLean.

Mr. MacLEAN: I take it you feel it to be completely unsound to try to make up for any lag in conventional weapons by trying to fill in the gap with tactical atomic weapons as we appear to be doing in NATO at the present time?

Mr. SIMONDS: I think it is a fallacious policy.

Mr. MacLEAN: Now, if that were so, how could we possibly make up for our weakness in conventional weapons against the tremendous manpower available to the Russians and their allies?

Mr. SIMONDS: When you speak of the tremendous manpower, that is a question of organization, actually. If you take the manpower potential of the western allies, it is greater than that of the Russians, greater than the Russian potential. It is simply the fact that they are organized with this thing and we are not. But if you make a count of the United States, the actual manpower situation is in favour of the western alliance.

Mr. MacLEAN: There must be some way in which the present situation is rationalized. Would you like to say a word on that? There must be some justification advanced for our making atomic weapons available to the NATO forces.

Mr. SIMONDS: A lot of it has been political manoeuvering within the NATO alliance, with the hope that some partners can push other partners into doing a little bit more with the result that everybody is just dragging his feet a bit.

Mr. MacINNIS: Are you expressing your opinion, as you have today, because of your belief that conventional war is more likely to happen than an atomic or nuclear war? Most of your remarks have been based on the belief that a conventional war is more likely than a nuclear war.

Mr. SIMONDS: Yes, I think—and if I may add—the cooling out that has taken place over the past few months is really the basic recognition on the part of both major powers, the major nuclear powers, that an exchange between them is practically an impossibility.

Mr. MacINNIS: I am firmly convinced of the result that you expressed this morning, but I wonder if there is any similarity between what is happening today in respect of nuclear war, to that which might have happened back following 1918, when the eventual use of gas dropped out of the picture? You made a comparison this morning to the effect that the nuclear question could be dropped as was the possibility of the use of gas following similar appeals.

Mr. SIMONDS: Both sides in the second world war were fully equipped to indulge in chemical warfare on a big scale, but they did not do it because at no time would it have had anything but disastrous consequences back upon themselves.

Mr. MacINNIS: Is there any similarity between the political aspect of nuclear arms use and whatever developed in the first war, or between the first and second wars, that is the gas?

Mr. SIMONDS: Much the same sort of thing. I think sometimes we get a distorted picture as a consequence of the use of the atomic bomb at the closing stage of the second world war. I was once informed that the official decision to use the atomic bomb was taken only after the most searching and soul searching and the reassurance that there was absolutely no prospect of retaliation. And you will recall that when the bomb was used—as it is pretty well conceded now—the defeat of Japan was inevitable and only a short way off. So the bomb was used to shorten that time still further and to save lives, by using it when they did. Since then in an armed nuclear field, everybody concentrates his attention on the idea of a sudden, violent obliterating bomb to eliminate prospective opponents.

If nuclear weapons are ever used I would think it far more likely they would be used in the same way as they were in the second world war, that is, following a confrontation of great powers in the conventional sense, when one side thought that it was winning and was the victorious side, then the one who feels he is going to dictate what is to follow after, at the end, might have used this just quickly to tip the scale. But if it is ever used it would be more likely be used in that context than, I think, with the idea of a sudden violent exchange now that both sides are aware that the same power of retaliation can survive regardless of how big the initial attack might be.

Mr. PATTERSON: As a supplementary question I would like to ask if it could not possibly work the other way, that the one losing would act in desperation rather than the one who was winning, and would use it to tidy the situation up.

Mr. SIMONDS: Assuming you are the one that is winning, you have to sort of envisage certain circumstances of winning or losing. I mentioned very early in the question period this morning that if you should look at a book which I think is probably in the parliamentary library, a book published after the war on the graphical statistics of the second world war, you will see that it has one sheet setting forth the scale of the V1 and V2 campaigns, and that it was the over-running of the bases in Pas de Calais and subsequently in Holland which brought those campaigns to an end. If you are losing a sort of struggle where much of one side or the other's territory has been over-run, when their launching bases have already been put out of commission in large part, therefore the prospect of retaliation on a major scale has been vastly reduced, and then to shorten up the final phase, I could see the side that was thinking of the day of victory, as they did in the second world war, deciding to top it off with an atomic weapon.

Mr. MATHESON: The occupation of this committee is not concerned with where we are or why, but where we would like to go; and having in mind our present armament with the Honest John, the C-104, and in NORAD with the BOMARC, could you give us some idea as to how you think Canada might sensibly phase out of its particular roles into the type of role which you recommended and advocated?

The CHAIRMAN: I am sorry, but that is not a supplementary question to the one asked earlier. I must now recognize Mr. MacLean.

Mr. MACLEAN: I have two brief questions remaining. In your opinion is the cooling off of the cold war, or the lessening of tension due entirely in your judgment, to the realization that an atomic war or a nuclear war might result, or is it partly, in your judgment, a fear on the part of the Russians of a blanket attack from China, or of a deterioration between China and Russia?

Mr. SIMONDS: I think that we have been doing perhaps a certain amount of wishful thinking in regard to the deterioration of relations between China and Russia. In the realities of world politics there are certain factors that tend to keep a measure of collaboration going on between them, and China is not, as of now, a nuclear power. They may become one in the near future, but they are not a nuclear power now. I think that the Cuban crisis brought home very clearly to both sides that they were playing in a very, very dangerous game, and since that time there has been this trend of lessening of tension. I think probably both sides at that point realized they might be getting very close to an exchange that could destroy both of them.

Mr. MACLEAN: My final question is this: during the last 12 years while I have been in the House of Commons, during the defence debates I have heard most of the points of view which you expressed today, a good number of them as well as many others, put forward by members in an attempt to be

constructive as far as our defence role is concerned. Most of the time there was no indication whatever that any further attention was paid to whatever had been said. You have a feeling that you are talking to yourself in these matters when you speak on the subject in the House of Commons. My question is: do the chiefs of staff have someone who carefully assesses what is said in the house of Commons for new views which may be found even if they come from amateurs in the field?

Mr. SIMONDS: I would say that the chiefs of staff do pay attention to those things and are constantly seeking new ideas, possible new solutions to problems. But I think also that until comparatively recently—and this is perhaps getting into a field which is more yours than mine, being political—I have had the impression that there has been a certain indifference in the country at large to what we were doing about defence; that they felt that it was something for the specialists and that they really did not know much about it, and they just had to take what came and assumed that the people responsible would provide the right answers. However, certainly in recent months there has been evidence of a very live public interest in this question of defence, and it is my understanding that the purpose of this committee is to try to bring these points into focus and decide on a policy which is acceptable to the country and by which we can make an effective contribution to collective security.

Mr. TEMPLE: General Simonds, going back just for a moment to this mobile force idea, how large a force do you envisage?

Mr. SIMONDS: It is very hard to give a proper answer to that without getting down to figures. I would say that a minimum was an equivalent of an army division and the air and naval ancillaries to make it mobile and capable of operating effectively almost anywhere in the world. Now, when we get down to figuring that, you may find that that is bigger than we can afford and that it has to be trimmed all along the line in proportion. It may be that you will find that we were not offering a contribution proportionate to what we ought to be doing, and it should be bigger. However, until you get down to figuring out that situation in dollars and cents and to seeing what we would have to do—and I presume we could get some useful guide by studying the figures and estimates of the marine corps and what a marine division costs coupled with our own experience in costing these different things—I could not say what would be the right size. As a beginning that is where I would start and see whether it got to be smaller or larger.

Mr. TEMPLE: In your opinion, general, how heavy an armament should this force have?

Mr. SIMONDS: It should be, I believe, as well equipped with conventional weapons as modern industry and science can equip it, leaving nuclear weapons out.

Mr. TEMPLE: This is my last question. As you have mentioned, there would be more of an emphasis on air transport. Is that correct?

Mr. SIMONDS: Yes.

Mr. TEMPLE: I also take it that you are not in favour of integration of the armed services?

Mr. SIMONDS: I would put it this way, with 100 per cent co-operation and if they maintain enough of their own individuality to develop and continue a high esprit de corps in each component.

Mr. TEMPLE: I have one question that is not related to this. In your opinion, how many I.C.B.M.'s does the United States or Russia need in order to have a full complement in the event of an all-out nuclear war?

Mr. SIMONDS: That is hard to answer because it depends on the size or the yield of the warheads, but if you consider the effect of the modern megaton

warhead, that one can completely obliterate the largest city in the world, if you envisage the obliteration of a hundred of the largest cities of North America, I would say that would pretty well do the business.

Mr. TEMPLE: In the meantime—and mind you there is no doubt that both countries of course are building new and more I.C.B.M.'s—is it your opinion that both countries have reached the maximum in so far as numbers are concerned?

Mr. SIMONDS: If you can believe the evidence, such evidence as is available, I would say they have.

Mr. SMITH: General Simonds, this summer there was a book translated from Russian that contained a series of articles by Russian military men. I believe one of them, or several of them, were about the equivalent in rank to the one that you held. One of the propositions they developed in that book is the continuing importance of conventional forces, because the writer points out that one of the purposes of war is to conquer your enemy's economy in a workable state. He uses that as a proposition, that they would only use nuclear arms to the minimum amount required to defeat the enemy. Do you think that that is a sound military proposition?

Mr. SIMONDS: I do not think so. When you take the reaction of the opposing side into account, once you start to use nuclear weapons you say that you are going to use just enough to ensure victory. The other side will also want to use just enough to ensure victory, and they will do so. Therefore, you run into no holds barred.

Mr. SMITH: When you were answering one of Mr. Matheson's questions you suggested that the chairman of the chiefs of staff should have his role slightly changed, or somewhat changed so that he could perhaps give the minister more or less the impartial technical advice that he needed. Was that the right understanding of your answer?

Mr. SIMONDS: Yes.

Mr. SMITH: I have heard that people who were interested in being critics of the national defence headquarters staff say that the deputy minister and the permanent staff there were substantially administrative people; that there really was no body of independent professional advice at national defence headquarters but just three groups of military people lobbying—and I may be unkind in using that word—for their particular service and point of view. Has that criticism any validity whatsoever?

Mr. SIMONDS: I would say it has some validity. I would add to that and add to the previous answer I gave that in a great many cases if the three chiefs could not agree on something and if there was one dissenter the thing was set aside. That is a situation where I think I would envisage the chief of staff or the minister saying: now, the three chiefs are not in agreement on this but in my view in fulfillment of the policy we are trying to develop, this and this are the steps that should be taken.

Mr. SMITH: Relating to what we were talking about this morning, command training, once they reach the rank of brigadier or the equivalent do you envisage that the officer somewhat diverts himself from his service loyalties and becomes a member of a general staff as it were.

Mr. SIMONDS: He certainly should, and they should be interchangeable; for instance, an air commodore who is commanding a formation should be looked upon also as being available for a member of a senior or joint staff, and a brigadier in the army, if he has this essential inter-service training, should be able to be a senior member of an inter-service staff.

Mr. SMITH: My final question is this. You expressed satisfaction that the Americans were trying now to have a single intelligence service, that is a

co-ordinated intelligence service within their armed services. Now, in reading American magazines you read a lot about air force intelligence; I gather the United States air force operated until quite recently a separate intelligence service. Did that service communicate directly, or did it when you had knowledge, with our air force, or did the intelligence reports come only from the United States Secretary of State for War directly.

Mr. SIMONDS: I believe there was a liaison at the intelligence level.

Mr. SMITH: If I might ask one more question. There has been a lot said about mixed man forces, and there has been a lot written about that, that we were going to have navy forces, multi national mixed man forces, which have been the subject of cartoons and articles, one calling it a multilateral farce. Have you given any attention to that, and what is the possibility of success? What would you think this mixed man NATO force might turn out to be.

Mr. SIMONDS: I think it is an expedient to try and overcome or try, let us say, to bring about a greater measure of integration within NATO. It has great practical difficulties, like most things in this world. I would not say it is impossible, but it is doing things in a very, very difficult way, and I would say it is going to take about five times as long to develop an effective force that way as it would some other way. I think the object of it basically is to try to pave a greater degree of integration.

The CHAIRMAN: Have you a question, Mr. Winch?

Mr. WINCH: Mr. Chairman, I have two questions and in view of the lateness of the hour, I will try to be brief.

Can the general, from his own opinion, give us any view as to the advantage of Canada being a party to NORAD beyond being involved in the early warning system on the three radar lines and their connection with BMEWS, in addition to assisting strategic air command getting off the ground in the United States and alerting the United States of any possible attack? Is there any other advantage you can see to Canada being in NORAD?

Mr. SIMONDS: No, personally I cannot.

Mr. WINCH: I have one other question, and I hope you can answer it. Can you comment on the agreement reached last week between Canada and the United States for the establishment of nuclear warheads on United States bases in Canada,—I say United States bases in Canada—in Newfoundland? Could you comment on the requirements, necessity or advantage? Can you make any comment?

Mr. SIMONDS: I have not seen the agreement.

Mr. WINCH: Neither have we in the House of Commons seen it.

Mr. LAMBERT: Referring to what has been raised by Mr. MacLean and Mr. Smith in connection with the service chiefs, chiefs of staff and the minister, the witness indicated that he thought there was some difficulty arising because of a lack of a clearcut defence policy. I am wondering if the minister receives all of his advice from the service chiefs—they are his professional advisors. Just who should be the persons to determine, shall we say, defence policy? In essence, is it not the service chiefs because you are depending upon their advice?

Mr. SIMONDS: Only in regard to the military aspects. The first and biggest is policy and it is entirely a political decision as to what is Canada's defence role. As I say, that is entirely a political decision. That having been decided, the minister then depends upon his service chiefs to advise him as to the steps required in each service to achieve that policy.

Mr. LAMBERT: Have you had any opportunity to study a series of articles by the former brigadier Malone, now the editor of the Winnipeg *Free Press*,

appearing in May of this year, in which he deals with the matter of staff arrangements and staff structure of our services. For example, the fifth article is headed up "Powers of the Service Chiefs", and the sixth article is "Staff Reforms" he proposes. In other words, he reverts back to the rather greater would be a naval board and an air council with a strong civilian component rather than the now strictly military component so that the minister could receive, shall we say, more rather objective advice in this regard. Would civilian control in that the army should be under an army council and there this type of program be feasible in your opinion as a chief of staff?

Mr. SIMONDS: I have not seen the article to which you have made reference, but it sounds very similar to the system that exists in England. It also has disadvantages, of course.

Bearing in mind our size, the adoption of such a system would mean the creation of much larger overheads. Changes have been made recently in the British system. Each service in Britain still has a sort of under minister in the house. They have a minister of defence who sits on top of the whole situation. Of course, there is also a civilian financial expert who has control of the purse strings.

Considering our size, I feel we should be able to make this thing work without increasing the overhead at the top.

Mr. LAMBERT: As my final question, perhaps I could just put forward the three forms of reform which I think are feasible within our framework. First of all, beefing up the defence committee in Canada; secondly, the chiefs of staff committee should be replaced and reorganized with greater civilian participation, having a defence council consisting of the minister, the deputy minister, the chairman and individual service chiefs; and finally, as I said, the establishment of an air council, an army council and a naval board with a civilian component drawn from our present staffs. Is there any value in any such reorganization?

Mr. SIMONDS: I think this would probably create unnecessary and additional overhead. I do not think I can properly answer that question without infringing upon security.

The CHAIRMAN: Before I recognize the last questioner, I have an announcement to make and an administrative motion to propose.

There will be a meeting of the Steering Committee on Tuesday at 9.30 a.m., and on Tuesday at 10.30 a.m. General Charles Foulkes will be appearing as a witness before this Committee. He will have a brief which he will read at that time.

I should like to read the suggested administrative motion and ask for a mover and seconder.

It states: "that Lieutenant General Guy Simonds, General Charles Foulkes and Mr. John Gellner be called to appear before the Special Committee on Defence on October 17, 23 and 24 respectively; and that reasonable living and travelling expenses together with a per diem allowance be paid to those persons in relation to their appearance before this committee, as provided in Standing Orders 69(2)".

Mr. LAMBERT: Mr. Chairman, I so move.

Mr. MACLEAN: I second the motion.

Motion agreed to.

Mr. MATHESON: General, may I ask you whether, in light of our present disposition of forces, army, navy and air force, and our commitments with respect to armament and treaties, you see a practical phasing out of these roles and the adoption of something different? Can you give us without too much detail, your appreciation of how we could move from our present role, keeping

in mind the commitments we have made which will extend perhaps into the foreseeable future, to a role which we feel we could more usefully fulfil without reneging on our treaties and our agreements?

Mr. SIMONDS: Personally I cannot foresee that there is going to be any revolutionary change. Any change will have to be as a result of evolution. I think the first step would be a political one, that is, negotiation with our allies pointing out that our feeling is that we are not at the present making the most useful contribution of which we are capable toward collective security either in relation to NATO or other potential obligations under the United Nations.

We should also point out that we would like to make an adjustment as a long term policy for the future in order to develop this idea of integrated forces.

We must arrive at an agreement that what we propose is the most useful form of contribution we can make in the circumstances of today. Having done that, and as the existing roles and commitments which we have accepted become obsolete, we do not renew them and, in planning for obsolescence of these roles, we start to develop and equip our forces so that they may take part in the new proposed program.

We certainly cannot unilaterally suddenly say that we are as of tomorrow going to abandon these commitments which we have accepted. National honour alone prevents us from doing that. However, I do believe that most of our partners would realize that in the circumstances of today we could make a more useful contribution to world peace than we are making in the form of our forces as they now exist.

Having negotiated a prospective change, then every renewal of equipment and other future changes in the organization should represent a step toward achieving this long term balance.

Mr. LAMBERT: Mr. Chairman, I think it appropriate at this stage to say that the committee is in agreement in expressing our feeling of gratitude to General Simonds for having appeared before us today with a very fair and frank expression of his views on a very difficult subject.

Some hon. MEMBERS: Hear, hear.

Mr. SIMONDS: Mr. Chairman, may I just say that I have found my experience today to be very interesting and stimulating. I am very much impressed with the standard of the points raised by the members of this committee.

Mr. BREWIN: We do not receive many compliments.

The CHAIRMAN: The committee now stands adjourned until 10.30 a.m. Tuesday, October 22.

APPENDIX "A"

A Note to Members

Special Committee on Defence

House of Commons

Ottawa, Ontario

from D. B. Scott on behalf of

D. D. Betts
D. W. Braben
R. Krouse
F. D. Manchester
J. T. Sample
H. Schiff
L. E. Trainor
S. B. Woods

University of Alberta

Edmonton, Alberta.

August 1963.

Historical

On March 26, 1963, eight physicists of the University of Alberta signed a statement summarizing views of the likely effectiveness of the Bomarc B missile in terms of claims that were being publicly made for it. Wide circulation was given this document and, in due course, it came to the notice of the Special Committee on Defence that views expressed in it were divergent from those of official advisors to the Department of National Defence. Accordingly, the Chairman of the Committee, Mr. Maurice Sauvé, invited representation of these divergent views with the result that Professors Sample, Scott and Trainor appeared as witnesses at a regular Committee hearing on Thursday August 1, 1963. At the same time, the Chairman requested the Defence Research Board to comment on our statement of March 26 and also on a covering letter written by one of us (Scott) on July 24 at the time 30 copies of our statement were sent to the Chairman. Copies of this critique were handed to the press prior to the hearing of August 1. At the end of this hearing the Chairman made available to us copies of the DRB critique and invited us to reply in writing to it. This is the reason for the present submission to the Committee.

Overview

We have been greatly encouraged by our hearing before the Committee. The fact that we were invited to appear and the attentive and thoughtful hearing we were given were, in our opinion, very hopeful signs. This aspect, of what, to us, is an unaccustomed venture, has been an unalloyed success.

It is more difficult to analyse our interaction with representatives of the Defence Research Board. We had anticipated that our position would be sustained or demolished in terms of its physical and technological content. We were totally unprepared for what appeared to us to be the emotional and even defensive position of the DRB representatives and its lack of scientific content. The repeated reference to our so-called use of a simple theory tended to lead to the view that it was also simple-minded. The appeal to classified information was in itself, sufficiently frustrating but to have the appeal extended to classified information not available even to DRB was doubly frustrating. This placed the entire discussion outside the bounds of rationality and into the realm of "revealed physics." Technological devices, however classified, can still be discussed in terms of fundamental principles which are in no way modified either by the technologiy that uses them, or the level of secrecy which attempts to conceal them.

Our position has been, and still is, the following. We have noted that the attempt to justify, to the Canadian public, nuclear-equipped Bomarcs and Voodoo interceptors has been heavily dependent on the claim that the resulting nuclear defence would "cook" the nuclear bombs in attacking aircraft. We have attempted, as physicists, to read meaning into the cooking claim and we have concluded that it is very dubious. It is possible to design bombs that would respond to the "cooking" process but, in our opinion, it is so easy to design against it that it would require a very cooperative enemy to allow it to happen. We have conceived it our duty to make known our views in this respect.

Our Comments on the DRB Critique

(a) *The letter of July 24, 1963*

The critique of the letter of July 24 was, perhaps, written in haste. It refers to points made elsewhere. The gist of the letter was not at all what is claimed in the critique. It was, in fact, that the successful cooking of bombs of our design is not fully relevant to the question of the successful cooking of bombs of enemy design. The point at issue here is that the design of enemy

bombs is the enemy's secret. Since we cannot be sure that we possess all of the enemy's secret information we cannot be sure that we have out-thought the enemy in all respects. It is very difficult to answer this criticism. Perhaps it is significant that, at no time, either in the written critique, or during the Committee hearing, did the representatives of DRB attempt an answer.

(b) *The Statement of March 26, 1963*

(i) The critique quotes our statement to the effect that

> The intended function of nuclear-armed Bomarcs and Voodoos, in the event of a manned bomber attack on North America, is to destroy the nuclear bombs in the attacking planes.

It is claimed that, by this remark, we show complete misunderstanding of the role of nuclear-armed Bomarcs and Voodoos. The critique then goes on to explain what the actually intended function is. In spite of this our view seems very close to that of the Minister of National Defence.

On June 27, 1963, the Honourable Paul Hellyer, Minister of National Defence, was witness at the Committee hearing of that day. On page 17 of the record of that hearing the Minister says, in part, the following:

> The advantage of the nuclear warhead is twofold. First, it has a good "kill" capacity in that a direct hit is not required. Second, the bomb or bombs carried by the attacking bomber can be rendered harmless by "cooking." If a high explosive warhead was available it might bring down the bomber but the resulting explosion from the bombs being carried would be devastating in comparison.
>
> It is expected that enemy bombs are designed with "dead man" fuses. These fuses permit the bombs to detonate on impact even though the aircraft or other device which is carrying them has been shot down in flames or has disintegrated in the air. There is considerable advantage in the use of nuclear air defence warheads which will kill the weapon and not just the carrier.

The Minister's understanding of nuclear warheads appears to be that unless the cooking is effective we shall have devastating explosions.

(ii) Further on page 1 of the critique:

> Other remarks by Dr. Scott . . . show he does not appreciate the elementary fact that the shooting down of nuclear bombers some hundreds of miles north of Montreal and Toronto would contribute valuably to the protection of Canada regardless of whether their nuclear bombs exploded or had been rendered inexplosive.

Certainly it is better to kill a few people rather than many. We had not thought that this was the issue. Our point was that the proper function of the Bomarc is heavily dependent upon the success of the cooking process—otherwise we should have devastating explosions as explained by Mr. Hellyer—and in our view, based on some calculation, coooking would not take place, or could be prevented by the enemy.

Moreover the Bomarc base at North Bay is only 200 miles north of Toronto and the one at La Macaza is less than 80 miles northwest of downtown Montreal. The Bomarc has a range of 400 miles and clearly this range extends in all directions from the base in each case. If the interception of enemy bombers were to take place in the northern extremities of these circles it could be said that "the shooting down of nuclear bombers" had indeed taken place "some hundreds of miles north of Toronto and Montreal". On the other hand if the intercept took place over the base or, perhaps, somewhat south—an entirely conceivable eventuality—then whether the "nuclear bombs exploded or had been rendered inexplosive" would be a matter of grave concern, especially for Montreal and Toronto.

Finally, one may note that the Right Honourable Mr. Diefenbaker, then the Prime Minister of Canada, speaking in the House of Commons on February 5, 1963, states that

> . . . . the Bomarc was simply a part of the plan for North American defence and was not to defend Canada. That is not its purpose . . .*

(iii) On page 2, item 2 is this DRB comment:

> . . . the assertion that it is *very unlikely* a nuclear armed Bomarc would destroy the nuclear bomb as well as the bomber is not correct.

This categorical denial is at least unequivocal. On the other hand it sheds little light on the problem. In the June 27 hearing of the Committee, already referred to, the following exchange appears on pp 20, 21:

> Mr. FAIRWEATHER: I am wondering whether members of this committee are going to be cleared by NATO security procedures so as to enable us to receive and consider classified or sensitive information.
>
> Mr. HELLYER: If your question is directed to me, I may say that there has been no formal suggestion from this committee that this be done, and I would doubt very much whether the committee members would wish it to be done. I think that all the information which really is essential to your deliberations can be made available on an unclassified basis.

As physicists we have felt ourselves in a more favourable position than even members of the Defence Committee for forming an opinion on a question that is heavily dependent on physical principles. We have availed ourselves of a wide variety of scientific and technical literature which is unreadable to Committee members, much less the general public. We have made extensive calculations which can be made only by those trained in physics. And withal, we cannot give judgment for the cooking process. At this point we are told by representatives of the Defence Research Board that we are wrong because we do not know enough. What then of the Defence Committee whose deliberations are to be conducted with information which "can be made available on an unclassified basis?"

(iv) On page 2, item 3(a), we are (correctly) quoted as saying, "the inside shell is made of the fissionable metal plutonium." The critique then remarks,

> This is pure conjecture on Dr. Scott's part since there is no released or releasable information on this point.

Again, item 3 we are quoted as saying,

> Surrounding the plutonium is a shell of ordinary explosive (TNT) which, as we shall see, acts as the trigger.

The critique comments,

> This picture of bomb actuation is much too simple.

Actually, quite a good deal has been published about these questions and has been well-known by physicists for some years. For example, in 1957 the United States Department of Defence prepared a 560-page volume entitled "The Effects of Nuclear Weapons" which was then published by the United States Atomic Energy Commission. From this we quote the following (pp 12, 13):

> Attainment of Critical Mass
>
> 1.43 Because of the presence of stray neutrons in the atmosphere or the possibility of their being generated in various ways, a quantity of a suitable isotope of uranium (or plutonium) exceeding the critical mass

* House of Commons Debates
Volume 107, Number 72, p. 3440

would be likely to melt or possibly explode. It is necessary, therefore, that before the detonation of a nuclear bomb, it should contain no piece of fissionable material that is as large as the critical mass for the given conditions. In order to produce an explosion, the material must then be made supercritical, i.e., larger than the critical mass, in a time so short as to preclude a subexplosive change in the configuration, such as by melting.

1.44 Two general methods have been described for bringing about a nuclear explosion, that is to say, for quickly converting a subcritical system into a supercritical one. In the first method, two or more pieces of fissionable material, each less than a critical mass, are brought together very rapidly in order to form one piece that exceeds the critical mass. This may be achieved in some kind of gun-barrel device, in which a high explosive is used to blow one subcritical piece of fissionable material from the breech end of the gun into another subcritical piece firmly held in the muzzle end.

1.45 The second method makes use of the fact that when a subcritical quantity of an appropriate isotope of uranium (or plutonium) is strongly compressed, it can become critical or supercritical. The reason for this is that by decreasing the size and, hence, the surface area (or neutron escape area) of a given quantity of fissionable material by compression, the rate of neutron loss by escape is decreased relative to the rate of production by fission. A self-sustaining chain reaction may then become possible with the same mass that was subcritical in the uncompressed state.

1.46 In a fission weapon, the compression may be achieved by means of a spherical arrangement of specially fabricated shapes of ordinary high explosive. In a hole in the center of this system is placed a subcritical sphere of fissionable material. When the high explosive is set off, by means of a number of detonators on the outside, an inwardly-directed "implosion" wave is produced. When this wave reaches the sphere of uranium (or plutonium), it causes the latter to be compressed so that it becomes supercritical and explodes.

Of course it is well known that the fusion reaction in a hydrogen bomb requires exceedingly high temperature for its initiation and that this temperature is provided by a fission-bomb trigger. Moreover it has long been known that several isotopic species are fissionable but, of these, uranium 235 and plutonium 239 are best suited for fission weapons. For our bomb model we deliberately chose plutonium rather than uranium because of its much lower melting point (640°C as compared with 1132°C) and hence its greater likelihood of being cooked.

Of the two methods described above for bringing about a fission explosion we have chosen the one with spherical symmetry because of the greater ease in calculation. Our case is no less relevant on this account, however, because it cannot be claimed that an enemy bomb is not also of the same design.

It is unfortunate that the DRB critique makes remarks such as those contained in paragraph 3 items (a) and (b) (page 2). They appear to be damaging only to scientific laymen. In actual fact they are not relevant.

Item 3(c) (page 2) has been answered earlier.

(v) Most of page 3 seems to be innuendo. Near the bottom, however, is a definite statement about bomb design

> The bomb is not designed to be exploded by heating "the TNT" to the point of explosion—it will *not* explode if "the TNT" is accidentally or deliberately heated to explosion point—regardless of the condition of the "plutonium" at the time.

In Committee Hearing No. 2 Dr. Field said
Page 37

> Mr. FIELD: I think it should be made clear that Canada is given all the information on weapons effects which it needs in order to plan the defence system. We are not told the mechanism of some of these effects; we are not told exactly what happens inside one of those bombs under a certain set of circumstances. We are told what the bomb will do when used as a weapon. Full information on weapons effects is made available to us and has been made available to us, which is all we need in planning our defence system. We do not really need to know what the inside looks like, any more than we need to know the inside of a watch in order to tell time. We are given the weapons effects information, and that is all we need.

In the face of this comprehensive statement how is it possible for DRB to make the assertion on page 3 of the critique? *It seems very probable that DRB has no classified information about the design of United States nuclear weapons.* What is relevant here, moreover, is the design of enemy nuclear weapons. About this it is also probable that DRB has no classified information.

(vi) On page 4, item 5 we are quoted

> In an atomic bomb explosition neutrons . . .

The critique attempts to demolish this by derogatory reference to "elementary theory." Actually, no claim having physical content can be dismissed in this way. It must be dealt with on its scientific merit.

(vii) On page 4, item 6 of the critique, our suggestion of a gamma-ray sensor is dismissed as being "purely theoretical" and "very naive". During hearing No. 10 the DRB representatives attempted a 3-fold rebuttal of the gamma-ray sensor: 1. it would be triggered also by cosmic rays and therefore would not work as planned; 2. it would be very difficult if not impossible to design; 3. the enemy would not want it anyway. These will be dealt with separately in the next section of this commentary.

(viii) Our claim that the Bomarcs are not very accurate missiles is countered in the DRB critique by the assertion that they are very accurate missiles. However the evidence of the DRB representatives at Committee hearings is quite equivocal on this point, as will be shown in the next section.

Commentary on the DRB Case as Reflected in Committee Hearings No. 2 and No. 10

It is instructive to follow the testimony of Dr. Field in Hearing No. 2 and of Dr. Field and Dr. Keyston in Hearing No. 10

(i) *Bomarcs and ICBM's*
Page 30

> Dr. FIELD: . . . . these defensive weapons were not introduced originally to cook bombs, but merely to be more effective in bringing down bombers or ICBM's.

To suppose that Bomarc's are capable of bringing down ICBM's is to expose a very shaky grasp of the fundamentals of the whole missile problem. And yet this statement was made on July 2, 1963, after DRB had advised the Minister of National Defence about Bomarcs.

By August 1, 1963, something had been learned for one sees, page 300:

> Mr. SMITH: And the Bomarc will not defend us against ICBM's.
>
> Mr. FIELD: That is right.

(ii) *Accuracy of Bomarcs and Likelihood of Cooking*

Page 34

> Mr. FIELD: When a bomber is shot down and the bomber is carrying an atomic weapon several things may happen. The warhead of the atomic weapon may be cooked. . . . so that it would be rendered almost completely harmless. It may not be cooked, being beyond the range of cooking, but the bomber might suffer sufficient damage making it come down. The bomb may be fully cooked or partially cooked in which case there might be a very small nuclear explosion. It might well be that the weapon itself is not in any way harmed but the aircraft carrying it is damaged forcing it to bring the weapon down. In that event the weapon may or may not explode when it hits the ground. It would explode only if the crew of the aircraft triggered something in the weapon to make it explode when it hit the ground.

This statement is interesting for two reasons. It appears not to comprehend the significance of the dead man switch although this had been explained by Mr. Hellyer in the previous hearing (page 17). Moreover, it anticipates the distinct possibility that the aircraft could be destroyed without the bombs being cooked. There is the additional statement on page 39,

> Mr. HAHN: So that by using nuclear Bomarcs we run the risk of having two nuclear explosions. The Bomarc might bring the weapon down and not cook it, but would also stand a fair chance of cooking and neutralizing the main weapon.
>
> Mr. FIELD: Yes.

Dr. Keyston's confidence in the Bomarc is rather higher than that of Dr. Field as shown on page 301,

> Mr. KEYSTON: . . . . the Bomarc's typical miss distance is small compared with the ranges at which one can cook a bomb. I do not think we are at liberty to say how accurate the Bomarc is, but the average distance at which you get a Bomarc exploding relative to a bomber is within the distance at which the cooking phenomenon takes place in respect of a bomber that is unshielded or shielded, so it is accurate relative to the cooking distance. It gets closer to the plane than the distance at which you can be sure of cooking a bomb.

Clearly Dr. Keyston and Dr. Field cannot both be right.

(iii) *Cooking distances—Are they the Result of Calculation Only? or Have the Results been Field-Tested?*

Dr. Keyston and Dr. Field have both been at pains to leave the impression that, as distinct from our efforts which were "purely theoretical", their information about Bomarcs has been field-tested. It is quite clear from the testimony, however, that they have, in fact, no such information at all.

Page 35

> Mr. CHURCHILL: . . . . you explained the effect of neutrons from a nuclear explosion penetrating the nuclear bomb. Has this actually been tried out in an experiment or is this based on theory?
>
> Mr. FIELD: We understand from our American sources that this has been theoretically and experimentally confirmed.
>
> Mr. CHURCHILL: In other words, there has been a nuclear explosion where an anti-aircraft nuclear-tipped missile hit a nuclear bomb and the result was that the nuclear bomb failed to explode?
>
> Mr. FIELD: We have not been given details on what was actually done because of the nature of this information. We have been told that the

Americans have carried out work on this problem and are fully convinced that this is what happens. We have been informed of this.

Page 302

Mr. KEYSTON: In our view the Bomarc would be well within the cooking distance, *arrived at from calculation**, to cook it even though the bomb was equipped with as much shield as is practicable.

Page 308

Mr. FIELD: But, we do know this, whenever there has been a theoretical consideration with respect to bombs that theory has been invariably tested through tests.

. . . *it is certainly our belief** that this is not based upon theory, but upon theory checked by these experts through a large number of nuclear tests, which we have discussed.

Page 309

Mr. KEYSTON: . . . Now it is inconceivable to me that they would quote the actual distance relatively precisely on the basis of purely theoretical calculations, not backed up by a realistic field test . . .

(iv) *Protection against neutrons*

In Hearing No. 10 and in the DRB critique (p 4, item 5) DRB is most anxious to eliminate completely our suggestion that H-bombs could be protected against neutrons by a neutron moderator and a neutron absorber. This is completely at variance with earlier testimony in Hearing No. 2.

Page 39

Mr. SMITH: I suppose it is reasonable to assume that at the same time scientists are trying to develop cooking methods of nuclear weapons coming from a foreign country other scientists are trying to develop systems that will prevent them cooking.

Mr. FIELD: Yes. In fact, one of the possible defences is to armor your nuclear warheads. If you can put a big sheet of steel around it, you would have a protective device. There certainly are experiments going on to make ICBM's more effective, as you said.

Apart from this frank admission of the possibility of protective shielding there is, again here, the curious confusion between ICBM's and bombs carried in aircraft. Again, page 40

Mr. FIELD: . . . the effect of all this, I think, would be only to limit the range of the cooking; that is, to lessen the space in which it could be cooked; for example, if it were a mile without any protection, then by protection you might be able to reduce it to one-half or three quarters, and so on.

Contrast this with the later testimony.

Page 302

Mr. KEYSTON: In our view the Bomarc would be well within the cooking distance . . . even though the bomb was equipped with as much shield as is practicable.

(v) *The gamma-ray sensor*

The DRB reply to our suggestion of a gamma-ray sensor was on a very unsophisticated level.

Page 299

Mr. FIELD: . . . One has to remember that there are gamma rays around apart from what you do with Bomarcs. There are cosmic rays

* emphasis added

which produce gamma-ray showers and one can conceive of an actual detonation of the bomb in the plane, and as was brought out, there is the possibility of carrying a weapon which is going to detonate and blow you up quite apart from any desire you have on your part that the thing goes off at any particular time . . .

The gamma ray intensity is so low from cosmic ray showers and so high from an atomic bomb explosion that one can only marvel at the scientific naivete that can confuse the two*.

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Mr. KEYSTON: . . . we cannot envisage military users wanting this thing in the bomb even if it were conceded that it is practicable to make it.

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Mr. FIELD: . . . while we do not say that gamma ray activators are impossible, we do not believe it is a militarily useful device. We think it would take a long time to develop such a device which would be useful.

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Mr. FIELD: . . . I think Dr. Scott is talking about the possibility of an enemy perhaps developing the kind of fuse which he has postulated and putting it in a weapon of the future. This may or may not be true. We today have Bomarcs in position which are designed to defend ourselves against existing weapons.

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Mr. KEYSTON: . . . It is quite obvious that this matter of the gamma-ray sensor is going to be extremely difficult and another complicated addition to the nuclear bomb if it can be produced.

The DRB representatives, quite clearly, claim to know what is and is not in enemy bombs. This is scarcely credible since they already claim not to know what is in American bombs.

Finally, the DRB claim that the design of a gamma sensor is a matter of great difficulty is not acceptable to anyone familiar with modern nuclear instrumentation.

* In "Time", August 9, 1963, there is reference to the possibility of orbiting satellites being used to detect any violation of the test-ban agreement by nuclear explosions out in space. On page 40: "The Vela-Hotel instrument package is expected to detect soft x-rays from a one megaton explosion 200 million miles away from the earth and distinguish them from x-rays from solar flares and other natural sources."

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 15

TUESDAY, OCTOBER 22, 1963

WITNESS:

General Charles Foulkes, C.B., Victoria, British Columbia.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29518-8—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

MINUTES OF PROCEEDINGS

TUESDAY, October 22, 1963.
(20)

The Special Committee on Defence met at 10:35 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Baldwin, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac Saint-Jean*), MacInnis MacLean, MacRae, Martineau, Matheson, McMillan, Sauvé, Smith, Temple, Winch—(20).

In attendance: General Charles Foulkes, C.B., Victoria, British Columbia: *Also* A Parliamentary Interpreter and interpreting.

The Chairman presented the Seventh Report of the Steering Subcommittee as follows:

Your Subcommittee recommends:

1. That General Walsh be called to appear before the Committee on Tuesday, October 29; that Air Vice-Marshal Dunlop be present on Thursday, October 31; and that the Minister of National Defence, Honourable Paul Hellyer, be asked to attend on Tuesday, November 5, 1963.

On the request of Mr. Winch, the Steering Subcommittee considered the matter of statements respecting Defence Policy being leaked to the news services prior to official statements being made before either the House of Commons, or the Special Committee on Defence. The subcommittee is considering this matter further and will make a report thereon to the Main Committee within a week.

In accordance with a request by Mr. Churchill on October 15 (*See Proceedings No. 13, page 420*), information was tabled, from the Chief of Naval Staff, respecting *Days Spent at Sea by RCN ships—August 1962 to July 1963.*

This information was identified as *Exhibit No. 6* and appears as an Appendix to todays' Evidence. (*See Appendix "A"*).

General Charles Foulkes was called, and he read a prepared submission.

The witness was questioned on the contents of his statement.

The examination continuing, at 12:35 p.m. the Committee adjourned until 4:00 p.m. this day.

AFTERNOON SITTING
(21)

The Special Committee on Defence resumed at 4:10 p.m. this day, the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Baldwin, Béchard, Brewin, Churchill, Deachman, Granger, Groos, Lambert, Laniel, Lessard (*Lac Saint-Jean*), MacLean, MacRae, Matheson, McMillan, Sauvé, Temple and Winch—(18).

29518-8—1½

In attendance: Same as at morning sitting.

The Committee continued the examination of General Foulkes respecting the contents of the submission presented by him during the morning sitting.

Mr. Smith suggested that the Steering Subcommittee consider the advisability of inviting Vice-Admiral H. G. De Wolf to present his views to the Committee. This matter was referred to the Steering Subcommittee.

The Committee completed the examination of the witness; he was thanked by the Vice-Chairman, on behalf of the Committee, and permitted to retire. The General thanked the Committee for the hearing accorded to him.

At 6:15 p.m. the Committee adjourned until 10:30 a.m. Thursday, October 24, 1963.

E. W. INNES,
Clerk of the Committee.

EVIDENCE

TUESDAY, October 22, 1963

The CHAIRMAN: Gentlemen we have a quorum. Will the committee come to order.

I have a Steering Committee report which I wish to present.

Your Steering Committee recommends that the committee call General Walsh, chief of general staff, on Tuesday, October 29, 1963, Air Vice Marshall Dunlap on Thursday, October 31, 1963, and that the hon. Paul Hellyer, Minister of National Defence, be invited to be present Tuesday, November 5.

At the request of Mr. Winch, the steering subcommittee considered the matter of statements respecting defence policy being leaked to the news services prior to official statements being made before either the House of Commons or the special committee on defence. The steering subcommittee is considering this matter further and will make a report thereon to the main committee within a week.

I have received from Vice Admiral Rayner a document which I would like to file as *Exhibit number 6*. This is an answer to a request placed before the committee by Mr. Churchill regarding the number of days spent at sea by Royal Canadian Navy ships from August, 1962 to July 31, 1963. This document will be printed as an Appendix to today's Proceedings and Evidence (*See Appendix "A"*).

This morning we have with us General Charles Foulkes. You have already received copies of his statement and the general will now proceed and read that statement.

GENERAL CHARLES FOULKES C.B., C.B.E., D.S.O., C.D. (*Retired*): Mr. Chair- and gentlemen, first of all I should like to apologize for the script. This was the first draft I made and I had to make some amendments on my own typewriter as there was not time to get it retyped because of the Thanksgiving holiday and have it delivered to Ottawa on time. I apologize for the rather sloppy brief which I now present to you.

Having participated in the formulation of defence policy from the end of hostilities until 1960, about 15 years, I thought it might be helpful to the committee to make some general remarks on the evolution of defence policy and some views on future trends. I have observed this evolution through the period of demobilization, and the setting up of the peacetime forces. Through an abortive attempt to amalgamate the services. Followed by the setting up of an arrangement for joint planning for the defence of North America, the formation of NATO, the participation in U.N. operations in Korea and the middle east and finally the creation of NORAD and the introduction of nuclear strategy. All these joint and collective undertakings were made in an effort to implement Canadian foreign and defence policy which was, and I believe still is, "To assist in the prevention of a major war."

While perhaps by resorting to hindsight one can see many mistakes and errors in judgment in the implementation of our defence policy, I think one has to agree that in spite of these shortcomings and deviations the main purpose of our defence policy, that of "preventing a major war", has been achieved. It appears to me that it is vitally important during any consideration of future defence policy to keep this aim in the forefront. All our defence efforts and

priorities must be directed towards this aim of the prevention of a major war, because if war is allowed to break out the chances of a successful conclusion are slim and the probability of world destruction is very great.

Canadian defence policy is more difficult to prescribe as defence moves farther away from the direct defence of the country, its people, its industry and livelihood. For example, in the early 'fifties' it was relatively simple to muster public support to meet the potential air threat to Canada. It was possible to rationalize the defence requirements to meet an air threat and to publicly justify large expenditures for radar systems, interceptor fighters and airfields. However, the situation is quite different today, the advent of the ballistic missile, along with the very meagre prospect of any adequate system of direct defence, has created a real defence dilemna. This situation has nullified direct defence efforts and has left only this nebulous collective form of defence by means of deterrence. Those tasks which previously provided direct protection against attack, now have to be re-appraised as contributions to preventing war not fighting a battle.

Therefore Canada's defence effort at present and in the foreseeable future is limited to providing effective contributions to the various collective efforts, in Europe, in the Atlantic and in North America to support the efforts to deter war. Canada has some leeway in deciding in consultation with its partners the extent and composition of these contributions.

One of the major difficulties in assessing the best Canadian contributions is the rapid strides being made in the technology of weapon development. This results in the development of weapons of ever increasing complication and complexity, which take several years to develop, produce and test. The modern fighter aircraft such as the "Arrow" and anti-aircraft missiles like Bomarc, take over 8 years to design, develop, test and produce. The result of this time lag is quite apparent in the air defence field, no sooner is the Bomarc defence ready for operation than the bomber is superseded by the intercontinental ballistic missile as major delivery system for the megaton weapon. Therefore future contributions must be kept flexible and relatively simple in character and within the bounds of what can be accomplished within our limited resources of funds and technical ability.

Another aspect of this problem of providing effective defence contributions is the requirement for fully trained and equipped forces instantly ready for active duty. It must be realized that to be effective as a contribution to the deterrent, the forces must be trained, equipped and on the spot when the trouble breaks out or mobile enough to be able to reach the area within a few days. This aspect is of considerable importance in the field of preventing local disturbances and breaches of the peace from developing into major east-west struggles. This is an area where Canada can plan an increasing part without becoming embroiled in the frustrating and expensive areas of modern weapon development.

This realization that our defence policy must be based now on contributions to collective measures for deterring war, opens the way for a vast divergence of opinion regarding the nature and scope of our Canadian policy. These suggestions vary from placing all our forces under the UN to providing our own independent nuclear deterrent. It has become extremely difficult in this era of rapid technological development to assess the future value of a particular defence project. What may appear the right course today may well be obsolete by the time the equipment is developed and produced.

Therefore, in your quest to find an adequate defence policy for the future, I suggest that you might find the following criteria useful to measure up our present and future defence contributions:

(*a*) The contribution should be of maximum deterrent value.

(b) It should be of a character best suited to Canadian aptitudes and special abilities.

c) The equipment should be of a type that can be provided from Canadian industry, without long delays for development, testing and production.

(d) The tasks should be of such a character and scope that will enlist a large measure of public support.

With this criteria in mind I would like to make a few observations on some of the issues which have already been raised in the committee regarding the various roles, or what I like to describe as contributions to collective deterrence.

Maritime Defence

First of all the maritime contribution, I use the term maritime in preference to naval as this contribution includes what may become one of the major roles of the R.C.A.F.

As you are aware from previous evidence, there is little doubt that the future maritime threat will centre around the missile launching nuclear submarine. This innovation supplements the mass destruction capability of the land based I.C.B.M. It is less vulnerable to retaliation because not only is the launching platform concealed but it can move very rapidly, and therefore is a very illusive target. While Canada cannot contribute anything very much against the land based missile, there is an opportunity to develop a considerable contribution against the submarine launched missile, if we can discover the right tactics, technique, equipment and weapons system, to locate, hold, and destroy the nuclear submarine. The ability to achieve this task will constitute a worthwhile contribution to deterring a nuclear war. It may prove worthwhile to concentrate a greater effort in this field and reduce some of our other less rewarding contributions, but I have grave doubts whether our present maritime tactics, technique, equipment and weapon systems can achieve this goal.

I think it should be apparent to the committee that there is a great deal of uncertainty and doubt about what is needed to meet this maritime threat, the C.N.S. wants more frigates, helicopters, submarines and anti-submarine hydrofoils while the C.A.S. indicates that a new long range anti-submarine aircraft will be required by 1970. All these additional devices will be competing for the slim equipment funds available over the next few years.

I am not convinced that we really know what is the most efficient and economical antisubmarine force for Canada. There has never been, as far as I know, an unbiased assessment of the relative value of carriers, tracker aircraft, frigates, submarines, helicopters, and long range maritime aircraft in this antinuclear submarine role. What has happened is we have replaced the *Magnificent* by another carrier, the wartime frigates one for one with a $30 million (I understand that figure is out of date) relatively slow escort. The Lancasters have been replaced with the Argus maritime aircraft, which needs another replacement by 1970. But is this present conglomeration of a carrier, tracker aircraft, frigates and helicopters and long range maritime aircraft the most efficient, effective and economical grouping for this task? Or is this grouping just a collection of the plans and ambitions of the air force and navy planners? I suspect it is.

For some years now the defence scientists have been working on the development of a large type of hydrofoil vessel for this antisubmarine role, and quite high speeds have been accomplished, but the problem of endurance and stability in the severe weather conditions of the north Atlantic still has to be solved. There is hope that this new development of a larger type of

hydrofoil which has just been undertaken may prove to be a satisfactory antisubmarine vessel. If such a project is successful it should be possible to provide a great many of this cheaper type of vessel for the cost of a few frigates.

You have heard also in this committee that some experts advocate a specially equipped nuclear submarine as an effective counter to the missile launching nuclear submarine. While this new approach has some appeal, there are some short comings in this solution. At the present time submarines have a very limited range of detection and suffer from most inadequate communication arrangements with aircraft and ships on the surface. Furthermore this type of submarine costs somewhere between $75-$100 million a copy and with the limited funds available for equipment few of these could be purchased.

It should be obvious that the right solution to this complex problem is still to be found, but it is not prudent to continue to replace ships and aircraf one for one at great expense when there are some doubts about the effectiveness of the methods, techniques and equipment. In view of these facts it appears essential that a complete reassessment of the roles, functions, tactics, techniques and weapon system be undertaken.

To accomplish such a reassessment a combined scientific and operational group should be set up under an independent chairman with high level representation from R.C.N., R.C.A.F., D.R.B. with broad terms of reference and authority to consult with the supreme commander and other NATO partners to secure the best advice possible. The study group should be required to produce a completely integrated operational and equipment plan for the Canadian maritime force to deal with the nuclear submarine threat in the "70s" in both the Atlantic and the Pacific.

Contributions to Allied Command Europe (Brigade Group)

In 1951 at the urgent request of General Eisenhower, the supreme allied commander, Canada agreed for the first time to station Canadian troops in Europe in peacetime, on the understanding that as and when the European partners increased in military and economic strength the forces from North America would be brought home and the Europeans would become responsible for their own territorial defence. In due course Canada provided a brigade group of 3 infantry battalions and supporting troops about 5,000 all ranks and an air division of 12 day fighter squadrons, about 300 aircraft.

The brigade group is carrying out a forward task some distance from the East German frontier, but as the C.G.S. has mentioned the Germans are pressing for the implementation of the policy of forward strategy, which would move Canadian forces closer to the German border. Such action will require additional equipment and manpower beyond the present strength which has steadily grown from 5,000 to 6,500, This forward movement will lengthen the lines of communication and aggravate further the present inadequate U.K. supply system on which the brigade relies for much of its supplies. Our dependence on the British supply system has not been satisfactory and has caused some anxiety. Because of financial and manpower difficulties the U.K. has been unable to maintain its logistic support to meet Nato standards.

I should make it quite clear that this is logistic support to look after the British troops and the Canadian troops. We get the same support as the British provide for their own troops, but that is still inadequate.

This shortfall has resulted in a lack of support for the Canadian brigade which has created some concern for the NATO authorities, who have urged Canada to augment the British supply system. Furthermore as U.K. type

weapons and equipment are replaced by U.S. types and specially manufactured Canadian items of equipment a Canadian system of supply is needed, which creates yet another additional requirement for manpower.

There is no doubt that the adoption of forward strategy which will require increases in manpower and equipment and will strain further the present inadequate logistic arrangements brings, to attention again the credibility of this forward role for the independent Canadian brigade group. It appears doubtful if it is a sound continuing contribution to attempt to maintain an independent isolated brigade group relying on an inadequate U.K. logistic system and at the end of 3,000 mile Canadian supply line, especially when the German forces are prepared to take over this forward role.

Perhaps I should explain what I mean by this paragraph. Our brigade is an independent and isolated brigade. Normally a brigade operates as part of a division and a division operates as part of a corps, and a corps operates as part of an army. However, as we have only one isolated brigade, we have to provide for that brigade all the support and facilities which would normally be provided by the division, by the corps and by the army, with the result that with that brigade at the present time has medium artillery regiment, which is not normal. We also provide an armoured regiment The C.G.S. pointed out that he is going to require bridging, which is not normally supplied except in a corps. So we are in the position of having to meet all the requirements for a brigade as if it had a division, a corps and an army behind it, and the majority of these will have to come from Canada. When the brigade was operating in Korea all the support the brigade required was provided by the division and then by the United States Army, but that is not the case in Europe; we are operating as an isolated, independent brigade.

This difficult situation was appreciated by the NATO authorities in 1960 and in view of the build up of the German Army to 12 divisions the supreme allied commander (General Norstad) agreed to place the brigade group in mobile reserve and allow the German forces to take over this forward task on the East German border. This proposal was agreed to on the military level in early 1960 but for some reason, perhaps political, this has not been implemented.

If such an arrangement is accepted the brigade group could be reorganized as an air portable formation, with an airborne element which suits Canadian aptitude and training. The re-organization of the brigade as an air portable force would eliminate many of the problems of providing heavy equipment and would provide an immediate ready reserve for any part of the NATO front. There would be a requirement for an additional airlift especially for equipment, but this could be considered when a future role for the air division is being sought, as it will have to be sought in the future.

Such a re-organization of the Canadian contribution to NATO would allow the whole Canadian force to be concentrated in one enclave, with one administration, one set of amenities, schools and accomodation, instead of the present complete duplicate army and air force set-up, one at Soest and one at Baden-Baden. This arrangement would be more economical and provide a clear indication to NATO of the extent of the Canadian contribution.

Now I would like to say a word about this question of the build-up of the brigade to a division after D-day. The C.G.S. has discussed this matter with you, but as I was concerned in previous negotiations about this commitment I thought it might be useful to give you some of the background of this problem.

This commitment is a throwback from the original defence plan of NATO when planning was based on the build-up of a large conventional force after the outbreak of war; this was the strategy after the second world war. These plans were drastically revised as a result of the Soviet nuclear build up and the adoption of nuclear strategy by the NATO alliance. Under this new concept the

only forces which will be of any use are those which are trained, equipped and on the spot when the war breaks out or can reach the theatre in a relatively short time, which has been set for planning purposes at 30 days. The NATO military authorities were loath to drop this potential build-up and attempted to secure a commitment from Canada to provide the extra forces in Europe by D plus 30; that is D-day, the day war happens, and we were to do it within 30 days. It was clearly demonstrated that such a course was impossible. In the first place, there was insufficient shipping available anywhere in NATO; secondly, it is physically impossible to assemble the two brigades and divisional troops with their equipment at ports of embarkation and load the equipment in such a short period. Therefore this commitment was left as available in Europe at "D" plus shipping time, which could mean weeks, months or longer.

The NATO authorities have again suggested the stockpiling of equipment, stores and ammunition in Europe, so that the personnel could be moved by air to join up with their equipment in an active theatre of operations. While this looks attractive at first sight there are pitfalls in this solution. The whole problem was under active study in the late fifties and was abandoned because of the impossibility of finding an area where it was reasonably sure that troops could join up with their equipment. In this case the C.G.S. investigated taking over an airfield in the United Kingdom and stockpiling equipment there. However, the British authorities would give no guarantee that they could get that equipment over the channel after D-day because they had so much of their own equipment to get across; so that proposal had to be abandoned. We further investigated loading the equipment in barges and leaving them loaded up in the rivers. However, it was impossible in Western Europe to secure sufficient barges for the equipment of two-thirds of a division, so this plan had to be abandoned also. This is a most hazardous operation and the experience of the last war of trying to join up troops with their equipment lead to disaster, and many allied soldiers were lead into captivity without any chance of getting their equipment to protect themselves. You will all remember what went on in Singapore and what happened to our forces in Hong Kong; they never got their complete equipment before they were attacked. This is a very difficult and hazardous operation to undertake.

As mentioned earlier the matter of the provision of shipping and the stockpiling of equipment, ammunition and stores, was thoroughly investigated with the NATO ocean shipping board, the U.S. Navy and other competent authorities. The United States Navy gave us full co-operation, but they pointed out that there is insufficient shipping available to meet their immediate needs and we should bear in mind that the reserve of shipping, which was put into mothballs at the end of the second world war is seriously deteriorating after this period of almost 20 years. So there is no source from which shipping can be made available in the first few days of any war.

No firm arrangements for shipping or suitable facilities for stockpiling could be made. Therefore a previous government decided against stockpiling outside of Canada, and NATO was informed that Canada was unable to accept any definite commitment to reinforce Europe.

Therefore this urge to move the brigade closer to the East German border, with all the accompanying complications of the logistic arrangements and additional requirements for equipment and manpower indicates the necessity of reviewing the previous negotiated arrangement for placing the brigade in mobile reserve. The question of building up the brigade to a division after "D" day should be definitely settled with the NATO authorities so that the army manpower problem can be realistically re-appraised. Is there any use in holding divisional troops, at great cost, ready to move to Europe if there is no chance of providing facilities to move them?

Now I want to say a word about the role of the air division. The role of the air division has been discussed at the committee, and I would like to add a few remarks.

The new role of "strike reconnaissance" was recommended over seven years ago, but it will be some time next year before the re-equipping is completed and the air division is ready to take over completely its new task. In this era of rapid development of military technology it is doubtful if full value will be attained from this re-equipping effort; taking into account the seven years delay. Already there is a body of scientific opinion that is expressing concern about the vulnerability of aircraft operating from fixed runways under the present short range ballistic missile threat. The Warsaw pact powers have short range ballistic missiles which can be laid on all the runways at the present time.

Various antidotes have been suggested, such as the use of alternative airfields and the fitting of vertical take-off devices to enable the aircraft to take off from short and soft runways, but these are only temporary expedients. There is no way of hiding several miles of concrete and no possible defence of these vulnerable fixed targets against the present short range ballistic missile threat, and therefore there is no way of preventing the aircraft from being destroyed on the ground in the first few minutes of any attack, and if any survive the much improved anti-aircraft missile defences will destroy them on the way to the target.

Along with the uncertainty regarding the feasibility of this new role, there are other difficulties in connection with the release and control of the atomic bombs which are the only armament for this particular strike role.

As your are aware, the original agreement for the use of two airfields in France was restricted to use of conventional weapons; and as you are also aware, the French government have refused to allow the U.S.A.F. to operate nuclear equipped aircraft from French bases except with French authorization. It is expected that a similar restriction would be applied to Canadian operation from the two French bases. Such a restriction would limit Canadian nuclear operations to the two bases in Germany. There is of course no guarantee that a future German government may not impose a similar restriction.

There are further complications which appear to be insoluble; there is the question of who takes the decision to resort to the use of nuclear weapons once hostilities break out. I know this matter has been discussed in the committee. It has also been debated in the NATO council since 1955 and, to my best knowledge and belief, is no nearer solution today. All the NATO nations including Canada insist on having a say in this matter and will not agree to delegate this authority to the secretary general, or the supreme allied commander or anyone else. Nor can nations agree on a set of circumstances which would allow the national representatives in Paris to act automatically, but insist on consultation with the home government. With this kind of delay, maybe hours or in some cases maybe days, the war in Europe may well be lost. This conundrum is sometimes referred to as 15 fingers on the trigger, but it is in reality 15 thumbs on the safety catch.

There is no doubt that a role involving the operation of nuclear weapons from the territory of another national involves serious complications and can lead to serious misunderstandings within the alliance.

In view of the doubt cast on the feasibility of this role, the uncertainty of French cooperation and the lack of a definite system of nuclear control within the NATO organization, this role is unlikely to become a satisfactory and continuing contribution. With this uncertainty and the ever shortening life of modern combat aircraft (some three or four years at most) it is quite likely that another role will be needed in the not too distant future. Therefore consideration should be given to this matter now so that an acceptable and

perhaps more flexible task with a longer life for the equipment can be found, something like a transport role.

Such a decision or at least an indication is necessary now in order that a decision regarding replacement and reserve aircraft for the present role can be taken now before production lines are closed down, which understand is sometime next year.

Another issue which has appeared in the testimony of the chiefs is the proper apportionment of available defence funds. It is not a question of which service gets the greatest share of the appropriation which is causing any concern but the imbalance of expenditures on personnel and operating costs which has seriously limited the amounts available for new equipment. During the period 1951-1956 when Canada was engaged in the Korean war and the build up of forces for NATO; increases in manpower, equipment and funds were necessary. To meet these new circumstances the defence appropriation was increased to approximately $1.8 billion. As the service strength was relatively low and equipment in short supply the personnel and operating expenses were correspondingly modest. In these circumstances about one half of the defence budget was available for new plant and equipment expenditures. Since 1956 the defence appropriation has been reduced, but the personnel and operating expenses have been steadily increasing, until the point has been reached where these personnel and operating expenditures amount to 80 per cent of the appropriation which leaves something less than 20 per cent or something in the order of $300 million or $400 million for new equipment. During the same period the costs of all types of military equipment have increased many times. A comparison of the costs of aircraft shows very clearly the considerable increase in the costs of equipment:

(*a*) The F.86 the original equipment for the air division cost about $\$\frac{1}{4}$ million, its successor the F.104 about $2 million, eight times the costs.

(*b*) North Star transport cost about $1 million, the present long range Yukon transport about $10 million.

(*c*) The increase in maritime aircraft is similar—the Lancaster cost about $\$\frac{1}{2}$ million with the Argus rating about $6 million.

If my memory serves me correctly, the original quotation in respect of the first escort vessel in 1950 was somewhere between $7 million and $8 million, and I am informed that the new frigates will cost somewhere in the neighbourhood of $40 million. This shows you how cost of equipment multiply as the funds available for equipment are decreasing.

It should be fairly obvious where this trend will lead in the next few years if the amount of funds available for equipment continues to decrease as the costs of equipment continues to multiply. On the other hand it is quite obvious that these two competing demands of increased manpower and equipment funds cannot be met within the same appropriation. It would appear, therefore, that Canada has either accepted too many additional commitments or the present contributions have been allowed to grow, such as the brigade group which has grown from 5,000 to 6,500, or adequate manpower deduction have not been made when certain functions and organizations have become redundant.

Experience has shown that once an organization or unit is set up, it is most difficult to disband or reduce it even if it appears to be no longer required. A good example of this situation occurred in 1956, when the Korean brigade returned to Canada. You will recall that a special brigade was raised to meet the Korean contribution in excess of the army establishment. When the war ended this formation was due to be disbanded, as the two brigades stationed in Canada were sufficient for rotation to Germany and to meet a UN commitment

or defence of Canada assignment. However the idea of disbanding the brigade was unpopular so other employment was found for the personnel. However the fact remains that 4,000 to 5,000 personnel were kept on surplus to the requirements of the mid «fifties». However the committee will recall that evidence has been given to the effect that there is insufficient manpower within the present 50,000 ceiling to meet the present army commitments. On the other hand it should be noted that the same manpower ceiling was sufficient in the «fifties» when Canada had a brigade group in active operations in Korea and a brigade group in Europe and the chances of a major war were much more acute than they are today.

A similar situation appears in the Air Force. In the «fifties» a large manpower commitment was involved in training several thousand air crew for NATO, training something between 3,000 and 4,000 in that activity, and this activity has been reduced to training a few score for Norway and Denmark. The air division has been reduced from 12 to eight squadrons and the air defence forces from nine to five squadrons. All these reductions should have released manpower as well as corresponding reductions in the size of the various training and administrative establishments. The Sage system is now in operation and being automatic should release scores of manual controllers, operators and numerous other assistants. It is true that there is an additional small commitment for the Bomarc and to meet the transport requirements in the middle east but the R.C.A.F. does not appear to be able to do as much now for the same manpower as in the «fifties» in spite of automatic systems and reduced commitments.

If more funds are to be made available for equipment a most stringent manpower employment policy must be adopted. This is not an easy matter in relatively small professional forces, such as we have in Canada, where the majority are career personnel, who are hoping for a reasonable career in the service. However in this ever changing military sphere the present separate service set up allows little flexibility in dealing with the ever changing employment problem. This difficulty aggravates the manpower question and tends to mitigate against the application of a stringent manpower policy.

In other words, we cannot move trained personnel from one service to another. This has been tried but has never succeeded. Therefore, if a man's job becomes redundant in one service, although there is a requirement in another, he either has to be kept on in some other job or discharged while a new man is trained for another service.

So much for the current defence position and its problems. Now let us take a look at some of the factors that should influence the pattern of a defence policy for 1964.

One of the first prerequisites is to try and foresee the trend of defence developments not of today but for the next seven to eight years. This long look is necessary because the equipment to implement such contributions takes about that space of time to develop, test and produce. In the past it has sometimes taken several years to take a decision on a defence contribution, then several more years to select and produce the equipment; with the result that the contribution is almost redundant by the time the Canadian forces are fully ready to take on the task. The air division strike role is a typical example, the contribution was requested in late 1956 but the air division will not be completely ready until 1964, a space of eight years. So that what we should be examining is not the defence issues of today but the trend that defence developments are likely to take in the seventies.

"What will be the defence requirements in the "seventies"?

"Where and from what direction will any challenges to the peace be likely to occur in the next decade"?

"What will be the state and condition of our alliances on which we now depend for our security and to which we make defence contributions"?

"What should be the character, size, and composition of our contributions to these various organizations in the "seventies"?

These are some of the questions that must be considered or at least some indications of the answers foreseen before decisions are taken as to whether frigates, submarines, aircraft or Bobcats should be ordered.

First of all, let us have a quick look at the state and condition of these collective organizations such as NATO, Canada-U.S. region, and the U.N.

NATO is reaching a crucial period. The charter runs out in early 1969—it was a 20 year treaty—along with all the protocols which placed restrictions on the Republic of Germany. Therefore quite a different set-up can be expected for the alliance in the "seventies". There are several factors which will have a decided influence on the character, shape and control of the alliance under a new charter. Besides the release of Germany from all restrictions and the fact that Germany is emerging as the dominant European partner, there are these other factors:

(a) The economic and political unity of the European partners envisaged in the treaty of Rome.

(b) The repercussions of the French-German treaty which includes closer political and military ties between the two dominant European partners.

(c) The growing tendency of the Europeans to desire a greater control of their own defence matters including territorial and nuclear arrangements.

From these points and other considerations there arises some indications that the necessity and desirability of North American troops in Europe is likely to diminish over the next few years. Further, any negotiations with the Warsaw pact countries in regard to reduction of armaments or nuclear free zone matters, unification of Germany and others, will no doubt involve a reduction of foreign troops in both Germany's.

There are some other considerations which are not European. The U.S. has already made some reductions in its European commitments in an effort to alleviate its balance of payments problem and further reductions are possible. From a Canadian standpoint, there was no doubt that it was vitally important for Canada to make a contribution to European territorial defence in 1951 when the European partners were still prostrate from the ravages of the war; but the situation is quite different today. Canada is defending a part of the German border which the Germans are militarily and economically capable and willing to do themselves. The cost to Canada is far out of line with the military value of this contribution. With what Canada spends on providing a brigade in Europe, some $33 million and maybe much more in the future, the Europeans could provide a corps of two divisions. Does this make NATO sense? As mentioned earlier, it was originally intended that as the European partners increased in economic and military strength that the North American forces would be brought home and provide a strategic reserve. This trend towards the Europeans taking over their own territorial defence is both militarily and economically sound and providing there are no serious political difficulties the change over should be accomplished before the end of this decade.

Canada - United States Region

Defence considerations are changing in North America mainly because of the rapid development of mass destruction weapons and the invulnerable

means of delivery. As the threat of the bomber recedes and the I.C.B.M. becomes the major delivery system of the megaton weapon, less and less bomber defences will be needed. However as long as the Soviet union possess a bomber force "in operation", the system should be kept intact but the costs should be progressively reduced. As the bomber defences diminish, it would have appeared logical to convert this effort to defence against the successor to the bomber, the I.C.B.M. This concept was explored some years ago when consideration was given to joining with the United States in a project to develop a defence against this type of threat. However, on careful exploration of this project it was found that the possibility of achieving an adequate missile defence was so complicated, expensive and doubtful that a Canadian contribution would not be worthwhile. As you are aware, the president has recently announced, quote, "The problem of developing a defence against a missile is beyond us, and beyond the Soviets technically, and I think many who work on it feel that perhaps it can never be successfully accomplished." Dr. Harold Brown, director general of research of department of defence, stated recently before a congressional committee that the U.S. had decided not to deploy their Nike Zeus anti I.C.B.M. defences because "its effectiveness was inadequate against U.S. penetration aids".

What they mean by that is that provision which the United States has made to penetrate Soviet defences are such that they would penetrate the United States I.C.B.M. defence.

He stated further that penetration aids now under development will be effective against much more sophisticated systems. So I think it is clear from this evidence that there is no useful contribution that Canada can make in the foreseeable future towards defence against the ballistic missile, once it is launched. We will have to rely on the deterrent and retaliatory effect of the U.S. strategic force. So that with the passing of the bomber, the Canadian contribution to the defence of North America will be greatly diminished and the importance of Canadian air space and territory in the defence of North America will be seriously reduced. On the other hand the threat from the sea by Soviet missile launching nuclear submarine will no doubt increase not only in the Atlantic but in the Pacific. In addition, as China overcomes her present economic and development problems, the military potential can be expected to rise. Therefore by the early "seventies" the threat in the Pacific can be expected to be considerably increased and more attention will have to be given to the increasing submarine threat on the west coast, which will include a possible ballistic missile threat.

As the C.N.S. has pointed out, the problem of dealing with the undersea ballistic missile is even more complicated than that of the land based missile. Like the land based missile there is no defence against it one it is launched, but in the case of the land based missile, pre-arranged retaliation against known and suspected launching sites is possible. However, such action is not of any use against the submarine launched missile as the launching platform is both concealed and mobile, so that any defence against the under sea launched missile cannot be based on a pre-arranged second strike retaliation plan but will have to rely on a continuous active searching of the whole sea front to a distance of over a thousand miles by every conceivable device, to locate, hold and destroy the elusive undersea launching platform.

Therefore in regard to North American defence I think it is safe to conclude that by the "seventies" the bomber threat will have virtually disappeared and the trend in North American defence will be to concentrate against the ballistic missile threat with special attention being paid to the problem of the undersea threat not only in the Atlantic but in the Pacific.

United Nations

Now let us have a quick look at the position of the peace keeping activities of the United Nations where we make contributions as and when requested by the secretary general.

The use of the Canadian forces to support the UN seems to foster public support, as it appears a tangible way of reducing tension in disturbed areas and preventing armed conflict. Some critics have gone so far as to recommend that Canada should place all its forces at the disposal of the United Nations.

Canada has played a part second to no other country in providing military personnel for the UN forces and for the international truce commission in Indo China; this has been a very important contribution by Canada to the maintenance of stability in the middle east, south east Asia, and Africa, and the provision of such forces is given high priority in defence planning. It would be helpful of course if a UN emergency force could be set up on a permanent stand-by basis to avoid improvision in emergencies. If this could be done, Canada should certainly make its appropriate contribution. There has however been too much opposition to this proposal on the part of the Soviet block and the uncommitted countries to accomplish such an organization.

Even the secretary general was not convinced that such a force is feasible. The secretary general, the late Mr. Hammarskjold, in his annual report of 31st August 1960 to the general assembly, in regard to the organization of a United Nations standing force, said:

> I have mentioned the need for strengthening of the secretariat on the military side. This, in the light of recent experience, would be my reply, as regards actions of the United Nations, to those who have found in the Congo developments, new reasons for the organization of a standing United Nations force. As I have already clarified my views on this problem in earlier reports to the general assembly, I have no reason to go into the matter here in any detail. It should however be stressed that the Congo experience has strengthened my conviction that the organization of a standing United Nations force would represent an unecessary and impractical measure, especially in view of the fact that every new situation and crisis which the organization will have to face is likely to present new problems as to the best adjustment of the composition of a force, its equipment, its training and its organization.

The next sentence is very important:

> It is an entirely different matter if governments in a position and willing to do so, would maintain contributions in a state of readiness so as to be able to meet possible demands from the United Nations. And it is an entirely different matter for the organization itself to have a state of preparedness with considerable flexibility and in the hands of a qualified staff which can quickly and smoothly adjust their plans to a new situation and assist the secretary general in the crucially important first stages of the execution of a decision by the main organs to set up a United Nations force, whatever its type or task.

As the late secretary general has pointed out, it has been recognized that there are different requirements for each emergency. In Indo China the need was largely for officers. In the situation which arose out of the Suez crisis, Canada prepared a battalion and arranged to ship the unit with all its stores and equipment aboard the former aircraft carrier *Magnificient,* which had been converted to a sea transport vessel. Unfortunately the battalion selected was the "Queens Own" and this sounded far too British to Egyptians and they refused to accept the unit. To avoid a serious breach in UN relations, the contribution was changed to the provision of administrative and supply troops. This incident illustrates that UN operations are strictly limited and

that the forces can only function with the concurrence and cooperation of the nations concerned.

To suggest, therefore, that Canada should put all its forces at the disposal of the United Nations is not a sound proposition. The United Nations, as now constituted, cannot dispose of forces in this way. The security council can ask member nations to contribute their forces in certain ways to help keep the peace. When called upon to do so, the best contribution this country can make is to produce troops from effective and well trained Canadian forces. The Canadian army maintains a "stand-by" battalion ready in all respects to move at short notice to meet an urgent UN request. This notice can be shortened from days to hours should a commitment be anticipated, but the shortage of even an air lift for a battalion and its equipment hampers the prompt arrival of any Canadian contribution. Perhaps because of the Congo experience, a pool of signal and administrative personnel should be earmarked and ready to meet an urgent UN requirement.

It should be constant Canadian policy to make our armed forces available for United Nations service as required. This does not mean, however, that Canada or any other country is expected to turn over its forces to the direction of a non-existent United Nations command to be used in accordance with the will of any fleeting majority in the security council or assembly.

Therefore it appears that the present arrangements, augmented by additional air transport facilities—and I repeat, augmented by transport facilities—for equipment, and a stand by arrangement for administrative personnel would appear to meet any future UN requirements in the seventies.

From these trends in the political and defence evolution in the next decade in these collective organizations we can perhaps ascertain some of the major long-term defence requirements, which should form the basis for the development of a defence policy for 1964. Let us examine how these trends may affect our contributions to the various collective defence arrangements.

First of all let us discuss the role of NATO in Europe. Here I would stress that it is important to keep in our minds that NATO does not include only to Europe, it covers all the NATO area including the Atlantic and North America.

With the increase in the economic and military capacity of the European partners and the trend towards closer economic and political unity, it appears desirable for the Europeans to assume over the next few years, the responsibility for their own territorial defence. Under these improved conditions in Europe it will become difficult to justify the need for Canada to defend the German frontier, when the Germans are both capable and willing to undertake this task themselves. With the development of mobile short range ballistic missile, the ever increasing vulnerability of conventional strike fighters, and the numerous complications in operating nuclear weapons from foreign bases renders the present nuclear strike role is rendered unsuitable and precarious for Canada. The role of providing close tactical nuclear support in Europe should be carried out by the European partners from their own territory and by less vulnerable means than the conventional strike fiighter, such as mobile short range ballistic missiles.

From these assumptions it is concluded that our policy towards NATO in Europe should be one that recognises that our assistance in the territorial defence was necessary in the formation period. At the same time it should be realized that the European partners are now economically and militarily capable of assuming these territorial defence tasks in a cheaper, less complicated manner and more in keeping with the trend towards greater political and economic unity. Such a step will remove the complications and difficulties which arise from the presence of foreign troops, no matter how con-

genial they may be, and eliminates the inherent difficulties of operating nuclear weapons from the territory of another partner.

However, we should continue to fully support NATO, but by defence contributions more in keeping with the development of the alliance and the changing threat, and of more defence value than our present contributions. As I pointed out before, the Germans could carry out this role on their border for a few million dollars and Canada could make a greater contribution to defence in the north Atlantic, which is not available to the Germans.

Let us now look at the situation in the north Atlantic. In the maritime field there will continue to be an increasing long-term requirement for anti-nuclear submarine operations in the north Atlantic. As mentioned earlier, as this is a long-term task and as the speed, efficiency and invulnerability of the nuclear submarine is bound to increase as further development takes place, no short-term palliatives are of any use in trying to solve this most difficult problem. As previously suggested, a full scale study should be undertaken to seek out the best tactical and technical methods, organization and equipment to meet this long-term challenge.

With regard to the situation in the Canada-United States region, in our arrangements with the U.S. for the defence of North America, the air defence role against the manned bomber is diminishing and steps should be taken to wrok out the most economical way of providing a limited form of bomber defence for the remaining period of the bomber threat.

The other remaining element in our Canada-U.S. arrangements is maritime defence against the nuclear submarine threat in the Pacific. As China emerges as a major military power in the next decade the submarine threat in the Pacific can be expected to increase further. This anticipated increase in the threat re-emphasizes the need for this long range study, so as to meet this increasing submarine threat.

Now I should like to state some conclusions.

Once the long-term aims and objectives of the defence policy are determined, it is then possible to derive some guidance as to the equipment and manpower to implement such a policy. From the foreseeable trends, there are strong indications of a movement away from making preparations to fight a major war in Europe and tending towards the more flexible and mobile roles of preventing wars from breaking out in the NATO area, or anywhere in the world under UN auspices.

To fulfill any of these roles will require flexible, highly mobile, well trained, lightly equipped forces at high states of readiness and efficiency. This kind of requirement suits Canadian aptitudes and aspirations. It allows Canadian industry an opportunity to provide the equipment and avoids the needs for heavy imported items each as tanks, armoured carriers, and nuclear support weapons.

To sum up the political and defence trends which are likely to develop in the "seventies" envisages a greater emphasis on deterring and preventing war and a fading out of the previous concept of preparing to fight a major war in Europe against the Soviet Union. This trend along with the move towards great political unity in Europe indicates less desirability and necessity for North American participation in territorial defence in Europe. The assumption of European responsibility for their own territorial defence would allow the North American partners to concentrate on other vital NATO tasks such as:

(*a*) The maintenance of a major deterrent against the land based ballistic missile threat.

(*b*) Increased measures to cope with the undersea ballistic threat.

(*c*) The provision of an immediate ready mobile strategic reserve, with an adequate available air lift.

The bomber threat will continue to diminish, with the result that Canadian air space and territory will no longer be an important factor in U.S. defence, but the sea areas on both sides are becoming of increasing importance to North American defence. By the seventies an increase in Soviet nuclear submarine threat in the Pacific can be expected. This activity will probably be augmented by China towards the mid seventies.

As a result of this assessment of these trends a revision of some of our present contributions is suggested along with some long range considerations to assist in planning our defence contributions for the seventies.

I should like to propose the following, to which I have referred, and that is the withdrawal of the brigade group from the forward role to reserve should be reviewed. Consideration should be given to re-organizing the brigade group as an air portable force to reinforce the NATO area, with the ultimate object of basing the force in Canada. A much larger force on an air portable basis could be kept available in Canada for the same cost as the present brigade in Germany.

The air division should relinquish the present strike role in due course and be re-organized into a transport unit to provide an airlift for the brigade group.

In North America the air defence task should be reassessed on the basis of a diminishing commitment requiring the minimum of manpower and funds.

As the antisubmarine role in both the Atlantic and the Pacific wil probably become the major defence contribution for Canada, the maritime forces should be re-organized and re-equipped to meet this long range task.

This suggested re-arrangement would eventually concentrate the Canadian defence effort into two major activities:

(*a*) The operation of a mobile ready reserve available immediately for NATO or to meet a UN task anywhere in the world or maintain our sovereignty in the Arctic.

(*b*) Antisubmarine operations in the Atlantic-Pacific and perhaps in the Arctic.

All these tasks could be carried out from Canadian territory with no Canadian troops stationed permanently abroad. These tasks would allow the services to work together as a team in all activities. There is no doubt that Canada could render a more adequate contribution to maintaining the peace by concentrating on two major activities instead of trying to emulate the big powers and attempting to carry out the whole panoply of military endeavour but in miniature.

The concentration and simplification of Canadian defence aims and contributions would allow for a greater integration of the services and a streamlining of the staffs, schools, training establishments and administration with a considerable resultant reduction in manpower and expenditure. This trend should lead to the eventual complete integration of the services into one service with one chief, one staff, one administration and integrated flexible task forces to carry out the agreed contributions, and what I mean by "integrated flexible task forces", would be forces to deal with the naval and air force group in relation to the potential threat, a mobile reserve of the army, air force and navy.

Some hon. MEMBERS: Hear, hear.

The CHAIRMAN: Gentlemen, General Foulkes will now answer questions. I have been trying to decide during the reading of this submission whether I could perhaps divide it into various parts, but I find that the beginning and end are linked. Perhaps we should proceed as we have in the past. I will not indicate any specific parts of the submission to be discussed in a particular order, and questions in respect of the whole submission will be allowed.

Mr. CHURCHILL: Mr. Chairman, perhaps I could raise one small point at this stage. Several members of this committee at previous meetings have been given the opportunity of questioning on two or three occasions before the others have been allowed to question at all. I wonder whether you could allow each member an opportunity of asking questions before recognizing a member on a second occasion.

The CHAIRMAN: That is my intention, Mr. Churchill.

Mr. MACRAE: Mr. Chairman, I have one or two questions to ask mainly for the purposes of clarification, and I should like to reserve my right to ask further questions at a later stage.

On the first page of your submission, General, you used the expression: "Through an abortive attempt to amalgamate the services".

Do you mean by "amalgamate" the type of integration as you use that expression later on in your brief? When was this attempt made, and would you be so kind as to pinpoint the difficulties that were encountered? I take it this happened when you were chief of the joint chiefs of staff?

Mr. FOULKES: No, this happened when I was C.G.S. at the end of the war until 1951. My reference at this point in my brief is to an effort made by the late Mr. Brooke Claxton when he took over as minister of defence. You will recall that at the end of the war the air force had a separate minister and the navy and army were under an associate minister. When Mr. Abbott went to the finance portfolio Mr. Claxton took over as the minister of defence with the idea of getting the services together. The first move was to have one minister over all the services. At that time Mr. Claxton attempted to amalgamate the services. He succeeded in amalgamating the administration. He had one deputy minister where there had been three deputy ministers. The associate deputy ministers were placed on functional basis from a purely service basis.

However, a plan was devised by Mr. Claxton at this time in respect of complete integration of the services. When Mr. Claxton found that he was to remain with national defence conditions changed. He came to national defence with the assumption of the then prime minister that he was going to be there for a few months to knock the chief's heads together and shake them down to size. As the story goes, and then Mr. King told him that he had done such a good job and made his bed so well perhaps he should sleep in it. With all the other troubles on his hands he dropped the idea to amalgamate the services at that time.

Mr. MACRAE: I understand from what you have said later on in the brief that you feel very strongly in favour of integration of the services?

Mr. FOULKES: I feel very strongly in favour of integration of the forces, and I have felt this way for a number of years.

Mr. MACRAE: I should like to ask a second question in connection with the strength of the forces. I think you have indicated fairly strongly that you believe the strength of the permanent forces of this country could be reduced. To what extent do you feel they can be reduced having regard to our present and prospective roles which you have mentioned in your brief?

Mr. FOULKES: I think it is impossible to give a percentage figure. I think one has to look at the task which they are carrying out, and I drew this to your attention by pointing out that an extra brigade, was kept on when there was no real need for it. What one needs to do is to establish the task which the services have to carry out and then have a look at how they are using the manpower to carry it out. There is a tendency to use up all the manpower that is in the pool, and then when a new commitment comes, to ask for a few more.

Mr. MACRAE: You are talking about Parkinson's law. However, how about our present role? Have we too many people in the services for what we are doing?

Mr. FOULKES: Let us put it this way; we are doing less today than we were in the 1950's and still we require the same number of people to do it. That would normally lead in business to an investigation.

Mr. MACRAE: I have a final question. On page 3 you mention the Arrow aircraft. This was a sore point a few years ago. While I have never served in any higher role I understand that the ministry and the government rely on experts such as yourself, General Simonds and others, for advice in making their decisions. If you do not mind, general, what was your feeling about the Arrow aircraft when it was scrapped?

Mr. FOULKES: This is a long and complicated issue but perhaps I might explain it now because it does affect what I had to say about the 104. I think that if you get the timing right you will perhaps understand the problem. The Arrow, as you will recall, was started, specifications were laid down for it, as far back as 1949, and at that time it was agreed between the service chiefs and the government that we would develop an airframe and we would buy an already developed American or British engine and use a weapons system fully developed by the United States. Therefore, the original proposal was to develop an airframe. As the Canadian aircraft industry had considerable success in producing airframes for the F-86 it was thought reasonable that they could develop and produce an airframe in competition with the United States or the United Kingdom. However, I would point out to you that this was the first airframe to be developed. Now, as the program went along, the A.V. Roe Company on their own, through their subsidiary Orenda Engine Co., started to develop an engine. About eighteen months after this engine was developed out of their own funds, it showed considerable progress. At the same time the development of the American engine, which the air force had planned to buy, was slipping. So, after a great deal of discussion and heart searching, it was agreed to develop not only the airframe but the engine. Furthermore, the weapons system was to be the Sparrow II which was being developed by the United States Navy.

The U.S. Navy notified the Department of Defence Production that they were dropping development of the Sparrow II weapon, and would we like to pick some other weapon or would we like to take over the Sparrow II development and finish it ourselves. They would give us all the assistance they could but we would have to bear the cost. Therefore, we got a little deeper into the program, by assuming the completion of the development of the weapon.

We were going to take over an American communication and electronic system. That fell through, so we had to develop a Canadian system. So, that by 1954 and 1955 Canada was developing not only an airframe, but an engine, a weapon system and the whole electronic gear to go inside it, that greatly increased the cost. The cost started to spiral because of all this additional development. In the meantime, the program, for economic reasons, was slowed down, and as the whole overhead cost of A. V. Roe was being paid for by the government in this project, the cost started to mount. Then, the number of aircraft required began to be reduced. Originally the air force had planned nine regular squadrons and 11 auxiliaries which were to get this type of aircraft. However, with the complexities and complications of operating jet aircraft, it was found that the auxiliary pilots could not reach a standard of training which could handle something like the 105, so the flying efforts of the reserve had to be curtailed and the requirements for the

additional 11 squadrons worth of aircraft were cut out of the program. Therefore, the program shrank from the original 400 aircraft to something a little more than 100.

When you start to divide these increased costs, which were mounting because we had taken over the development of the engine, the production of the weapon and the electronics, and start to divide that by something less than 100, we found that the cost comes to something like $8 million a copy.

At this stage we were faced with the problem of where the funds were going to come from. This proposal was looked at by the St. Laurent government in the last few months and they decided at that time, with the election on their hands, that this was one of the first things they would have to get at when they came back because it could not be carried on within the present appropriation. You all know what happened in 1957, and to be perfectly fair to the new administration, when they arrived in office the unfortunate minister of defence was faced with three of the most awkward defence problems any minister had ever faced. He was faced with NORAD because the previous government had decided they would leave off the decision on NORAD until the time when they came back. The Americans having already agreed to the NORAD agreement, we were afraid that it would leak as that time the Americans had agreed to the proposal and the Canadians had not. Therefore, the new minister was faced with the NORAD agreement; the problem of the continuation of the Arrow, and then the 104 program. Those three problems, all of considerable magnitude, all with great economic, military and political repercussions, faced the minister.—Unfortunately I am afraid—we stampeded the incoming government with the NORAD agreement, and as it had a rather rough passage in the house, the administration was very chary at taking on some of the other tough military problems without a great deal of investigation.

Now, you asked about recommendations from the service chiefs. There is no doubt that as the service chiefs we recommended the development of the airframe away back in 1952. As these other things mounted up, they were discussed by the chiefs, taken to the government, and the government made the decisions. That is the story of the Arrow, but the chiefs of staff came to the conclusion that it did not make military sense to purchase aircraft at a cost of $8 million each when we could maintain aircraft with similar performance from the end of an American production line at something about $2 million. Furthermore, we could not see from where the funds were coming to finish the production of the Arrow.

Mr. MacRae: In other words, what you are saying is that the decision to scrap the Arrow was a sensible decision but one that was taken just a little later than it should have been? I do not want to put words in your mouth; I am merely asking is that what you are saying?

Mr. Foulkes: You say "sensible"; I would say it was a decision recommended by the chiefs of staff on economic grounds. One of the things the chiefs of staff have to do is look carefully at how they spend their appropriation. If we had gone ahead with this, there would have been no money for anything else, unless the government had been fit to about double the appropriation, which we felt fairly sure would not be the case.

Mr. Deachman: I never saw Mr. Churchill looking so cheerful!

Mr. Churchill: It was a very frank and clear explanation, which I hope is now buried and out of reach of Liberal propaganda sheets.

Mr. Temple: I have a supplementary question. General, you talked about the problems with regard to the 104 and the Arrow. When was the decision taken to go ahead with the 104 in place of the Arrow?

Mr. FOULKES: I do not think that decision was taken until October, 1959. I am speaking from memory. Here again, while I did refer to the time delay of eight years, I think I should point out at this stage that a decision on the 104 was delayed simply because the government could not settle that until it settled the question of the Arrow. I am quite sure you are much more astute in political matters than I, but it would not seem a very good plan to put forward the purchase of one type of aircraft when you consider disbanding another which was manufactured in Canada. Furthermore, it was always hoped that in some way or other the 105 might be able to be used in Europe, and of course that would have increased the numbers which could be manufactured, which again would reduce the cost.

Mr. GRANGER: May I ask a further supplementary question on the same subject?

Did the $8 million per copy include the cost of research and development?

Mr. MACINNIS: These are not supplementary questions. The question of Mr. MacRae was whether the general agreed with scrapping the Arrow. These are certainly not supplementary to that.

The CHAIRMAN: Go on with your question.

Mr. GRANGER: I want to know the relative cost of the aircraft and to have an explanation of the $8 million and the $2 million spent on the aircraft which supplanted the Arrow. Was there included in the $8 million per copy for the Arrow the cost of development of the airframe, the engine and the electronics?

Mr. FOULKES: This was not the total cost divided by a hundred by any means. This is what was known at the cost of getting them available to the troops at that time.

Mr. GRANGER: Separate from all other costs?

Mr. FOULKES: I have not seen the costs on the Arrow for some years so I am speaking purely from memory, but the figure I do remember clearly presented by the chiefs of staff to the government was that this was what was required to get the Arrow to the troops, and we could not see that we would be getting value.

The CHAIRMAN: Mr. Lambert.

Mr. LAMBERT: General Foulkes, in your general recommendations, or what you might call your suggested revisions, do you not presuppose that there will be a reassessment or reallocation of defence roles within NATO, and agreed to by the NATO nations?

I think you would recognize the difficulties at the present time of Canada unilaterally deciding to take such steps leading to these defence arrangements or organizations that you have suggested.

Mr. FOULKES: I think I did say, Mr. Lambert, that

> Canada has some leeway in deciding, in consultation with her partners, to extend the composition of our contribution.

I would suggest to you that we should decide ourselves where we want to go and what is our best contribution, and discuss that contribution with the supreme allied commander in the same way as we discussed with him bringing the brigade from the forward area into the reserve, and he agreed. I think we must know which way we want to go.

Mr. LAMBERT: I fully appreciate that, but one must also consider the implications of the eventual withdrawal of Canada from Europe and just what effect this might have politically. We are now getting into a very sensitive political area among our NATO partners in this regard.

I am not suggesting this is impossible but it is very definitely one of the problems we face.

Mr. FOULKES: I think I did say on page 21 that this trend towards Europeans taking over their own territorial defence, was both militarily and economically sound, and that providing there are no serious political difficulties the changeover should be accomplished.

I quite appreciate the political difficulties here, but I think we are apt perhaps to over-emphasize Canada's status in NATO today and look on it as the position of Canada in 1951, which was altogether different from that of today. We are apt to look on our contributions to NATO as our contributions to western Europe, and that is only one aspect of NATO. The defence of the north Atlantic ocean is just as vital a part of the NATO area; and the defence of North America is of course a different matter but still part of the NATO area.

There is in NATO a system of what they call "balanced collective forces". The NATO council is constantly urging countries not to try to duplicate what everyone else is doing but to do the best thing that each particular country can accomplish. This is very difficult from the point of view of prestige for some of the Europeans. Some of them should not really be running a navy, for example, and some of them should not really be running an air force because it is too expensive and there is too much overhead involved, but it is very difficult nationally for them not to do so.

I think we could very easily sell to our NATO partners the fact that Canada was moving a brigade out of the forward area and that putting greater effort into the north Atlantic which would perhaps be a greater over-all contribution to NATO defence. We should lead the way there because we are in a very different position from that of the Europeans. I think you will agree that it is a sound principle for a country to be responsible for its own territorial defence. We were very quick in getting the Americans out of Canada and taking over our own defence, and I think we should look the same way at Europe and the Europeans, who are very anxious to take over their own territorial defence.

Mr. LAMBERT: Do you envisage this for the late sixties?

Mr. FOULKES: Yes.

Mr. LAMBERT: However, because of the time taken for re-equipping and repositioning and so forth, the decision would have to be taken in the immediately forseeable future, and our NATO allies so advised?

Mr. FOULKES: The only decision that would be required would be in regard to the air divisions. The question would have to be discussed with the supreme allied commander as to who was going to take over the future task, whether the task was going to be taken over by aircraft or missiles. I think it would be missiles that would take over that task. That would be the only point that would have to be discussed. We would not be equipping air divisions, however, with aircraft that had to be developed and designed; it would be transport aircraft, which you can produce very quickly, and are manufacturing in Canada.

Mr. LAMBERT: What do you say about our ground forces?

Mr. FOULKES: Our ground forces, Mr. Lambert, would just come back into reserve. The Germans would take over the front line and we would come back into reserve, and I foresee them staying there some time. I would say they would eventually be in Canada, but that would be when air passage is much more reliable than even are today.

Mr. LAMBERT: In the mid-seventies perhaps?

Mr. FOULKES: Something like that.

Mr. MACINNIS: I would like to ask the general some questions on attitudes.

At the previous committee the matter of inter-service ambitions was mentioned, as was the matter of tri-service demands on the government. What is your opinion on these points? Do you see them as a source of annoyance, a source of complicating the defence effort?

Mr. FOULKES: I think one of the problems we have to face in this regard which arises from the situation where you have service chiefs primarily responsible for their own service. They have loyalty to their particular service, and one must bear in mind that when a man becomes the chief of his service he is usually serving his last four years. Therefore, he is very reluctant to do anything in regard to his service that will not be of great credit to him.

These questions of service loyalty and their relation to defence policy come into conflict. Perhaps something which would not be helpful to a particular chief's service would be of contribution toward greater defence tasks. Therefore I do not think you can expect the service chiefs themselves, to use a common expression, to cut their own throats or reduce their service. This type of thing must be imposed upon the service chiefs, and this is one of the difficulties of our present arrangement.

There does exist these service loyalities and the loyalty toward developing an adequate defence policy.

Mr. MACINNIS: Would you care to comment on service ambitions? We have listened to considerable evidence in this regard at previous meetings. Do you find that there are in any particular service ambitions that would detract from the efficiency of that service?

Mr. FOULKES: I do not think there are such ambitions although there may well be some in existence. Such a situation did not come to my attention while I was C.G.S. I laid down the policy and I made sure it was carried out. Had I found that there was some disloyalty in this regard, I had a remedy.

Mr. MACINNIS: Could you tell us your thoughts in respect of any future outbreaks? Do you foresee such an outbreak as being largely a nuclear conflict?

Mr. FOULKES: Perhaps I could answer your question in the following manner. I am hopeful that there will not be any war.

Mr. MACINNIS: We all hold that hope, general. My question was, do you foresee any future outbreak as being a nuclear one or do you foresee the possibility of a conventional conflict?

Mr. FOULKES: I do not foresee any prospect of a conventional war between the two great powers. I think we must look at this question of war in quite a different light. Sometimes I become a little concerned in regard to this glorification, if you like, and perhaps that is not the correct word, in respect of a conventional war. We are apt to suggest that we should go back to a good old conventional war in which only the soldiers get killed. In my view this is a very dangerous attitude.

Mr. MACINNIS: You have made a considerable effort in your brief toward discussing plans for a conventional war.

I should like to ask you a question or two in regard to decisions made by the upper echelon of the services. How does the upper echelon arrive at decisions? Do they make their decisions and then await public reaction?

Mr. FOULKES: I wonder whether I could continue with my explanation in respect of what I meant about a future war?

Mr. MACINNIS: The explanation you have already given was satisfactory as far as I am concerned.

Mr. MATHESON: Mr. Chairman, I do not think these comments are very well accepted.

The CHAIRMAN: If you ask the witness a question you must allow the witness to give a complete answer. If you have comments to make you should make them after he has been given the opportunity of completing his answer.

Mr. MACINNIS: Mr. Chairman, if it is satisfactory to you I should like to suggest to you that I am asking the questions in an attempt to glean information from the witness for my own benefit. When an answer is given which satisfies me I should then like to continue with another question. I state this in view of the fact that there are many other members of this committee who wish to ask questions, and I do not wish to take up more time than necessary.

The CHAIRMAN: I think the answers to the questions which you ask are beneficial to the other members of this committee as well as to yourself. Perhaps you will allow the witness to answer fully so that we may all benefit from his opinions.

Will you proceed, general.

Mr. FOULKES: I wanted to point out that it is difficult to separate types of war today. I would point out to you that when there are differences between powers and they commence using force to settle those differences there is no limit to the amount of force used by either side. Any amount of force will be used until one side gives up and the other side gets its way or until both sides make a compromise. In other words, once a war is commenced there is no way of limiting the amount of force used. I suggest to you that it is rather dangerous to think in terms of some kind of a controlled war. Once force is used it cannot be controlled.

I have often heard the suggestion made that we should return to the good old conventional war. The suggestion has been made that we should all destroy our nuclear weapons so that in the event of a future conflict it will be a nice clean conflict. I can assure all of you, and many of you have taken part in this war business, that any type of war is just plain hell. I implore you not to form the impression that conventional war is all right.

I suggest to you that because nuclear weapons are destroyed it is not correct to assume that any future outbreak will be a conventional outbreak. The destruction of nuclear weapons will not prevent a nuclear war. If the United States and the Soviet Union agreed today to destroy all their stock piles of nuclear weapons and the United States and the Soviet Union commenced a war tomorrow with only conventional weapons it would be less than two weeks until they were involved in a nuclear war. I have been informed by the scientists that if uranium is available for the production of power it can be turned into plutonium within a few days. The technique of manufacturing nuclear bombs is known to some scientists and you cannot brainwash the scientists. I suggest to you that if a conventional war is started it will develop into a nuclear war within a very short period of time, because nuclear bombs can be produced within a few weeks.

I suggest that rather than trying to limit any future war to a conventional conflict, we should direct our efforts in an attempt to find some way of settling our differences without the use of force. An accomplishment in this direction would obviate the necessity of any future war.

Mr. BREWIN: Mr. Chairman, I should like to ask a supplementary question. You are not suggesting, general, that it is not important to be able to respond to some minor conventional thrust with conventional means because it will move into a nuclear conflict? You are not suggesting that it is not necessary to meet a conventional thrust with a conventional response? It is my feeling that following a conventional outbreak there may be an intervention through

diplomatic channels preventing that outbreak from becoming anything more than a conventional war.

Mr. FOULKES: In the event of a minor incident such as a brush fire, of course, one must use the forces available. The general rule in respect to the use of force, which is often forgotten, is that a commander will use no more force than is required to meet a particular situation whether it be conventional or nuclear.

Mr. BREWIN: We have heard evidence to the effect that there is a real danger of the western alliance being short of adequate conventional forces to meet our obligations by reason of an over-reliance on technical and other nuclear responses. You are not saying that it is unimportant that we should be able to meet minor conventional thrusts with conventional force?

Mr. FOULKES: What you have described is necessary in Europe to prevent the kind of thing you suggest, and that is exactly the reason for the development of NATO. I refer particularly to the take over of Czechoslovakia, and we must be able to prevent any coup of that type. I do not think there are enough forces in Europe to prevent that type of situation occurring. I am suggesting that we should not try to create the impression that a war can be stopped from accelerating once it is commenced.

Mr. MACINNIS: Mr. Chairman, I should like to ask the general a further question in regard to decisions made by the upper echelon. Are decisions at this level definitely established and then projected through defence headquarters or otherwise, as the case may be, or is there some consideration in regard to mustering public support, as your brief indicates at page 2 where you state that it was relatively simple to muster public support? Are you suggesting that defence policy should be established on the basis of popularity rather than on the basis of necessity?

Mr. FOULKES: I did not intend to create that impression.

In respect of your question regarding the projection of decisions made by the upper echelon, I should like to suggest that a proposition is decided upon at the service level, then submitted to the chiefs of staff, who in turn study the proposition in great detail, satisfying themselves of its soundness and the fact that there are funds available for such a purpose, following which the proposition is submitted to the minister for review. The proposition is then submitted to the defence committee of the cabinet with or without the minister's recommendations. If that committee accepts the proposition on the minister's recommendation, the proposal is referred to cabinet for decision, then the chiefs of staff are instructed to implement the project.

Mr. MACINNIS: Nevertheless, in the brief it would appear that this matter of mustering or fostering public support was of all importance. This is indicated on pages 2 and 24 of your brief.

However, I have one more question in relation to the question asked by Mr. Lambert on this matter of the European countries being capable of taking care of their own territorial defence. We must consider that we are in alliance with them. Have you taken into consideration the approach of, say, the United Kingdom people on this matter of giving Germany such a free hand, even West Germany, or do you know their attitude on this matter?

Mr. FOULKES: This is getting into the realm of what you might call military politics. The United Kingdom would be very pleased if our brigade group would stay there. If it became part of their forces in Europe it would help them to maintain their present command in the Northern Army Group. However, I do not think that that is of too great importance provided that the Germans agreed, as they did previously, to take over the frontier. Our brigade group would still be in reserve. I would think that the United Kingdom concern

would be more as to whether they could still hang on to their command of the northern army group if there were more Germans in that particular area.

Mr. MACINNIS: You do not think that the fact that Canada is 2,000 miles removed and that England is right in their backyard and that they have the greatest experience, has nothing to do with any holding back of defence matters from the Germans and not allowing them to look after their defence problems?

Mr. FOULKES: However, we did accept Germany into NATO with certain reservations.

Mr. MACINNIS: You are not speaking from first hand knowledge, are you?

Mr. FOULKES: As I pointed out, there are certain reservations in the protocols which will be released in 1969.

Mr. MACINNIS: But protocol does not give them free hand without reservations?

Mr. FOULKES: The protocol are the ones which put reservations in. They lapse in 1969. In 1969 they will all be done away with. We should be looking at the conditions that are going to take place in 1969 when these protocols are all washed out and the Germans have a free hand to do as they wish.

Mr. MACINNIS: Are the Germans be permitted to build submarine fleets in 1969 without any restrictions?

Mr. FOULKES: Yes, unless they agree to self-imposition of some restrictions. This is why I say that in 1969 NATO is going to change considerably, and we should bear this in mind in considering our positon.

Mr. LESSARD (*Lac-Saint-Jean*) (Interpretation): I want to speak more particularly of the nuclear role of NATO. As you have described it on page 14 of your brief, it would seem that there would be a practical impossibility, owing to the wish of the countries involved, to have absolute control over their nuclear weapons and arms. In your opinion, is this possible?

Mr. FOULKES: You say it is impossible, and yet this is what exists today. From the military standpoint it is not very good, but we have not found any way of getting over this difficulty. I think it is a matter of great political importance for each country to have control over nuclear weapons being used by its own forces. Here is where you come into conflict with the collective organization and the national responsibility. It is very difficult to get countries to give commitments to somebody else to allow their troops to use nuclear weapons.

Mr. LESSARD (*Lac-Saint-Jean*): That means you support strongly the point made in this room last week by General Simonds?

Mr. FOULKES: I just read General Simonds' report this morning. I am not sure what you mean. There are great difficulties in this question of nuclear control in Europe, and there does not seem to be a good answer. The only answer I have been able to come up with is to say to the United States "will you provide the nuclear support for all of our allies in Europe", because then only one decision has to be taken. That seems perhaps to be the only way of getting a clear decision. As you know, any country which accepts United States weapons or warheads cannot use them until they are released by the president. It was hoped, when the original matter was discussed in NATO, that the president could release them to the supreme allied commander, and the countries would then agree to the supreme allied commander using them under certain restrictions imposed by the national governments. However, that has never been agreed to, and one can see the difficulties in it.

Mr. LESSARD (*Lac-Saint-Jean*): I have one other question. You say that Canada should separate itself from Germany or France. When do you think this should take place, in two or three years from now or right away?

Mr. FOULKES: I think our brigade should go in reserve now and remain in Europe, but as I pointed out, in 1969, when the new charter for NATO is ready, there will be a complete reorganization. That is about the time we should have a look to see whether political conditions at that time would allow us to bring the forces home. We spent a great deal of money—I forget how much it is but some years ago I calculated we spent $2 million a year—carting dependants back and forth. That does not add to our military support of NATO at all. If we could get to the stage when we can adequately support Europe from North America, we would save all that and we would give NATO perhaps more support if we could move it over at the time it was needed. At the present time, as you know, the United States are trying out a similar exercise to see how much they can rely on an airlift to their forces.

Mr. LESSARD (*Lac-Saint-Jean*): I have two more questions before we adjourn. On page 8 you mention we had to increase our contribution in Europe owing to the fact that Britain was not able to carry on its own commitments. How is it that we, with 19 million people, cannot afford to take over a commitment of Great Britain who have 51 million people? Are we trying to play somebody else's role?

Mr. FOULKES: Perhaps you will remember that when we agreed to put these forces in Europe, the situation was very different. General Eisenhower appealed to Canada, as he did to the United States, to make a contribution immediately to Europe to show the Europeans that North America was right behind western Europe. We made this contribution. However, at the time, and I think it still exists, Canada preferred to have its forces independent. We did not put this brigade group as an integral part of a British corps. We put them there as an independent brigade group. At that time there was a great discussion going on as to whether we should be supported from the United Kingdom or the United States supply line. We had agreed to put the air force on the U.S. supply line, but there was a big debate going on as to whether we should rely on the U.S. and U.K. for army support. At that time the United Kingdom undertook to look after our requirements, common items, that is food, petrol, ammunition and so on.

The United Kingdom has run into considerable difficulties in financial and manpower matters. They have had to reduce the number of personnel on their lines of communication. Therefore, their prospect of looking after our brigade and looking after their own forces is rather precarious if we have to go to war —and that is what I am referring to in the submission. Furthermore, the more weapons that become more Canadian or American design the less can they be obtained supplies from the United Kingdom and the more has to be obtained from the United States or Canada. So, progressively we have to rely increasingly on the United States and Canada; supply and eventually it would appear that we would have the brigade group at the end of a 3,000-mile Canadian supply line, which does not make military sense and which adds a great deal to the cost.

I suggest the first step should be to put the brigade into reserve. If we put it into reserve, we may be able to arrange with the Germans to move it over to the air division and they would take over our accommodation at Soest. We would then form a Canadian enclave where we would have one set of amenities and a Canadian pipeline, because the air force maintain a pipeline to Canada. It would make a great deal more sense if we were altogether. This was the original long-term view of moving the brigade out of its front line close to the air division and close to the pipeline. Eventually, if the conditions are satisfactory, we would look to see whether it would be better to station the force in Canada.

Mr. LESSARD (*Lac-Saint-Jean*): My last question is with regard to page 26 where you mentioned that the division sent to assist in the Suez crisis was refused because it was thought to sound far too British to the Egyptians. If our forces are to be offered to the United Nations for service, would you think Canada should have its own distinguishing symbols for its own forces and for Canada so there would be no confusion?

Mr. FOULKES: I was perhaps a little facetious here, but I did think at the time that the army might have got away with this if it had sent the 22nd or the Royal Canadian Regiment or something that did not have a connotation like that of the Queen's Own, because if you remember the British at this time were certainly not in good odour in the Suez area.

Mr. LESSARD (*Lac-Saint-Jean*): Nor the French.

The CHAIRMAN: It is now 12:35. The committee stands adjourned until 4 o'clock this afternoon.

AFTERNOON SITTING

The CHAIRMAN: Gentlemen, we have a quorum; will the committee come to order.

Have you something you would like to say at this time, Mr. Smith?

Mr. SMITH: Yes, Mr. Chairman. Before the questioning starts I would like to make a suggestion. As the evidence of General Foulkes and General Simonds has been so very interesting and useful both to the committee and to everyone, perhaps the steering subcommittee ought to consider calling the senior retired naval officer, who would be free of administrative responsibilities and thereby able to come and give his opinions as to the course of naval policy. It might be that the last retired chief of the naval staff, Admiral DeWolfe, might be available to the committee, and I would commend that course of action to your steering committee, Mr. Chairman.

The CHAIRMAN: I will convey your request to the members of the steering subcommittee.

I believe at this time the general would like to make a correction.

Mr. FOULKES: Yes, Mr. Chairman.

I would like to correct a date which I gave this morning from memory, which I have checked since. I said this morning that the 104 project was approved I thought, in October 1959; that date was incorrect, it was June, 1959. Thank you, Mr. Chairman.

Mr. WINCH: We would hope that our memory would be as good as yours on that approximation.

The CHAIRMAN: Would you proceed, Mr. Temple.

Mr. TEMPLE: On page four, paragraph (a), in connection with future defence contribution, you advise that the contributions should be of maximum deterrent value. Would you amplify that?

Mr. FOULKES: What I intended to say there, gentlemen, is that we should differentiate between these things which are only effective to fight a battle later on, and to compare those with the things that will be looked at by a potential enemy which deters them from attack.

Mr. TEMPLE: Could you be more specific on that?

Mr. FOULKES: Well, for example, the build-up of the brigade to a division is not in any way a deterrent; whereas the provision of more facilities for dealing with the nuclear submarine in the Atlantic would be a deterrent.

Mr. TEMPLE: Now, in your brief, at pages 20 and 21, and elsewhere—

Mr. LAMBERT: If I may interrupt, Mr. Chairman, and ask a supplementary question. It has to do with the explanation of the word deterrent. Is not the word "deterrent" used more in the sense of the retaliatory strength of our defensive complex, in its current understanding?

Mr. FOULKES: That is the main deterrent. But, you will recall the supreme allied commander in Europe considers his shield forces also part of the deterrent because that prevents a coup which takes over part of the territory and it prevents a chance to start a war. He looks on that as part of the deterrent, so that the forces which are in position ready to desist or deter an attack are always considered as part of the deterrent; however, the major deterrent is the retaliatory capacity of the strategic forces.

The CHAIRMAN: Would you proceed now, Mr. Temple?

Mr. TEMPLE: Speaking of the deterrent in so far as antisubmarine warfare is concerned and going with the phrase of the maximum deterrent, would you be in favour of the navy, the air force or whatever it may be, using nuclear depth charges against enemy submarines?

Mr. FOULKES: The question of depth charges and atomic torpedoes has to do with ways of killing the submarine, and there is a decided advantage, once you track the submarine and can hold it, in using the biggest dose of destructive power you possess to destroy it. As the nuclear submarine can go to very great depths it is considered from a military standpoint advisable to use the best charge you can, which is a nuclear charge.

Mr. TEMPLE: On page 21 you state:

> However, as long as the Soviet union possesses a bomber force "in operation", the system should be kept intact but the costs should be progressively reduced.

What is your opinion of the bomber threat presently in respect of the threat from ballistic missiles?

Mr. FOULKES: Well, the information which is available to the public shows that there is a considerable trend toward the disappearance of the bomber, and depending more on the I.C.B.M. But, I would remind the committee that the real source of direct information on Soviet armament is very slim and a great deal of the intelligence estimates chart the forces the Soviet union has available has to be deduced from criteria other than actual intelligence sources, so they are not always accurate. The Soviet union has the facility of being able to hide a great deal behind their borders which is not available to the western side. One has to rather give the Soviet union credit with being able to do exactly the same things as the west. Using all these criteria, one has to try and make an estimate in regard to how many I.C.B.M.'s they may have available, and so on. But, it is quite clear that the Soviet union has not thrown, in spite of what Mr. Khrushchev has said, their bombers on the ash heap. They still have bombers in operation.

I should point out to you that the bomber is a much more economic delivery system for heavy megaton weapons than the missile, much cheaper and more accurate and, of course, is much more flexible. So, there are some advantages on that side. Also bear in mind the Soviet union has what we call a first strike capability; in other words, as General Simonds pointed out the other day, the United States will not start a war, or will not fight a preventive war and, I am quite sure all agree, Canada would have no part in preventive war, and the Soviet union has been told this. General Eisenhower made this clear to the Soviet representatives when he was at Geneva. So, the Soviet union knows—whether they believe it or not is another matter—that the United

States will not strike first; Therefore, the Soviet union has the advantage that it can plan its forces to make the first strike, that they can plan their I.C.B.M.'s in the open and not put them in silos like the United States. And, as I said, they can plan a first strike on a much more economic basis than can the United States, which is tied to a second strike. If the Soviet union believe we are going to scrap our bomber defence, then the bombers would be just as invulnerable as the I.C.B.M. and it would be cheaper for them not to make any more I.C.B.M.'s but rather maintain their big bombers, and if we had nothing to stop them it would make a much greater attack on the North American continent because the bombers can return and get another load; whereas once the missile is shot, that is it. There is another decided advantage in connection with the bomber and that is it can be stopped on its way. You are all familiar with what they call the fail safety system, which is used in the United States, whereby on an alert part of the bomber force can be despatched to its target. It goes to a certain line and stops until it gets further orders, or it comes home. So you can keep part of the force on the way to the target and this action can be taken during an alert or an emergency; but you cannot do that with I.C.B.M. Once you press the button for an I.C.B.M. there is no chance of return. So, from the standpoint of the Soviet union, there is an attraction in keeping a bomber force in being for some time.

Mr. TEMPLE: On page 12, and also on other pages, it is stated that more air transport is required. Do you envisage that this would mean a doubling or a tripling of our air transport?

Mr. FOULKES: I am speaking from memory now, but if my memory serves me right I think the Royal Canadian Air Force have only four carriers for equipment—I think they are 130's, Hercules. Of course, that is not nearly enough to carry the transport even for a battalion. The Yukon and such other aircraft have no facilities whatever for carrying vehicles such as jeeps and so on. So what would be required, both for a mobile United Nations force, a battalion to go out to the United Nations, or for a portable brigade would be enough airlift to lift their vehicles.

I think the personnel questions could be solved, but there is need for enough to lift their vehicles. Therefore, I have suggested that the force be made portable because the number of vehicles you would need in an air portable force is much smaller as you would just use jeeps, not three-ton lorries and that kind of thing. You would not need enough to lift a brigade; you could lift a battalion at a time and turn around and come back again. That is what I mean by providing more airlift.

Mr. TEMPLE: I think this probably has been answered. How large a mobile strategic reserve do you envisage in the minimum brigade?

Mr. FOULKES: Again I had in mind that the brigade would be kept in Europe for a considerable time as a mobile reserve and then, as and when conditions permit, say 1969 or in the seventies, when greater reliance could be placed on airlift, they could just as well be stationed in Canada. That is the force I had in mind, only the present forces.

Mr. TEMPLE: It could be somewhere in the nature or range of brigade to division strength eventually?

Mr. FOULKES: If your force is portable it could have enough lift to lift a brigade and come back and lift another.

Mr. TEMPLE: I am sorry, I was thinking of it in its total sum, wherever it may be, in either Canada or Europe.

Mr. FOULKES: I did make reference to the fact that more could be provided if the force is in Canada than if it is in Europe today. I was looking at the cost

of maintaining that present brigade in Europe. It is somewhere between $30 million and $40 million.

The CHAIRMAN: Mr. Groos.

Mr. GROOS: On page 4, you refer to some criteria that might be useful to this committee in measuring our future or present defence contributions, and you list (*a*), (*b*), (*c*) and (*d*). I would like to suggest a couple more and ask your comments on these; they seem to be important.

First of all, observing the fact that we have limited funds available for this sort of thing, I would suggest that perhaps one further criterion would be the length of life of the equipment that we are thinking of purchasing. A sixth criterion might be the impact that the production of that equipment would have on the development of our home industry, and I say that because it seems to me that if we spend our lives in Canada making webbing equipment and things of that sort which are not of any great consequence militarily, we are apt to be left behind in the technological race in our industry.

Would you care to comment on that before I move on to the next question.

Mr. FOULKES: Yes. In the first instance, with regard to the question of the length of life of the equipment, of course I entirely agree, and I thought I had raised it in discussing the change of role of the air force in suggesting that the air force role, which is now combat aircraft, which has a frightfully short life, might be changed to transport aircraft which has a much longer life and would be much more useful. For example, the F-86 was only in combat service for about five or six years; whereas the North Star, which was developed in the late forties, is still hauling freight into the Arctic today. That is the kind of thing I was trying to suggest, and I agree with you that this criterion that I have suggested here is not all-inclusive and could well include the question of a longer life.

I had intended to cover the impact on the development of our industry, under (*c*). The equipment should be of a type that can be produced in Canadian industry without long delays for development, testing and production. What I am frightened of there is the same kind of thing happening as happened with the Arrow where developments covered such a span of time that when the product came out it was not of very much use.

Mr. GROOS: I had a couple of other questions here. I have just returned from a tour of NATO bases in Europe so I am perhaps thinking a little more along this line than others. It seems to me that there are already a number of stresses and strains on the NATO alliance and that we ought to tread very lightly in the matter of withdrawing our forces from Europe. There is this political danger that the smaller nations, particularly those weaker ones on the wings of NATO, are very fearful of any signs of a withdrawal of North American forces from NATO, and although it might not make very much sense to us as a nation and individually to keep our forces over there, it means quite a lot to the alliance. Would you care to comment on that?

Mr. FOULKES: You will recall that I suggested bringing the brigade back into mobile reserve in Europe, and in that case I would think those nations on the flanks, such as Norway and Turkey which are the two extreme flanks, would feel a bit safer if they knew there was a portable airlift brigade in SACEUR reserve.

SACEUR has no reserve, and I think they would be much happier if we were out of the front line and available to look after the flanks if anything happened.

However, as you know, there are some political difficulties because the Norwegians, in a treaty they had to make with the Soviet union when they entered NATO, are bound by a condition that they will not allow foreign

troops on their soil in peacetime. Therefore any such move would have to take place after an alert. There would be no means of entering Norway before an alert; therefore, a portable reserve would be very useful for a flank. It is not a very hospitable area to ask anyone to go into to fight in, but it is a tricky area because of the direct contact with Soviet union.

Mr. GROOS: When you were discussing the recommendations of the chiefs of staff you were saying there was a conflict of interest, perhaps, that they might be reluctant to make recommendations which would in effect—I think this was the expression you used—"cut their own throats". I have thought for some time that perhaps this four-year appointment that you mention as being the tenure of office of a chief of staff is perhaps too short in as much as it takes a good four years before the effect of their decision is felt, and that perhaps some consideration should be given to a longer term of appointment for chiefs of staff so that they would have to live with the decisions that they make.

There is a further point on which I would like to hear your comments. I believe in the British services and in the American services when their most senior officers reach their most senior rank—namely admiral of the fleet or general of an army—they retain their full pay for life. It seems to me that there would be some advantage in assuring a chief of staff of his full pay so there would be no temptation to perhaps give advice of which he was not quite sure. I mean that although this might cost the country money I think it is a pretty picayune amount in view of the large amounts of money spent on defence.

Mr. FOULKES: I must say I am very intrigued with the idea of keeping the chiefs of staff on full pay. However, I believe treasury board would have something to say about that. I am in a very vulnerable position on this matter of the period in office of the chiefs of staff, because I was not one subject to the four year tenure of office you are speaking about. Having been in Ottawa for 15 years as chief of staff, they used to wonder if old man Foulkes would ever go. There is not a specific term laid down anywhere for the chiefs of staff, but by practice it is normally four years. The period, however, can be extended by the minister with the concurrence of the government; it would have to have the government's approval. Quite often the chiefs of staff are reaching the end of their service. In other words, they are getting close to having 35 years service. At 35 years service you can claim full pension, as you are aware. The chiefs of staff usually after four years in that hot seat and with a pension waiting outside with no responsibilities often hasten to get this release.

I do not think it has anything to do with the chiefs of staff living with their decisions. The Americans now have no five star generals; there are no five star generals in peace time and it is only five star generals who remain on full pay. While a field marshal never retires, he comes off full pay as soon as he leaves his appointment.

Mr. GROOS: You said that the treasury board might have something to say about this. This seems to be one of the inconsistencies of the treasury board. They gaily spend money in one direction and do not spend it in another. The funds they saved might have been of more value if they had not been saved.

Mr. WINCH: I have two questions to ask General Foulkes. I hope that the first one is of general interest to all the committee members; I know it is of particular interest to me. May I say that I had the privilege last year on two occasions of being at a university seminar on defence with General Foulkes. As I analyse the most comprehensive brief that was given this morning by General Foulkes, I seem to note a general trend toward a policy of integration of the services. I would like to ask the general whether he

would enlarge upon what he said in his brief, and on what he said in some answers to questions this morning. Would he tell the committee how comprehensively this opinion on integration was in his mind when he was chief of the general staff; and, if it was in his mind, what happened which resulted in it not being followed through? In view of what he has told us this morning, which I gather indicates increased support of his view on integration, would he tell us how he feels it could and should be done now in order to overcome the obstacles which he may have been up against heretofore.

Mr. FOULKES: Mr. Winch, this is a fairly tall order. I am glad you raised this because I have had an interest in integration from the day I came back from the war in August of 1945. When I came back from the war in 1945 I found that the three services at that time were under two different ministers and that we were going in quite different directions; we had a great deal of duplication and were not even ordering the same type of blankets, and so on; furthermore we had no way of avoiding duplication in research and development. As a first step I sponsored the establishment of the defence research board to ensure that the research work of the three service was an integrated and joint effort. After about two years of struggle this was agreed to. The next step that was taken was the setting up of the service college so that we could train cadets for the army, navy and air force in the same establishment. It was hoped that by establishing that kind of contact in the early years they might be at least on speaking terms with their opposite numbers when they became chiefs of staff. Later, with the help of the Department of External Affairs, we set up a defense college for training senior officers of the three services, external affairs and government departments in the higher forms of strategy and defence matters. That again was designed so that we would have a type of senior officer who was trained to think tri-servicewise; not only tri-servicewise but also to understand part external affairs plays in Defence matters. This was the third step in an attempt to get some integration in the three services.

The next step was at the beginning of the Korean war when they appointed a chairman of the chiefs of staff. Formerly the C.G.S. was the chairman of the chiefs of staff committee. When it came to the time of the Korean war we found ourselves raising forces to go to Korea, raising forces to go to Europe, and the North Atlantic, and it was not possible to carry on two jobs at one time. Therefore, the government established the post of chairman of the chiefs of staff in order to get some co-ordination in this effort. We tried to get somewhere in respect of integration. While this has been discussed by the chiefs of staff over a considerable number of years, there has always been a bit of reluctance on the part of the services to integrate. Most of the chiefs used to take this view: we agree entirely with what you say about integration, but please do it after I leave. No chief of staff of his service wants to be known as the man who does away with his own service. Therefore there is considerable reluctance to do away with a system which will essentially reduce the staffs at Elgin Street, or reduce the staff other places, and may lead to a considerable reduction in a particular service. That is one of the reasons we could not get far with it.

About four or five years ago a plan for integration was placed before the minister who decided this was something which should be aimed at. However, as you realize, this was not an easy problem. A great many people feel they may get hurt in the integration process. There is bound to be a great deal of pressure from the different associations of the army, the associations of the air force, and so on, against integration. Therefore it is going to take a pretty tough political decision.

In the late fifties it was decided to attempt integration from the bottom instead of from the top. As you know, after a great deal of struggle we succeeded in integrating the medical service and the padres. The dentists already were an army unit providing a service for the three services. As you will understand, there are several ways in which you can integrate. You can have one service absorb the other. That is not very useful and not very palatable. Or, you can form a joint organization at the top and then form task forces down below.

But you cannot start at the bottom and do very much integration. In the integration of medicals we had a terrific task to find out who administers medicals if they become a tri-service unit because the administration is all done on the service level. Therefore, the first step that one has to consider in a complete integration is to get an integrated administration which can administer these groups when you decide to move them together.

A comprehensive plan has been drawn up. There has been a great deal of discussion on it on almost every level, and the general view is that this could be achieved by, first of all, starting and organizing the administration; that is, setting up a chief of personnel and a chief of logistics. As soon as that is done, the plan is to put all officers over the rank of lieutenant-colonel on one list for appointments, promotions, retirements and so on. You start off by clearing out the top echelons, by putting them all on one list for consideration. Then, you would appoint a chief of logistics who would take over logistics for the three services and organize the supply system of the three into a one supply system. When you had the administration set up, that is the personnel organization and the logistics organization, you then start to form task forces.

It was my view that to get the task forces organized harmoniously the present chiefs of staff, the chief of naval, army and air staffs, would be relieved of their command and their vice-chiefs would take over the day to day business of the services. That policy group would consist of the chairman of the chiefs of staff and the chiefs of staff who would sit in constant session achieving the integration. As or when their time came up they would either go to one of the jobs such as chief of personnel or chief of logistics, or go out on pension, but you would get the chiefs planning and working together on integration problems. I thought that if you had all the chiefs together, you would get a little more harmony than if you tried to do it by superimposing prearranged plan. Once the administration is settled, then the personnel of the services would be grouped into two task forces instead of into services. At present if you are going to do a job you are going to do a job you get a certain number of people from the air force and some from the navy, but in this plan you would set up a task force to do for example the maritime role. You would not do away with the sailors or do away with the airmen but they would be grouped together under one commander to do the maritime role. There would be no definite fixed establishment in that maritime role because you would want to be able to change the numbers as the situation demands.

Similarly you would set up a strategical reserve group which would consist of air force and army to look after the strategical reserve. Those task forces under commanders would become what is now working bodies of the services. The training would be done by a general staff branch under the chief of staff of the armed services.

It seemed to me that such a plan would take about three to four years to accomplish. The reason for that is that you have to be prepared, if you got into war before the administration and logistics were all settled, there must be a plan which would allow you to back up and get on with the war. Therefore, the first step is to settle the administration and logistics, and then go ahead with the rest of the task.

I think that what is required to put this plan in motion is really a decision by the government that this will be done. This is not something you can expect the chiefs of staff to do on their own, because, as I mentioned this morning, it is going to be very difficult to put this to a chief of staff and tell him to cut his own throat. Therefore, this has to be imposed on the chief of staff by the government. This provides the greatest possible flexibility for the forces. As I mentioned this morning, at the present time there is no flexibility. I will just give you an example. Some years ago a heavy anti-aircraft regiment in Picton became surplus to the establishment. There was no need for them anymore and it was to be disbanded. This anti-aircraft regiment was full of well trained radar mechanics and operators. At the same time the air force was expanding its radar coverage, and when we looked over the list of people in this anti-aircraft regiment we saw there were a great many of those mechanics who were highly trained. Some of them who had 15 or 16 years experience would be let out on the street. The air force, which was expanding their radar establishment, would have to bring people in from the street and put them through two years of training to do the job. It was suggested that the air force should take over these radar mechanics, those who were suitable, and absorb them into the air force. After a lot of discussion it was accepted by the two chiefs, but when it got into the service machinery it failed and was never accomplished. You can see the kind of inflexibility that exists. The roles of the services are changing very rapidly and if we are going to keep professional soldiers, sailors and airmen happy, a trained man in a specialist job such as a radar mechanic should be able to move to another service and not have to go out into the street while another service trains another man. You cannot get the flexibility that is needed in this changing military sphere unless you have some form of easy interchangeability between the task forces. In my judgment this is long overdue, and I do feel that a considerable amount of manpower and money can be saved.

If you look into the services today you find for instance that each service has a very large radar establishment. The principles of radar are just the same whether they are used on ship, in an aircraft or in the field in a detection system. All these men should be trained in one establishment; but no, we have three. This is the kind of duplication which you cannot avoid by saying "cut them out", or "send them to the other fellow's school". It took a long time before we could get the services to agree to even have an interservice musicians' school. It was pretty hard to say that a note was not different in the three services. That is about the level at which you can get integration in the present system. This integration may not be satisfactory for a nation such as the United States, but for Canada, which has 120,000 regular troops or thereabouts, I do not think we can afford the luxury of three separate organizations.

Mr. WINCH: I think that explains a great deal to me.

My other question is as follows: I am not quite clear as to what is the line of demarcation between the power of the chiefs of staff and the authority from the political end. I am thinking of your not being able to move as far as the armed services are concerned without authority from the political end.

It is my understanding that back in the St. Laurent government there was a cabinet defence committee. You said this morning that at the time, when it came to an election, there were three major difficult problems that had to be handled and which were delayed because of that election. If my information is correct, the first one was handled after the change of government, and it concerned the question of NORAD. However, at that time there was no cabinet defence committee, therefore a decision was made by one man and not by the defence committee. After that, on the other two problems, there was a cabinet defence committee. What I am trying to find out is from whom does the chiefs

of staff take instructions on policy matters? If my information is correct, in one case it came from the defence cabinet committee, in another it came from one person. May I have some explanation as to how that functioned?

Mr. FOULKES: We are on very, very thin ice here. First of all I would like to point out that the chiefs of staff have no power, but act only on direction of the government. On the question of dealing with important issues such as the 104 and 105 aircraft, NORAD and so on, the general policy has been that the chiefs of staff would prepare a paper for the government.

I would like to emphasize this point: on the chiefs of staff committee, —normally sit the three chiefs of staff, but also in attendance are the secretary of the cabinet, the under-secretary of state for external affairs, and the deputy minister of the department.

The reason for that is that the chiefs get political guidance quite often from the secretary of the cabinet, and quite often he can advise us the best way to present the problem, which is something you are always anxious about when you have a project.

Certainly the Secretary of State for External Affairs is there in order to be sure that we do not do something that will upset the external affairs side of the picture. So you can see that the discussions are not purely military.

On occasions when there would be some development or production to be done, we would always invite the deputy minister of defence production to attend. So it is really a group of officials who are working together for their departmental interest, and these are people who chew these things out and produce a paper.

The normal procedure is that after the paper is worked up, the chairman takes it to the minister of national defence who goes over it, and if it affects another department, he would probably suggest that he would discuss some aspects with his colleagues.

After the minister has received a paper and is quite happy with it, and after sounding out his colleagues, the paper is prepared for submission to members of the cabinet defence committee, and it usually gets the OK from the Prime Minister that the matter go on the agenda.

The cabinet defence committee, you said, gives the orders, but that is not correct, the chiefs of staff are usually allowed to go to the cabinet defence committee. But when time comes for the members of the cabinet defence to discuss a decision or recommendation to the cabinet, then the chiefs of staff retire.

I always considered these meetings extremely useful both to the minister and to the chiefs, because it gave the chiefs of staff a chance to see the reaction of the ministers, and also because it gave the ministers a chance to question the chiefs of staff. So in that way they would get pretty well the whole feel of a project.

Then the next step was for the cabinet defence committee, to make recommendations to the cabinet, but only after the cabinet had agreed that the project be dealt with by the chiefs. We never started to do anything about it until we got the piece of paper which was an extract of the cabinet minutes, saying that such and such had been approved.

That procedure was the same throughout the four administrations under which I served, and I found it to be a very useful way to deal with military matters.

You did raise the question of NORAD. I gave you the story of the NORAD agreement this morning, and I take responsibility for it. I pointed out the way in which the chiefs of staff of both countries worked out the agreement which had been approved by the United States administration in 1957. However if I

remember correctly the government went to the country sometime about the middle of 1957.

Mr. SMITH: On June 10.

Mr. FOULKES: Before that time we had the papers ready for the administration to deal with the matter. However the administration had a great deal more on its mind than my concern over NORAD. Therefore they decided to leave the matter to be dealt with as the first matter of business when they came back. And I notified my colleagues in the United States concerning that situation, as they were getting very worried, because they had agreed to this project, and it was approved by the U.S. administration.

When the new administration came in, I pleaded with them to deal with the matter with great dispatch. I think the announcement was made in the first week in August. Therefore it was dealt with in the first few days of the new administration.

Mr. WINCH: Did you appear before the defence committee?

Mr. FOULKES: There was no defence committee; no defence committee was set up at that time.

Mr. WINCH: Then with whom did you deal? You said that you and your chiefs of staff would appear before the committee when that happened with NORAD.

Mr. FOULKES: No, because there was no committee set up. The Minister of National Defence took the paper and got it approved. I have no knowledge—and if I had—it would not be wise to reveal it—whether it went to the cabinet or not. But there was no cabinet defence committee set up. Such a committee was set up later, because I do recall that the Arrow was discussed at Cabinet Defence Committee.

Mr. WINCH: Was NORAD agreed to at the same time as the Arrow?

Mr. FOULKES: NORAD was dealt with on August 10. I forget the date when the administration came in.

Mr. LAMBERT: It was June 21.

Mr. WINCH: On this particular point of NORAD, neither you yourself nor the chiefs of staff appeared before any cabinet defence committee.

Mr. FOULKES: The committee was not formed at the time.

Mr. WINCH: From whom did you get instructions?

Mr. FOULKES: We got a cabinet minute in the usual way, as we did for every project.

Mr. WINCH: No inquiries were made by the cabinet defence committee as to the agreement?

Mr. FOULKES: There was no committee and they could not question the chiefs of staff.

Mr. WINCH: It was a one-man decision?

Mr. FOULKES: That is not something I would comment upon.

Mr. LAMBERT: Had it been considered by previous administrations?

Mr. FOULKES: Yes, in a preliminary way.

Mr. LAMBERT: It has been in the pipe line for some considerable time?

Mr. FOULKES: Oh yes.

Mr. WINCH: The Liberals and the Tories have two different interpretations of "pipe lines"!

The CHAIRMAN: Now, Mr. McMillan.

Mr. MCMILLAN: Mr. Chairman, the general referred to some integration of medical services. How much was achieved at that time?

Mr. FOULKES: The medical services are now completely tri-service. There is one man at the head, called the surgeon general yet he wears a naval uniform. However he operates the medical services for all three; and the hospitals are now tri-service. If you should go out to the west coast today you would find the hospitals there are run by somebody from the army, the medical service is completely integrated.

Mr. MCMILLAN: I think you said somewhere in your brief that the army of West Germany was willing or anxious to take over our defensive position.

Mr. FOULKES: I said I think that the Germans are militarily capable and willing to take over this task.

Mr. MCMILLAN: I was wondering; when referring to deterrents, do you think the possession by our troops—and by our troops I mean our troops in NATO—of nuclear arms is vital?

Mr. FOULKES: Are you referring to the possession of nuclear weapons by NATO troops?

Mr. MCMILLAN: Yes.

Mr. FOULKES: Tactical nuclear weapons are part of the deterrent force, of course, but how much they improve the deterrent is a matter of opinion. Those troops are armed at the present time with nuclear weapons such as the Honest John.

Mr. MCMILLAN: You would not agree with General Simonds when he says that our troops should not be armed with nuclear weapons whether the Russians have them or not?

Mr. FOULKES: I hope I am being consistent in this regard, but the stand I have taken is that if we are going to give our forces tasks which require nuclear weapons, then we should provide them with nuclear weapons or we should change the tasks. NATO agreed in 1959 that they would adopt a nuclear strategy, and Canada was a party to that agreement at that particular time. We agreed at that time that our troops would be armed with nuclear weapons.

If we bring our troops out of a forward area and move them into a mobile reserve area, making them portable, they will not have nuclear weapons because they cannot carry them.

Our contribution in my view would be just as important to NATO if we had a portable group rather than leaving the situation as it is today. If we are going to have tasks which involve the use of nuclear weapons we have no alternative but to provide nuclear weapons or change the tasks.

Mr. MCMILLAN: General Foulkes, I was interested in what you had to say in regard to hydrofoil vessels. My understanding is that the proposed hydrofoil vessels will not be ready for testing for two years, and it is difficult to understand how they will operate. I understand when these vessels are foil borne they have a draft of only 7 or 8 feet; is that correct?

Mr. FOULKES: I believe that is correct. I have seen the prototype of the hydrofoil which the D.R.B. developed some years ago, of which this present development is a further stage. There is a great deal of interest in relation to the hydrofoil principle both for commercial and military purposes. We considered the hydrofoil in the earlier stages as being a suitable piece of equipment for getting over areas of water which were mined because this equipment with its foils up would be very useful for landing on hostile beaches. Of course, we do not land on hostile beaches any more, so that potential use has disappeared.

The concerns about the hydrofoil in the maritime role is whether it can stand up to the rough winter weather of the northern Atlantic, which is the area in which Canadian maritime forces have to operate.

Mr. McMILLAN: It is my impression that you have implied or stated that by building up our navy we would add to the deterrent. It is difficult to understand how we would add much deterrent in this regard unless we have a great number of vessels, because of the tremendous size of the ocean, keeping in mind the fact that submarines can fire missiles under water. I understand that the size of the deterrent would depend upon our ability to detect and destroy this type of submarine; is that right?

Mr. FOULKES: I think you must remember, sir, that we are not performing this function alone. We are only making a contribution to the much greater force of the United States which operates on this same part of the Atlantic coast. Our efforts in this regard represent a contribution in our own backyard which should prove to be a very suitable deterrent.

Mr. McMILLAN: Our attacking force must have speed, requiring the use of aircraft and fast vessels in order to detect and destroy the submarines, if they can be detected and destroyed, is that right?

Mr. FOULKES: That is right. I did not wish to get into the present argument about frigates and helicopters, having served with the army and not the navy but I do feel that it is necessary to have another new look at this whole problem, because it is a continuing problem and one which I can foresee will last for a long period of time. It is a field in which Canada can make a considerable contribution, and where we are now making a sizable contribution.

Mr. CHURCHILL: Mr. Chairman, this paper on policy which we have is extremely useful. I should like to ask one or two questions in respect of a specific point which may, on the face of it, seem minor, but which I hope will appear to be of major importance.

At pages 19 and 30 the general has mentioned the armoured personnel carrier. In respect of the questions listed at page 19 by the general, which he says must be answered, he stated that certain decisions should be postponed until those questions have been answered. He makes reference to the Bobcats as well as the frigates, submarines and aircraft. I should like to ask the general whether an immediate decision could be made with regard to the armoured personnel carrier rather than to defer that decision because of the protection it would provide to the infantry, which is a very essential factor in any operation of the army?

Mr. FOULKES: What I had in mind, Mr. Churchill, was the conversion of these forces into air portable forces. I am somewhat worried about a force which would be mechanized, as you have suggested, because of the tremendous airlift which would be required. We would be required to airlift all the Bobcats of a battalion. In view of the fact that only three or four Bobcats can be airlifted at one time by a large aircraft, one can appreciate the cost of such a project.

On the other hand, with a portable force having a parachute element we would not require the Bobcats. One can imagine the fantastic airlift which would be required to move the Bobcats of the infantry and the Bobcats of the artillery and artillery observers. This airlift would also have to move supplies such as food. I have in mind a force such as that mentioned by Captain Groos this morning. In Norway, because of the terrain, Bobcats would be of very little use.

I did not wish to get into a discussion regarding the type of forces to be adopted because of this colossal airlift which would be required. I feel that the expense of such an airlift would negate any inherent advantages in a mechanized force. I feel we should start out providing a small portable force with a parachute element on a much cheaper basis.

I realize that there is a great deal of debate regarding the protection of the infantry. I may be an old fashioned infantry soldier who still believes that the best infantry moves on its feet. I do not think I am alone in this impression. I remember Field Marshal Slimm, who perhaps is one of the greatest infantry soldiers the last war produced, addressing officers in the Elgin theatre after the debacle of Korea. You will remember that the UN forces were driven almost to the sea. Field Marshal Slimm was asked why the retirement of the force was so rapid. Field Marshal Slimm a bit of a wit stated that if you could go into battle with the seat of your pants glued to a seat of a jeep you could come out very fast. He felt that the infantry operates more efficiently when it is on its feet than when it is in some kind of carrier. This whole subject involves, of course, a matter of opinion.

Mr. CHURCHILL: My experience differs from that which you have stated. I feel that the most revolutionary change in respect of infantry tactics was brought about by the development of the armoured personnel carrier. It is my opinion that the infantry suffers the major part of its casualties while moving from a starting line to an objective as a result of machine gun and mortar fire, and that the armoured carrier is the greatest device for saving the lives of infantry men. I should not want to commit the Canadian army to any operation in future except in swamp, jungle, heavy forest or mountainous country without armoured personnel carriers.

Mr. FOULKES: I would agree whole heartedly with that statement. Certainly in the battle of Falaise we would never have been successful had we not had armoured carriers. As I was in the middle of this I know the great service it provided. We did get lifted with armoured carriers over that difficult stretch, but when we wanted to fight we had to get out of carriers and fight on the ground. I am looking at this new role we suggested, where they would be air portable and holding a flank; in that way we might be able to get there much more quickly if we do not have too much to take along. But, if the Canadian brigade is going to stay in its present role I would think they have to have the Bobcat, because in the present role they need it to take up ammunition, bring back the wounded, to use for rations and so on, where the armoured carrier is essential.

The CHAIRMAN: You are next, Mr. Churchill.

Mr. CHURCHILL: Without prolonging the discussion, may I say the battle of Falaise saw the preliminary use of the armoured personnel carrier, which was more highly developed as war progressed. Our unit took into battle 54 battalions of infantry without any casualties resulting from machine gun fire, mortar fire or shell splinters. I would not place the carriers as against the air draft, the paratroops, but I would hope that after originating this in the Canadian army 19 years ago we would have reached the stage where the armoured personnel carrier was an essential part of army equipment. Do you not think yourself that it is rather astonishing training to have infantry still on their feet behind tanks when exercising? I am shocked every time I see it or read about it.

As another example, I could mention the Carpiquet airfield, where the tanks reached the airfield while the infantry was delayed about three days. I wondered about your putting in the Bobcats as a deferred decision.

Then at page 30 you mentioned them again, and you are actually ruling out heavy armour, if I read that paragraph correctly—tanks and armoured carriers. Then the force you visualize is a much more lightly equipped force that would not have the use of armour.

Mr. FOULKES: That is right.

Mr. CHURCHILL: I have just one more question, Mr. Chairman, and it concerns page 24, where we do commit forces to United Nations operations. I always

have wondered about the lack of control of those Canadian forces by Canada. Once we commit them they are completely out of our control. Is this not the case with the forces in the Gaza strip and with our troops in the Congo?

Mr. FOULKES: I can speak better about the forces in Gaza than I can about the Congo because I was not there at that time. But, you are quite right, Mr. Churchill; Canada is scrupulously careful not to put any strings on its forces which are allotted to the United Nations command. When our forces went into Gaza, while I had some discussions with General Burns before they went there, the only provisions which we made and the only instructions which ever went to that force was in regard to the possibility of the force having to be withdrawn. As you know, this was a tricky operation and we were never sure whether one side or the other would drive us into the sea and, therefore, while our forces were under the United Nations for peace keeping operations we still had the responsibility for the security and care of that force. In the case of United Nations authority breaking down in the Gaza strip we did work out with General Burns an evacuation plan which we would put into effect if the United Nations lost control of the situation. As you well know, we had little experience at that time with United Nations operations. The situation was fairly uncertain for several days whether they even would let the forces arrive. That is one of the reasons why we sent that force out in an aircraft carrier; we wanted to have a firm base to which we could evacuate quickly if the Egyptians would not let us in. Those are the only restrictions we have put on the United Nations. But, that is not the case I believe in all nations. Some have restrictions as to what their troops may or may not do.

Mr. CHURCHILL: And we have no power of veto over the use of these forces once they are committed.

Mr. FOULKES: We never have used it.

Mr. CHURCHILL: Do you suggest we should have?

Mr. FOULKES: The only question which ever came up was the question of the security of the forces, and as long as we are in operations where we feel happy about the security of the force then I think we can leave it to the United Nations people. But, as you know it got very tricky in the Congo and some of our forces got mishandled, these are the kind of risks we have to take. It seems to me it makes it very difficult for the United Nations commander if there are a lot of restrictions placed on the use of the force by the powers which contribute them. I would not suggest we should do that, except to make provisions ourselves to look after our force if it is driven out.

Mr. CHURCHILL: But, in our wartime experience in both wars, the commander of the Canadian forces could appeal to his home government if he thought he was assigned a task beyond the capability of his forces, and yet with a United Nations commitment there is no such means of appeal.

Mr. FOULKES: You are quite right. In the last war our commanders in each theatre had that right. For instance, I had the right when I was commanding in Italy to appeal immediately to the government of Canada on any matter that I felt was essential, but I never used that authority except to get beer for the troops and a few things like that. But, in the case of United Nations it is different because we are not there to fight, we are there to assist in policing duties, and one does not expect the situation to get seriously out of hand to the point where the commander would have to appeal to the government.

I believe that the commander of the Canadian contingents with the United Nations forces still has that right. I am perhaps a bit behind, but certainly the commander of the Canadian forces should have that right, if he wants to use it.

Mr. MATHESON: General, at page 24 of your brief you have a paragraph which says:

> Canada has played a part second to no other country in providing military personnel for the U.N. forces and for the international truce commission in Indo-China.

I find this is almost verbatim with what you said in your study, "Canadian Defence Policy in a Nuclear Age", published by the institute of international affairs, 1961. I judge from what you have said that you regard the truce supervisory activities as rather more important than any peace keeping fighting that might be required. Is that correct? I might say that I am coming to this conclusion because I see a difference of emphasis in what you have said today and what, I think, General Simonds left with us the other day, when he seemed to picture our special role as being to provide fighting forces for the United Nations, to be withdrawn out of NATO, when necessary. I do not mean to have too long a preamble here but I notice in your study, "Canadian Defence Policy in a Nuclear Age", you indicate that these international mediatory functions are quite different in kind from the broader ideas of a United Nations army or police force. I take it then that you are picturing a role which is police rather than military in the full sense; is that correct?

Mr. FOULKES: That is correct. I think you will have to give me full marks for consistency. What I said in 1961 I still say today. I do not believe we are ever going to get into another United Nations operation of full scale fighting like that in Korea. I do not see that as possible. If you recall the history of Korea, the action was taken at a time when the Soviet union had withdrawn from United Nations. I do not think the Soviet union will ever give us that chance again, so the chance of ever getting a decision to use a force like that used in Korea is unlikely. The tasks that we will be called upon to carry out will be like those used at Gaza and the operations in the Congo and so on. Actual full scale fighting operations are not, I think, a likelihood. I do not see the times and places where we would be asked to put in forces to fight, as in Korea.

Mr. MATHESON: Then, general, this seems to explain your answers for instance to Mr. Churchill when you indicated an interest in a light mobile force as distinct from a heavier and perhaps more capable military force. However, may I ask this: we had an answer to the government with respect to Canadian participation in peace-keeping and truce-supervisory activities on page 465 of General Simonds' evidence. I see in that list of nine operations in which Canada participated no year in which I think there would be an expenditure for these United Nations operations of more than $2 million. Perhaps I am misreading the figures of the approximate annual cost to Canada, but it would strike me as representing an almost negligible percentage of a $1.6 billion defence budget.

Mr. FOULKES: I do not know who calculated the figures, but the arrangements with United Nations are that the United Nations contributors will be responsible themselves for the pay and allowances. I do not think these figures include pay and allowances. These are out-of-pocket expenses. United Nations also pays the expenses for transportation. So without a clear breakdown of what is being paid by United Nations and what is being left for Canada, it is very difficult to say what these actual operations would cost, and I think these figures may be a little confusing. Certainly Canada does not get back from United Nations certain sums of money for services it renders. There are certain things for which United Nations pays, such as transportation and that kind of thing.

Mr. MATHESON: Then do I conclude, sir, that your recommendation to this committee, thinking in terms not of 1963 but a few years hence, is that our emphasis ought to be in the general direction of mobility so that we could be withdrawn from NATO or any other alliance commitment to a United Nations operation? Is that the main thing we should do armywise and air force and navywise, thinking in terms generally of transport rather than other roles?

Mr. FOULKES: I do not think it necessary to withdraw from NATO. We have a brigade available for NATO in Europe and two brigades at home. We have never needed an even battalion strength, but the same airlift may be borrowed from NATO to lift them to south-east Asia or somewhere else. I think your airlift is the only part of the mobile force that you need to bother with because we have all these facilities here.

Mr. MATHESON: One final question. You have indicated today, and also in a story given in the *Globe* of March 1, 1963, that you would like to see us withdraw from the CF-104 role when it is possible, and perhaps enlarge our transport undertakings. Could you give us some ideas of just how this might be phased? Is this something that happens in a year, two years, five years?

Mr. FOULKES: As you know, there is a current problem now of trying to operate from two bases. We cannot operate with nuclear weapons from the French bases, so someone will have to make a decision. Do we cram all these squadrons on two bases or do we cut down the commitment? It is a matter that will have to be settled by the supreme allied commander and the government representatives.

Furthermore, as I pointed out this morning, this is becoming a very tricky operation because the present short range ballistic missiles can, without any notice, blast those aircraft off those air fields. We suspect they are laid on the air fields now. It is becoming a very precarious job. Therefore I foresee that in the near future we have either to give up this task with fixed wing aircraft and go to something else or persuade the supreme allied commander to get the Europeans to do it with a mobile ballistic missile.

There is a lot of advantage to doing this with a mobile ballistic missile because the maintenance of a ballistic missile does not cost very much. You buy it and leave it; you have to oil it and dust it off once a week, and that is all. However, to operate combat aircraft you have to fly them every week, and when you do operational aircraft you have crashes and everything else. So this job, I believe, can be done more economically and more easily by other means. This role in a few years, whether or not we do anything about it, will become redundant. It is at that stage when we should be prepared for the next role.

Mr. MATHESON: Do you see any other role that might be of use to the Canadians in Europe other than transport?

Mr. FOULKES: I do not see any combat role. This has been very difficult all through peace. Formerly the role we had was high level interceptance. When the high level interceptor role ran out because the air defence of Europe was organized into an integrated air defence system, in which General Norstad had to allow nationals to pretty well have control of their own air space, the Canadian contribution was redundant. General Norstad had a great regard for the R.C.A.F. contribution and he was extremely loath to lose it, so he was quite determined to find another role for the Canadian forces. We were given this strike role, which from the beginning has caused raising of eyebrows because it is the first time Canada has gone into a role that could be interpreted as an offensive role. There have been questions both political and military on this role from the day it was suggested, and now, with fixed wing aircraft, it looks

as though this role will be disappearing. You will recall it is eight years ago since this role was accepted, and you know what happens to modern aircraft in that time.

The CHAIRMAN: Mr. Smith.

Mr. SMITH: As I have been sitting here most of the questions I had have been answered, particularly those on the unification of the services.

General Foulkes, you were the first chairman of the Chiefs of Staff. I am wondering if you would comment on the problem facing the minister when he gets conflicting evidence from the chiefs of the services. What system now exists or what system perhaps should exist to give him a professional evaluation of conflicting claims?

Mr. FOULKES: As I pointed out earlier, in the early stages this is done in the chiefs of staff committee. When the chiefs of staff committee discuss a project we usually try to sort out difficulties of one sort and another, and sometimes one of the chiefs does not agree. If the chiefs of staff do not agree on a project, the chairman has no authority to arbitrate. The chairman's terms of reference give him no authority; he is a co-ordinator and he has to rely on his powers of persuasion and sometimes a bit of bullying to get the chiefs to agree with the proposal or change the proposal so as to reach agreement. If agreement is not reached, the chairman takes the project to the minister and discusses it with the minister, and outlines the objection of the particular chief. If the particular chief wishes, he goes with the chairman while this is being discussed. I found that I usually could get agreement from the chiefs by suggesting that if they did not want to agree I would take it to the minister and then the minister would listen to my advice. So, if they want the right to make the decision themselves, they have to sit there until it is ironed out. Rarely is there that kind of collision of opinion which cannot be solved between the chiefs and the minister. There have been certain times when this could not be agreed to, and there have been times when the minister has not been prepared to take a decision. In that case he takes it to cabinet without a recommendation. I think the service chief is protected because he has the right to go to the minister any time with his point of view.

Mr. SMITH: I was thinking more of whether the minister is being protected.

Mr. FOULKES: He can be protected by his colleagues in the cabinet defence committee where he can take problems and have them explained before his colleagues. They can assist him in making the decision before it is taken to cabinet.

Mr. SMITH: You think the general system of military evaluation is satisfactory?

Mr. FOULKES: I think it is about as satisfactory as you can get it in our governmental system. As I say, in most cases it has worked. Mind you, there is no system that is ideal. There has to be an awful lot of give and take on both sides.

Mr. SMITH: I believe we have a single intelligence service in Canada. I understand that the Americans have air force intelligence, army intelligence and naval intelligence.

Mr. FOULKES: Just a minute; in Canada each service has its own intelligence, but we have a joint intelligence committee which makes the evaluations. In intelligence you have a collecting agency and an evaluation agency. The services collect the intelligence and they exchange intelligence through an agreement which has been in effect for a long time with their colleagues in the United States and in the United Kingdom. That intelligence then comes up to the joint intelligence committee where it is evaluated. It is that evaluated in-

telligence which is passed on to the chiefs and the government departments which require intelligence.

Mr. SMITH: The United States air force intelligence, for example, deals directly with the R.C.A.F. intelligence.

Mr. FOULKES: Well, intelligence is exchanged on several levels. It is exchanged on the level of the services, and exchanged again on the intelligence committees. We have a complete exchange in respect of all matters which are relevant. I do not wish to give the impression that all United States intelligence is available to us; that is not the case. However, on matters which are relevant to us and matters we are jointly working on, there is exchange of intelligence.

Mr. SMITH: You mentioned a shortage of signallers at the time of the Congo crisis. I believe it is widely known that they scraped everywhere in an effort to find signallers. Have any steps been taken in the training of signallers which are common to all arms; is there any arrangement between the three services so that up to a certain level a navy signaller, for example, could come and take over army signals?

Mr. FOULKES: As you know we did have a joint communication system across Canada. For some unknown reason that broke down, and I believe it is now back on to separate service channels.

Mr. SMITH: To your knowledge—and I am speaking at a lower level—is there any common training school?

Mr. FOULKES: There are no common training schools of which I know. This is one thing you would be able to do if you had integration.

Mr. SMITH: Speaking of integration, I will go right to the lowest branch. Why has there not been any more effective consolidation of the services that are necessary to maintain the armed forces? I will use a very homey example. At national defence headquarters we have a chief of civilian personnel for the navy; we have one for the air force and one for the army. When we go up to Camp Borden, which is an army school camp substantially, and an air force school camp substantially, with no flying or very little flying, we have a civilian personnel officer army and a civilian personnel officer air force. They hire separately; they sometimes interpret the rules differently. Why were not more effective steps taken to consolidate such things? The plumbers do the same plumbing; yet they go on different seniority lists. It is the same all the way through.

Mr. FOULKES: I think you are fighting my battle of integration very well. I agree that that kind of duplication is what should be concerning people in your positions in respect of voting the taxpayers' money for duplication and triplication in these matters. I am surprised that happens on the civil side because of the unified civil administration; there is one deputy minister.

Mr. SMITH: At Camp Borden I have been fighting it unsuccessfully for seven years.

The Caribou airplane generally is reputed to be a very fine airplane and it is Canadian made. If its use were extended, do you see a role for it in the forces in Europe as they are now?

Mr. FOULKES: As we are organized now our supplies and so on mainly come from the British; we use their supply system. Supply by air would be on a much broader basis than that. As General Simonds said the other day, the Caribou was specially designed by the Canadian army, and General Simonds was the guiding light in pushing the Caribou for use by the army; but it was looked at from the viewpoint that there would be a division in Europe and then the Caribou would really get on its own. That kind of air transport is frightfully expensive; but it is the ideal thing for small forces operating by themselves.

However, if you can send up the rations by ordinary means, by truck and so on, it is much cheaper. In operations of small forces in the field it is the kind of thing one always hopes for.

Mr. SMITH: Would you say its use is an army or air force responsibility?

Mr. FOULKES: Of course I would integrate the services and it would not make any difference. I do not think it really makes any difference who flies the aircraft. I think, however, it has been agreed between the chiefs of staff that the provision of the aircraft and the training of the pilots would be by the air force. So, whether they are air force men or army men trained by the air force, it would not make much difference.

Mr. SMITH: Suppose we found ourselves in a position where sea transport to supply our forces was required, what would we do in that event?

Mr. FOULKES: This is something that we do not visualize very much. I cannot see the kind of operation in the next few years where we would be relying on sea transport. We can lift so much by air so much quicker that I doubt whether we would want to get involved in that type of movement unless there was a long term campaign. I think one would requisition shipping to provide this.

Mr. SMITH: From where?

Mr. FOULKES: Civilian sources.

Mr. SMITH: I have a final question, General Foulkes.

I think you answered it. Our adoption of the strike role with the NATO forces came not as a result of a request from General Norstad. Is that correct?

Mr. FOULKES: The original suggestion was made by General Norstad and, as you know, in the NATO procedure the supreme allied commanders put their requests every year through the council. This request comes to the nations concerned through the annual review. That is the way they arrive officially to the government, in the annual review. However, we certainly knew a lot about it before that because General Norstad discussed these matters very fully with the officials and with the ministers before it ever appeared in the annual review, which is what you might call the NATO request list.

Mr. SMITH: When you said you would requisition shipping from the civilian sources if it became necessary, it would be the national merchant ships which you would requisition. Is that right?

Mr. FOULKES: I do not know how much national shipping we have at the present time.

Mr. SMITH: We have not got any.

Mr. FOULKES: There is a NATO shipping board which makes these allocations of shipping after the nations turn their shipping over to the NATO shipping board. Up to the present no NATO nation has turned any of its shipping over nor has it even promised any of its shipping to this board that is supposed to allocate it. I have not put too much weight on securing shipping because the organization that has to allot it has not yet been given any facilities.

Mr. SMITH: And we do not have anything of our own in Canada.

Mr. LANIEL: Mr. Chairman, my first question might have been asked and answered this morning. I do not know because I was called away from the committee. When we look at the conclusion of your brief on page 30 we see that you say:

> There are strong indications of a movement away from making preparations to fight a major war in Europe and tending towards the more flexible and mobile roles of preventing wars from breaking out in the NATO area.

Could we deduct from this that in your mind the possibility of the next war being a conventional one instead of an atomic one is very strong?

The CHAIRMAN: This question was asked and answered this morning at length.

Mr. LANIEL: I see that it says here in your brief that we should let the different countries in Europe take the responsibility of defending their own soil. Do you consider that there would be a danger of creating in this way a strong military Germany again?

Mr. FOULKES: As I pointed out this morning, in 1969, Germany will become completely free from any restrictions which were agreed on its acceptance into NATO. Therefore, no matter what we do, the Germans will have a free hand in 1969. As we said earlier, what we would be doing in the seventies would have to take into account that the Germans would have a fairly free hand. As you all know, when Germany was brought into NATO, she was brought in as an equal partner, and I would think we must treat Germany that way. There is no doubt that the Germans will most likely want to raise more forces after 1969.

Mr. LANIEL: On page 10 you say that Canadian forces should be prepared to supply an airlift and that Canadian forces would be concentrated in an enclave in Europe. If you compare this part of your brief with what is said on page 11 about the NATO forces studying the possibility of stockpiling, this does not seem to jibe with your previous statement. On page 11 it says that this problem was abandoned because of the impossibility of finding an area in which to do such stockpiling. How could they find an available area to place troops in an enclave as you said?

Mr. FOULKES: What I suggested there was that when a brigade comes out in its forward role, if suitable arrangements could be made with the Germans for them to take over our present facilities in Soest—there is quite a big group of buildings and facilities there—and they would provide us with similar facilities in the south. It would then be possible to put all the Canadians into one enclave. The air division and the army would then live together, and this would be much cheaper than the way it is now where each of them has a separate organization with schools and amenities that go with a separate organization. That was why I included that statement of putting them into one enclave.

Mr. LANIEL: You speak of the integration of the three armed forces as being more effective. However, when you speak of the defence of North America would there be an advantage in the complete integration of forces, whether they are American or Canadian?

Mr. FOULKES: I do not understand your question.

Mr. LANIEL: Could the defences under NORAD or the defence of North America have been considered in the same manner as the movement of our forces under United Nations command, and would they be free for action without having to refer to the military authorities of the two different countries?

Mr. FOULKES: But you see, NORAD is an entirely different set-up. Instructions to NORAD are given by the chiefs of staff of both countries. Any instructions, for instance, going to the commander in chief of NORAD, whether they originate with the United States chief of staff or the Canadian chief of staff, are sent at the same time by both of them. They both have to agree and they both send messages at exactly the same time to the commander in NORAD, so that the control of that force is equally shared by Canada and the United States. However, in the case of forces going to the United Nations, once those forces go under the United Nations command we try not to interfere with them

at all because they are there for quite a different job. They are there for a policing activity under the United Nations. We have to assume that the United Nations will take the necessary measures to secure our forces. We will not have to take steps for their security. If the situation blows up, then, of course, Canada may have to intervene to rescue its forces. However, that has not happened yet and one hopes that as the United Nations activities go on this will become a habit of allowing United Nations forces to carry out the United Nations instructions.

Mr. LANIEL: Having been a military person for so many years what are your views on mutual disarmament? Maybe you answered this question this morning, but could you tell me whether you believe that we can get peace by mutually disarming?

Mr. FOULKES: I do not think you are going to get much progress until you get some kind of trust between the two belligerents.

Mr. LANIEL: Yes, but that is the problem.

Mr. FOULKES: You might be able to get them in certain fields to agree to the abolition of certain types of weapons, just as they have agreed not to put weapons on satellites, which is a step in that direction. However, I think that is the only way in which you can get that far because, as you know, the Soviet union will not agree to inspection and the West has not reached the stage where the Soviet union can be trusted to carry out the things it promises to carry out. The United States and the Soviet union watch each other carefully to ensure that one does not get an advantage over the other one. That is the difficulty with disarmament, that each one is afraid that if a step is taken they may lose the advantage. I think we are living today in a world in which neither side wants to fight, both of them knowing what the results of a war would be. That will be the position in which we will be living for some years.

Mr. LANIEL: Do you think the Pacific threat that you spoke about would increase the threat of war or would it, on the other hand, bring Russia closer to us and give them a better understanding of us?

Mr. FOULKES: I mentioned in my paper the likelihood of increased threat in the Pacific on the basis that China, when it settles its present troubles which are very serious, there is a possibility of the Chinese becoming a Maritime power, may then enter into the Pacific so that the threat in the Pacific would become greater.

Mr. BREWIN: Mr. Chairman, I see the time is getting late and our energies are dwindling so I will be brief. General Foulkes, it seems to me that in your presentation you put a great deal of emphasis on the high priority of combatting missile launching nuclear submarines. Am I right? I think you mentioned it several times. I wanted to ask you about that, I mean the present that you described in your submission, when you said the present was a conglomeration of carrier and tracker aircraft and so on. I think you suggest it is not effective in dealing with that particular threat.

Mr. FOULKES: I think the language I used was that I have some doubts that it is the best arrangement, on the basis that to my best knowledge and belief—this may have happened over the last four years since I was released—I have no knowledge that this has been studied jointly to see whether it is the best organization. We got into the present fix when the North Alantic ocean group was formed, when our navy and air force committed all our ships and all the aircraft we had, in case of an emergency. That is what established the mystic number you hear about every once in a while as NATO commitments; those are based on the fact that all our ships and aircraft were promised to NATO in 1950.

As far as I know nobody has ever taken the trouble to have a study carried out to see if we should have more or less aircraft, more ships, or more tracker aircraft. These are the things we had in 1950 and what we keep doing is to replace them, one for one with something better.

Mr. BREWIN: I follow that, but I was dealing with a slightly different point. That was the question of nuclear submarines prepared to launch missiles; and I thought you suggested that we should try to concentrate on the problems of trying to meet that threat.

Mr. FOULKES: This is a continuing threat. It will last a long, long time in my view, and if you can deal with a nuclear submarine, then you can deal just as easily with a conventional submarine.

Mr. BREWIN: On page 128 Vice-Admiral Rayner, when this was put to him, said it was very difficult, and that any naval strategist would concede that about the only defence against a missile launched from a submarine is the same as that in connection with the missile threat in general, namely, retaliation. I would take the vice-admiral's comment on it when he said that we have yet to produce a defence against the nuclear missile submarine. So if Vice-Admiral Rayner is right, what we have so far is not an answer to that threat.

Mr. FOULKES: That is exactly what I said this morning, sir, that we should have a study made to find something better. That is why we want a study.

Mr. BREWIN: This would involve research in the future, I suggest, or maybe existing research moving towards it. We have not got a system and we do not have one now to deal with it.

Mr. FOULKES: You will recall the admiral as saying that his present facilities were adequate to deal with the conventional submarine. I maintain we should start a study to find out what are suitable facilities to cope with the nuclear submarine, because the nuclear submarine is a continuing threat, and one which is going to stay with us. Therefore we must find an answer to it, if an answer is to be found.

Mr. BREWIN: The admiral set a very high priority, as given in the United States and in the Royal Navy, to that particular effort to find an answer to that question. Does it not appear conceivable to you that the situation might turn out to be the same as you described in regard to the I.C.B.M.'s? There may very well never be an answer to that particular threat. The attack may have outdistanced the defence in that field.

Mr. FOULKES: We must be clear about one thing: at the present time there is no defence against a missile once it is launched. Those four words "once it is launched" are the key.

The United States has a plan which you all know about for retaliating against missile launching pads. If it can retaliate against those launching pads and destroy them, then they cannot fire any more missiles. But such is not the case with the submarine, because the launching platform in that case is mobile. Therefore there is no use to retaliate against a known or suspected submarine site, because it does not stay in one place. All that can be done is to hunt the submarine and destroy it before it launches its missiles. A great many steps have been taken in the direction of locating the submarine. A Canadian device known as the variable depth sonar has been found very useful in finding nuclear submarines, and moreover there are disadvantages to nuclear submarines. They happen to make more noise than do the conventional submerged submarines running on batteries. So there are better chances of picking them up. It is more difficult to hold the nuclear submarine, because it can travel very fast. Therefore it is more elusive.

But I would not say that there is no way to find devices to deal with nuclear submarines. That is why I suggest we should have a full study; and I suggest that if our present forces are of no use against this threat, then why do we operate our forces? Why not bring them home and save money.

Mr. BREWIN: That is a very good question. And there is one other thing: on page one of your brief you said:

> All our defence efforts and priorities must be directed towards this aim of the prevention of a major war . . . .

Is this emphasis upon dealing with nuclear submarines and missile threats consistent with putting all our efforts towards the prevention of a nuclear war, or is it not more an answer to war once it has started?

Mr. FOULKES: If we can convince the Soviet union that we can deal with its submarines, I am sure it will be a deterrent to the Soviet union from starting a war. That is what I mean by deterrent.

Mr. BREWIN: One other question; in an article you wrote a year ago for a Vancouver paper, you borrowed the words from a pundit to say that Canada by reason of the reduction in the number of tons available for equipment has the best paid, the best dressed, and the poorest equipped force in the west. That may be rather picturesque language, but are you still saying that?

Mr. FOULKES: I was thinking that if this threat continues—is that the quotation you read?

Mr. BREWIN: Yes.

Mr. FOULKES: If this trend continues. I think this morning I pointed out to you that of the total defence appropriation 80 per cent is used for pay and allowances, and operating costs, leaving only 20 per cent for equipment. So every time you raise the pay of the soldiery, a little less is available for equipment.

We can say that unless the defence appropriation goes up, that there will be less and less money to spend for equipment.

Mr. BREWIN: Could you not cut down your commitments and reduce cuts now?

Mr. FOULKES: What you have to do to keep your present commitments is to start to reduce them.

I pointed out today that with our present commitments we must begin to reduce these costs.

These costs studies have been of concern to the department for many years. This is not something new. This is an old struggle. We have now reached the stage at which we will have very little, something in the order of $300 million available. The cost of all military equipment has multiplied. We must pay $10 million for a transport today which cost $1 million during the 1950's. We do not know where this whole situation will end if things continue in the present way.

The CHAIRMAN: Thank you very much.

Mr. LAMBERT: Mr. Chairman, I should like to ask one or two questions. First of all, in reply to Mr. Matheson and Mr. Smith, I believe you mentioned the matter of destruction concerning the strike reconnaissance role. At the time this role was assumed by Canada was there knowledge that the short range ballistic missile would be effective and, if so, was this decision accepted by the government on the advice of the chiefs of staff?

Mr. FOULKES: I do not ever recall a decision being made by the government except on the recommendation of the chiefs of staff. I am sure this was the case in respect of the subject you have mentioned.

Mr. LAMBERT: Were the chiefs of staff aware of the effect of the short range ballistic missile to the extent envisaged today?

Mr. FOULKES: The short range ballistic missile was then coming into being and at the time this case was presented to the government I am sure we discussed the subject along with the possibilities of vertical take-off aircraft which were coming into the picture. However, the point in respect of ballistic missiles which was of concern at that time was relative to the difficulty of operating ballistic missiles from European bases. This was one of the difficult situations.

The first time information in this regard would be placed before the Diefenbaker government would be in 1957 and the decision was made in June of 1959. It was during that time period that the decision was made. I do not know whether there were other papers in this regard placed before that administration but the additional threat created by the development of the ballistic missile has occurred within the last six or seven years, with the greater portion being developed during the last two years.

Mr. LAMBERT: Is it fair to say that in spite of this ballistic threat there was still advice given to the government regarding the adoption of the strike reconnaissance role?

Mr. FOULKES: I would think that to be the case, yes.

Mr. LAMBERT: My last question has relation to a statement made by Air Marshal Dunlap as it appears on page 163 of the Proceedings and Evidence. Air Marshal Dunlap said:

> Although the threat from ballistic missiles is already significant, and is increasing, it has developed much less rapidly than was expected a few years ago. Consequently the Soviet bomber force will continue to be the greater threat for several years to come, and will remain a serious threat even after it is surpassed in magnitude by the missile threat.

Do you find these words reconcilable or in accordance with your views as expressed at page 21 of this brief where you state:

> As the threat of the bomber recedes and the ICBM becomes the major delivery system of the megaton weapon, less and less bomber defenses will be needed. However, as long as the Soviet Union possess a bomber force, 'in operation', the system should be kept intact but the costs should be progressively reduced.

I am concerned at this time in regard to the time element in respect of which both yourself and the chief of air staff are appreciating the continuing bomber threat.

Mr. FOULKES: Of course what we are trying to do is estimate when the Soviet union will abandon its bomber force. We are not concerned with our estimate of when the United States will stop using bombers. This is something, as I have explained to you, which involves opinion as much as anything else. We do know that the Soviet union still operates bombers, and as long as they have them in operation we must assume that they will use them. This situation adds to the difficulties of making defence decisions. The whole situation involves opinion.

I think I used the words, "As the threat recedes then, of course, the I.C.B.M. becomes the major system". I purposely refrained from mentioning a date because of the difference in opinion.

It may well be that the economic conditions in the Soviet union are restricting their further production of intercontinental ballistic missiles. They may well be taking a chance and relying on their bombers, but as long as they have these bombers in operation they can be used for an attack. If we remove our

system, then, of course, the Soviet union will not have to use I.C.B.M.'s because their bombers will be just as invulnerable as are the I.C.B.M.'s and much cheaper.

Mr. LAMBERT: You do agree that the time element is very important in relation to deciding when to phase out one type of defence and replace it with a defence system against what is considered to be the major threat?

Mr. FOULKES: I do not think you are quite right in that statement because there is no system which we are going to put into effect against the I.C.B.M. threat. All we are doing is keeping our bomber defence system, but running it down.

I think I read to you this morning a statement which indicated that the United States has deferred siting its intercontinental ballistic missile defences. I suggest that even when the United States succeeds in producing some kind of intercontinental ballistic missile defence it will be far too expensive to operate in Canada. Some years ago I saw figures in regard to the cost of such a defence system, and they were absolutely fantastic.

This system involves a point defence and the defences must be established around each city. Therefore I am sure that the cost of doing so, unless there is some great change, will be fantastic, and we will not be able to afford such a system.

All we are doing in Canada at the present time is running down our bomber defences. I am concerned that the bomber defence are constantly reduced we should be running down our training establishments which eat up a great deal of manpower. I suggest this should be reduced as the threat disappears.

Mr. GRANGER: General, you made reference to the unification of Germany. Would you care to look into the future and comment in this regard?

Mr. FOULKES: I do not think that the unification of Germany will take place for some time. I was going to suggest that it probably would not take place within our lifetime, but I hope it will.

As you know, Mr. Khrushchev on many occasions has made it quite plain that he will never agree to the unification of Germany unless it becomes a communist state. He made this particularly clear to Mr. Pearson in 1956 when Mr. Pearson, as you will recall, stayed with Mr. Khrushchev in the Crimea. At that time he used words to the effect that he did not think that we would be foolish enough to believe that he would allow 17 million people on his side of the barrier to join the West Germans against them.

Considering that stand, I am sure it will be a long time before Germany is unified unless the West Germans, and I think this is far off, agree to some kind of disarmed Germany, agreeing unification on terms suitable to the Soviet union. I do not see this happening in either manner for some time in the future. Certainly we all hope that the West Germans will not decide to do something about this situation by themselves.

Mr. LAMBERT: Mr. Chairman, if we have completed our questioning of the general, I am sure all members of the committee wish to thank General Foulkes for a very informative and interesting presentation. We are indeed indebted to him in this regard.

Some Hon. MEMBERS: Hear, hear.

Mr. FOULKES: Mr. Chairman, I should like to thank the members of this committee for the very courteous and considerate treatment they have afforded me today. May I wish you well in your further studies of this very intriguing

but difficult subject, so that there will be established in the House of Commons the nucleus of an informed and considered opinion on this tricky problem of defence in respect of which there are no straightforward and easy answers.

Thank you Mr. Chairman.

The CHAIRMAN: The committee will stand adjourned until Thursday morning at 10.30.

APPENDIX "A"

DEPARTMENT OF NATIONAL DEFENCE

OFFICE OF
THE CHIEF OF THE NAVAL STAFF
OTTAWA
21 October, 1963.

Dear Mr. Innes:

Reference Minutes of Proceedings and Evidence No. 13 of the Special Committee on Defence, page 420 and the Honourable Gordon Churchill's request, I have attached a return listing the ships and the number of days they had spent at sea over the period of a year.

It will be noted that my guess of about two-thirds of the time spent at sea is high. It should have been about one-third for ships who were not undergoing refit during the period. I was confusing the average figure of ship availability for ships not in refit, with the actual number of days ships have been spending at sea.

I have also included the number of days away from home port, which of course includes the days at sea, to give some idea of the length of time a sailor is spending away from his base.

Yours sincerely,
(Sgd.) H. S. Rayner,
Vice-Admiral, RCN.

Mr. E. W. Innes,
Clerk of the Special Committee on Defence,
West Block,
Ottawa, Ontario.

DAYS SPENT AT SEA BY RCN SHIPS
1 August 62–31 July 63

Name	Type	Days in commission	Days at sea	Days in harbour	Days away from home port	Remarks
Bonaventure	Aircraft Carrier	365	91	274	215	Docking at Lauzon Aug 62. Refit at St. John, N.B. Jan–Apr 63
Algonquin	Destroyer Escort	365	79	286	188	Refit at Montreal from 9 Jul–23 Nov 62
Nootka	Destroyer Escort	365	121	244	178	
Haida	Destroyer Escort	365	69	296	119	Refit at Halifax 16 Apr 62–Feb 63
Huron	Destroyer Escort	273	91	182	118	Paid off 30 Apr 63
Iroquois	Destroyer Escort	77	31	46	42	Paid off 16 Oct 62
Crescent	Destroyer Escort	365	132	233	151	Refit at Lauzon 15 Jul–6 Dec 1963
Athabaskan	Destroyer Escort	365	58	307	238	Refit at Sorel from Nov 62–May 63
Sioux	Destroyer Escort	365	91	274	147	
Cayuga	Destroyer Escort	365	124	241	153	
Micmac	Destroyer Escort	365	114	251	143	
Gatineau	Destroyer Escort	365	133	232	167	
Restigouche	Destroyer Escort	365	65	300	69	Refit at Halifax from Apr–Sept 63
St Croix	Destroyer Escort	365	151	214	182	
Kootenay	Destroyer Escort	365	139	226	170	
Terra Nova	Destroyer Escort	365	142	223	173	
Chaudiere	Destroyer Escort	365	108	257	222	Refit at Halifax from 12 Nov 62–9 Mar 63
Columbia	Destroyer Escort	365	112	253	139	Refit at Halifax from Apr–Sep 1962. Noise reduction trials.
Margaree	Destroyer Escort	365	128	237	153	Refit at Esquimalt from Oct 62 to Jan 63

DAYS SPENT AT SEA BY RCN SHIPS (*Concluded*)
1 August 62–31 July 63

Name	Type	Days in commission	Days at sea	Days in harbour	Days away from home port	Remarks
Ottawa	Destroyer Escort	297	79	218	87	Refit at Esquimalt Mar–May 63. Paid off for conversion on 24 May 63
Saguenay	Destroyer Escort	365	112	253	143	Refit at Esquimalt from Jul–Aug 63
Assiniboine	Destroyer Escort	32	0	32	0	Commissioned 28 June 63
St Laurent	Destroyer Escort	87	9	76	9	Paid off for conversion on 26 Oct 62
Fraser	Destroyer Escort	365	110	255	128	Refit at Esquimalt from Feb–Apr 63
Skeena	Destroyer Escort	365	154	211	179	Refit at Esquimalt from Apr–Jul 62
Mackenzie	Destroyer Escort	299	123	176	166	Commissioned 6 Oct 62
Saskatchewan	Destroyer Escort	165	78	87	114	Commissioned 16 Feb 63
Yukon	Destroyer Escort	67	32	35	40	Commissioned 25 May 63
Fort Erie	Frigate	365	131	234	166	
Outremont	Frigate	365	63	302	139	Refit at Sydney from Mar–July 63
Lanark	Frigate	365	119	246	221	Refit at Sydney from Jul–Oct 62
Victoriaville	Frigate	365	99	266	151	
Inch Arran	Frigate	365	109	256	167	
Cap de la Madeleine	Frigate	365	80	285	185	Refit at Sydney from Oct 62–Mar 63
Lauzon	Frigate	297	75	222	82	Paid off 24 May 63
Buckingham	Frigate	365	136	229	156	
La Hulloise	Frigate	365	115	250	157	Refit at Sydney from Jul–Dec 63
Swansea	Frigate	365	134	231	141	
Jonquiere	Frigate	365	143	222	172	

Sussexvale	Frigate	365	135	230	162	Refit at Esquimalt from Dec 62–Feb 63
Antigonish	Frigate	365	118	247	143	Refit at Esquimalt from Jan–Apr 63
New Waterford	Frigate	365	133	232	168	
Stettler	Frigate	365	146	219	174	Refit at Esquimalt from Dec 62–Feb 63
Beacon Hill	Frigate	365	136	229	161	
New Glasgow	Frigate	365	133	232	159	
Ste Therese	Frigate	365	131	234	184	Refit at Esquimalt from Sep–Nov 62
Resolute	Minesweeper	365	114	251	127	
Thunder	Minesweeper	365	84	281	95	Refit at Sydney June–Aug 63
Chignecto	Minesweeper	365	94	271	116	
Quinte	Minesweeper	365	94	271	116	Refit at Liverpool, N.S. from June–Aug 63
Chaleur	Minesweeper	365	99	266	121	Refit at Pictou, N.S. June–July 63
Fundy	Minesweeper	365	97	268	132	
Fortune	Minesweeper	365	110	255	133	
Miramichi	Minesweeper	365	100	265	115	Refit at Esquimalt from Mar–May 63
Cowichan	Minesweeper	365	113	252	131	Refit at Victoria from Mar–May 63
James Bay	Minesweeper	365	114	251	135	
Grilse	Submarine	365	141	224	160	

NOTE: The days in harbour include for ships on the East Coast a 90 working day period for self-maintenance and on the West Coast a 60 working day period for self-maintenance in addition to refits where noted.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 16

THURSDAY, OCTOBER 24, 1963

WITNESS:

Mr. John Gellner, DFC, Toronto, Ontario.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29559-2—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

MINUTES OF PROCEEDINGS

THURSDAY, October 24, 1963.
(22)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), MacInnis, MacLean, MacRae, McMillan, Patterson, Sauvé, Smith, Temple and Winch,—(21).

In attendance: Mr. John Gellner, DFC, Toronto, Ontario. *Also* A Parliamentary Simultaneous Interpreter and interpreting.

The Chairman mentioned that this Committee meeting was the first instance in which a Simultaneous Interpretation System was used in a Select Committee of the House.

Mr. John Gellner was called; he read a short prepared statement and was questioned thereon.

And the examination continuing, at 12:25 p.m. the Committee adjourned until 4:00 p.m. today.

AFTERNOON SITTING
(23)

The Special Committee on Defence resumed at 4:25 p.m., the Chairman Mr. Maurice Sauvé, presiding.

Members present: Messrs. Béchard, Brewin, Churchill, Deachman, Granger, Groos, Lambert, MacInnis, MacRae, Patterson, Sauvé, Smith, Temple and Winch,—(14).

In attendance: Same as at morning sitting.

The examination of Mr. Gellner was resumed and concluded.

Mr. Lambert, on behalf of the Committee, thanked the witness for his contribution, and he was permitted to retire.

At 5:55 p.m. the Committee adjourned until 10:30 a.m. Tuesday, October 29, 1963.

E. W. Innes,
Clerk of the Committee.

29559-2—1½

EVIDENCE

THURSDAY, October 24, 1963
10.30 a.m.

The CHAIRMAN: Gentlemen, we now have a quorum.

Mr. WINCH: Mr. Chairman, before you touch that control board I want to see your union card or else I am going to ask for a trusteeship.

The CHAIRMAN: I am not touching anything. I do not know what it is for.

Gentlemen, we are experimenting this morning with a simultaneous interpretation system. You might have some problems or difficulties. If I make any signs to you to stop talking or to wait, please do so because, whenever someone speaks in French, the Reporter will have to switch to the English interpretation of the French. I think it would be better all around if you would all talk a little more slowly.

This morning we have with us Mr. John Gellner, who is known to you. He has a statement which is now being distributed. He will read that statement and we will follow the normal procedure.

Mr. DEACHMAN: I wonder if either now or after this submission is made we could have M. Gellner introduced more fully. I think members of this committee, certainly I, would like to know his background and interest in the problem.

The CHAIRMAN: Mr. Gellner will do it himself before he starts reading his submission.

Mr. John GELLNER: Mr. Chairman, members of the committee, I will start off with my *curriculum vitae*. I come from Czechoslovakia. I came to Canada in October 1939, enlisted in the R.C.A.F, and was an R.C.A.F. officer until the fall of 1958. I was retired to pension with the rank of wing commander. I am a director of a publishing house. I occasionally write and lecture on military affairs. My qualifications, such as they are, apart from the fact that in the Czechoslovakian army and in the R.C.A.F. I served altogether for 20 years in the armed forces, mainly come from a private interest, reading and study.

Mr. SMITH: When you were in the R.C.A.F., you were a pilot?

Mr. GELLNER: Yes.

Mr. SMITH: And were you decorated?

Mr. GELLNER: I have the D.F.C.

First, let me say that I count it as a great honour to be called before this committee, and that I appreciate having this opportunity of making what contribution I can to your important work.

I am, of course, prepared to answer to the best of my ability any questions which you may wish to put to me. May I be permitted, however, to draw your particular attention to an area which this committee has not yet begun to explore in depth, yet is fundamental to any consideration of the Canadian military establishment: the complex of questions relating to the purpose of the Canadian defence effort and to the direction which the latter must take to achieve that purpose.

The trouble, it seems to me, has always been that the Canadian defence establishment has been looked upon as merely an auxiliary that had as its main—perhaps its only significant—task the reinforcing of the military efforts

of senior partners, the United Kingdom's at first, and later the United States. I am saying this deliberately, although, on the surface, we now appear to be influenced by NATO policies more than by U.S. policies. In fact, in NATO too, we have been acting as a second to the United States as the principal. We have supported American military policies more than allied military policies.

The consequence of this basic outlook on the function of the Canadian defence establishment has been that we have, so far, not developed a national defence policy. I would not like this to be understood as if I advocated a military policy which would take no account of the needs of the alliances of which Canada is a member. What I want to say is that the Canadian defence effort must be tailored, first of all, to Canadian national objectives—of which support of allies and of the United Nations forms a part. In other words: instead of starting off with a military requirement set by our principals, and then devising the means of fulfilling it in terms of manpower and material, we should begin with the definition of a Canadian national objective that requires a backing of force, and then produce the force that can best do the job. I submit, that unless we do it this way, we will never be able to have a long-range military (and particularly, military procurement) policy that will not be subject to recurrent, fitful stops and starts.

Canada is a country which is peace-loving and democratic, and whose reasonable aspirations have been more than satisfied. Therefore, the Canadian military establishment can have as its purpose only to put a backing of force behind national objectives which themselves are directed toward the maintenance of peace, and of stability and prosperity in the world.

Consequently, the Canadian military establishment has four main tasks:

To keep inviolate the national territory, the sea approaches to it, and the air space above it.

In conjunction—

—and I would like to emphasize the word "conjunction", not merely following—

—with Canada's allies, to act generally toward the deterrence of war.

In conjunction with Canada's allies, to fortify the security of the whole of the free world.

To support the peace preservation activities of the United Nations.

I will be glad to give my views in detail on what I believe we need, in men, matériel, and organization, to fulfil the above mentioned tasks, as far as this is at all in our power. Here, I would like to say only that in determining what Canada needs militarily, and what it can do without, one must start from a clear concept of the kinds of war which we can help to deter, and which we may have to, and will be able to, fight if deterrence fails. There must be, apart from a national defence policy, a military doctrine from which military planning must flow. This, too, has been largely missing in Canadian defence up to now.

Questions like,

Do nuclear weapons deter anything but nuclear war?

Can a nuclear war, once it has started, be limited?

Can such a war be actually fought (in the sense of conducting tactical operations in the course of it)?,

must be answered before one can speak of one type of organization being superior, as far as Canadian needs are concerned, to another, or one weapons system being better than the next.

To summarize, it is my belief that it would be desirable to direct attention first of all to the basic issues of the purpose and of the possibilities of Canadian defence. To discuss the excellence, or otherwise, of a particular weapon or the competence of certain senior officers, is perhaps useful in that it allows one to gauge the quality of the professional advice which the

government is getting. It does not, however, go to the crux of the problem which lies in finding valid answers to these two basic questions:

What military force does Canada need to back its national objectives?
How can this kind of military force be obtained most effectively?

If I may be permitted, Mr. Chairman, I should like to add a footnote here which is prompted by something that General Foulkes said in his testimony before this committee, because it illustrates the main point I have tried to make in this brief opening statement.

In discussing the role of the Canadian air division in Europe, that is its role as a strike reconnaissance force, as you are aware, he emphasizes, and I quote: "The uncertainty regarding the feasibility of this new role". The fact that General Foulkes was himself the principal military adviser to the government at the time this decision was made to accept a strike reconnaissance role is perhaps unimportant. He must have considered that role feasible then.

I cannot conceive that any Canadian government would make such a decision without consulting its military adviser. He is uncertain now but a man's opinion can change.

The real point is that there was not then and is not now, at least yet, a yardstick against which to measure a proposal such as that to convert the air division to a strike reconnaissance role, because there is no Canadian strategic concept underlying Canadian military policy.

The decision to accept such a role has cost us well over $500 million and as we are now saddled with it, there is still more expenditure to come.

There are quite a number of us who considered this to be a wrong decision at the time it was made and have said so. It's architects now seem to be dubious. If it was indeed a wrong decision then the fault lay in the lack of fundamental policy acting as a sure guide.

Mr. LAMBERT: Mr. Chairman, to start off I would suggest that we may best follow Mr. Gellner's argument by directing our observations in sequence toward those questions he has raised in his brief. I should like to direct my first questions to the second paragraph in his brief where he makes reference to the complex of questions relating to the purpose of the Canadian defence effort and to the direction which the latter must take to achieve that purpose. What do you conceive to be the purposes of the Canadian defence effort?

Mr. GELLNER: I think that a country like Canada cannot really be defended in the old sense, There is no particular need of defending it in that old sense of manning the borders and repelling invaders because I do not believe that North America can be attacked in any other way than through nuclear war, where tactical operations would not be possible. On the other hand, I think we are a country which need not defend its borders in a conventional sense; however, we still need a military force for two principal reasons. First, we are paying our membership dues through them in the alliances which are important to us and, secondly, we are buying influence through providing military forces. If we want to have influence we have to behave like a country which can exercise influence. We are in a unique position in that we are not threatened from the south and can only be threatened from the north in an all-out nuclear war.

In my opinion we still need military forces for these two purposes of paying membership dues in alliances which are important to us and buying influence in international affairs.

Mr. LAMBERT: Would it be cynical to suggest that it might be summarized by saying that we have to put up or shut up?

Mr. GELLNER: That is your expression, sir.

Mr. LAMBERT: Are you perhaps here not so much objecting to Canada's defence policy but to NATO's defence policy, bearing in mind Canada's participation in NATO, and that once Canada has joined NATO although it is a relatively minor partner, it must go on or get out?

Mr. GELLNER: I do not think that this is borne out by the policies of other NATO partners. You know, for instance, Norway and Denmark are going their own ways in respect of the nuclear question. They do not follow NATO's nuclear policy. They have not been asked to leave NATO.

I would only say that if we want to have a military policy which will make a kind of long term sense we have to establish what our objectives are which require backing by forces. We have to establish what our military concept is in the sense that we have to decide what kind of wars we must deter and what kind of wars we can help to deter as well as decide what kind of wars we are able to fight if we must.

On the basis of this suggestion, first of all, we have to create our defence policy. We then, of course, have to make adjustments to fit into alliances, but basically we must first know what are Canada's needs.

If I may digress, Mr. Chairman, the example of the CF-104 purchased to carry out the strike reconnaissance role I think is very typical. I do not believe—I have no inner knowledge of course—that the government or responsible people believe in a possibility of a nuclear war. Therefore, to accept the role and to provide equipment which is directed to the fighting of a limited nuclear war, considering the stated purposes of the CF-104 as being to intervene on the battlefield, bombing railheads and raiding communications with nuclear weapons in fact does not make much sense if we do not believe that limited nuclear war is feasible. The question that must be answered is do we believe or do we not believe that limited nuclear war is feasible? If we believe that limited nuclear war is feasible, then the existence of a strike reconnaissance role and the purchase of the CF-104—which of course, I think was a very great and costly mistake—is a good idea. However, I do not think that we hold that belief.

Mr. LAMBERT: Are you assuming here that military decisions or decisions in respect of military policy can be arrived at in isolation and that there is no provision of over-riding political foreign relations or external policy decisions which have to be arrived at in the first place, and that today if we are going to place any reliance, or be effective, in our international relations we must accept the criteria of first the adherence to our political external engagements, and that there must follow then a determination of military policy or military plans to conform? I am suggesting that to you as a question.

Mr. GELLNER: I think the answer to your question can best be given by way of an example. Let us take as an example the strike reconnaissance role of the CF-104.

Obviously in 1956 the question arose as to re-equiping the air division in Europe. The equipment which they had was becoming obsolete at that time. This happened at a time when the belief became prevalent in Europe that defensive fighter interception which was the old role of the air division, was no longer useful in the limited air space in Europe. Two situations arose at the same time. Firstly, we had to re-equip the air division and, secondly, the role of the air division at that time was disappearing.

In NATO councils it was suggested that we should take over a strike reconnaissance role. Obviously this was not an ultimatum. If the government of the day had said that this did not fit into the military concept and suggested that Canada take over the role of tactical support of ground troops—and I do not know whether this would have been feasible not having access to government secrets—I feel it would have been very gladly accepted. After all,

military considerations also play a part in these political decisions. The political decision has to take account of our military outlook, and, of course, a military outlook is determined to a great degree by political considerations. The two must go together.

What has happened is that we accepted the role to provide equipment for something in respect of which, I have reason to believe, we did not really believe that it was useful.

Mr. LAMBERT: Are you suggesting then that the chiefs of staff according to General Foulkes testimony the other day, consciously erred in advising the government to accept this strike reconnaissance role?

Mr. GELLNER: The chiefs of staff again were not backed by firmly stated Canadian strategic concept. General Foulkes in his testimony to you said that he now has doubts as to the feasibility of the strike role. You did not press him for explanations in this regard, but he doubts the feasibility of a strike reconnaissance role because he doubts the possibility of limited nuclear war in Europe.

Mr. LAMBERT: I do not know what you are referring to, but, he did give an explanation in this regard.

Mr. GELLNER: The fact that he doubts that it was acceptable in 1959 indicated to me that obviously in regard to a military question he was not simply overruled. At that time he believed in the possibility of the role. I am not criticizing him, but he has changed his mind. What he lacked I think then, and we still lack, is a kind of guide for establishing national military policy.

We could have said: "This offer of yours, that we re-equip is not in accordance with our military policy and therefore we cannot accept it."

Mr. LAMBERT: Are you suggesting that a purely military policy can exist by itself?

Mr. GELLNER: No. The Canadian defence policy has to be established by you, of course, with due consideration to the military situation. You cannot decree that a limited nuclear war is possible. You have to take this into consideration in deciding the national Canadian defence policy, and by that, of course, the generals would be bound. But my feeling is that these unfortunate things which have happened in the past have mainly happened because there were no such guideposts.

The CHAIRMAN: We have started on a line of questioning and I think it would be good if members who ask to be recognized would proceed with the discussion, if at all possible. If there are no other members who want to put questions along the same line, then I will recognize the first speaker on my list.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I want to follow that, and I would appreciate the opportunity to do so.

Mr. Gellner, if I am correct, the whole emphasis of your submission this morning suggests that we do not have at present a Canadian defence policy, and that what is needed is a Canadian defence policy. This is one of the reasons I think that this committee was set up, to suggest either a new policy or a change in what you think does not exist, that is in the Canadian defence policy. However, from your submission, I think it might be interesting to the committee for you to go on a little further and to indicate to us what you think, in your words "the national military policy," or "the Canadian defence policy" should be. What should be the first objective of this policy? I do not think we can go any further until we know that.

Mr. GELLNER: I would first like to observe that whatever I say I say with great humility. I am, after all, only a military analyst. I have no responsibility, and responsibility changes one's outlook. I am an outsider, and, of course, I have no knowledge of all the implications. So please take whatever suggestions I give not as an attempt to preach to you but as a humble suggestion.

Now, first of all, I would like to say that we need a strategic concept, and I think the three basic questions are the three questions which I set out: do nuclear weapons deter anything but nuclear war; secondly, can a nuclear war, once it has started, be limited; and thirdly, can a nuclear war, if it breaks out, be fought. I would like to answer it in this way. In my opinion, nuclear weapons only deter a nuclear war. They do not deter all kinds of war. This is borne out by the history of the world since 1945. We have had a succession of conventional wars—in fact all wars since 1945 have blessedly been conventional. Secondly, I do not believe that the limitation of a nuclear war is possible. This theory of a limited nuclear war was one of those developed in the ivory towers of American universities. Professor Henry Kissinger was the man who first came out with a very involved theory of a limited nuclear war, but this has been largely abandoned. I will quote you what the deputy secretary of defence of the United States, Roswell Gilpatric, said in 1961:

> I for one have never believed in a so-called limited nuclear war. I just don't know how you build a limit into it once you start any kind of a nuclear bang."

I agree with him fully, and this has been my opinion for very long before 1961, when the limited nuclear war theory was very generally accepted.

Now the only nuclear war I can think of is an all-out nuclear war, and I do not believe it can be fought in the sense that you conduct tactical operations during this war. I would say that the only thing you can do in any all-out nuclear war is to exchange nuclear blows which have been prepared at long hand, and to use everything you have right at the beginning. You will exhaust your nuclear capabilities and then you will see what the result of this is. Incidentally, this is also the opinion of the other side. Marshall Sokolovski has just issued a very good book on Soviet military strategy and in it he says that it is all nonsense, they are going to use everything they have in the first hour. If this is so, there can be no tactical operation.

I would also say again that nuclear weapons only deter a nuclear war. There can be no limitation, and an all-out war cannot really be fought.

Mr. ASSELIN (*Notre-Dame-de-Grace*): Mr. Gellner, it is probably my mistake, but I did not make myself clear.

Mr. GELLNER: I am coming to it.

Mr. ASSELIN (*Notre-Dame-de-Grace*): I am sorry to interrupt.

Mr. GELLNER: If you take this as a basis, as a guide line, you immediately know what you want. First of all, you do not want any weapons for a limited nuclear war because you do not believe there can be any. You do not want any weapons for tactical fighting of a nuclear war because you do not believe that you can do that. Therefore, you must limit your military policy to the things which are feasible.

I suggested in my brief four national objectives. If you look at these objectives from the principles which I suggested—that nuclear weapons only deter nuclear war, that there can be no limited nuclear war, that there can be no fighting of an all-out nuclear war—then you see, for instance, that to keep inviolate the national territory only means surveillance in peacetime because Canada can only be attacked in an all-out nuclear war. You cannot fight it and therefore you do not need any weapons to fight a nuclear war once it has broken out.

Secondly, in conjunction with Canada's allies, to act generally toward the deterrence of war. As a nuclear war cannot be fought, all we can do is to make sure that the American nuclear weapons deter a nuclear war. Otherwise we can only deter a conventional war by conventional means.

Thirdly, in conjunction with Canada's allies to fortify the security of the whole of the free world. Again this involves conventional warfare. Of course, preservation of peace through the United Nations could not be carried on with nuclear weapons. Therefore, if you have a basic strategic concept, accepted of course by the political leaders of the country, then a national military policy will follow. However, first of all, you have to be clear what you can deter, and what you want to deter, and what war you can fight if you have to. This, I think, has been lacking. This is what I would like to emphasize.

Mr. ASSELIN (*Notre-Dame-de-Grace*): You feel that a military doctrine from which military planning must flow is what will determine the national policy. Now, you set forward a moment ago, and it is in your brief, four objectives. Are these in the order of preference or importance?

Mr. GELLNER: No. I suggest to you, sir, that, of course, other political objectives may exist which would require a backing by force. Again, the backing by force then has to be determined on the basis of an accepted military doctrine.

Mr. ASSELIN (*Notre-Dame-de-Grace*): In other words, you feel there are other objectives besides these? Would you care to suggest any others?

Mr. GELLNER: No, I do not know.

Mr. ASSELIN (*Notre-Dame-de-Grace*): In your third paragraph you emphasized—and I may be putting words into your mouth—that we have been subservient to other nations in our defence policy, which we do not have. I am wondering if you would care to substantiate those statements?

Mr. GELLNER: You see, we have always followed the military thinking of others, and in the last years—I think you can spare me a description of our military effort since 1867 which probably Professor Steacey could give you in a better form—we have followed American "new looks", and there have been a succession of American "new looks". In 1954 we had a new look which you might call the Eisenhower-Dulles-Radford new look. This was that we are going to prevent war by massive retaliation and that everything depends on nuclear weapons. We are going to brandish nuclear weapons, and this is going to be the alpha and omega of military policy. Field Marshal Montgomery expressed it in 1957 in these words:

> I want to make it absolutely clear that we in SHAPE—allied headquarters in Paris—are basing all our operational planning on using atomic and thermal nuclear weapons in our defence. With us it is no longer "they may possibly be used", it is very definitely "they will be used if we are attacked".

We followed that and we concentrated on supporting the deterrence of the big war.

If you look at the Canadian defence effort, you will see that a great majority of our spending is for the deterrence of a war with the big bangs. Now, the Americans have abandoned it. We have now the Kennedy-McNamara-Taylor "new look". I will again quote Mr. Gilpatric:

> The current doctrine is that if NATO forces were about to be overwhelmed . . .
> . . . that is at the very end of a conventional war . . .
> . . . by non-nuclear attacks from the bloc countries, NATO would make use of nuclear arms.

There is quite a difference there. Again, we are trying to follow the present "new look". I am not saying that the Americans are not right perhaps. I would just like to know what the Canadian outlook on this is, what was the Canadian outlook in 1954, and what is the Canadian outlook now. I understand, from the speech by the minister of defence in Quebec this month,

that such a Canadian military policy is now being evolved, such a Canadian strategic doctrine. It is possible that I am flogging a willing horse.

Mr. SMITH: Or a dead one.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): He was not referring to the Conservative party.

Mr. GELLNER: But as of today, before this policy is published and approved by parliament, I must say that at present I cannot distinguish any kind of clearcut strategic concept, but only a rather stale following, as you said, of American military thinking which may or may not fit us; we do not know.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): Do you feel then, if I may summarize, that we should look a little more closely at policies which may be evolved elsewhere before adopting them, that they are not necessarily wrong?

Mr. GELLNER: I would say that we have the same capability for thinking as anyone else. I think we have an inferiority complex in defence matters.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): You go on to say in the same paragraph;

> ... although, on the surface, we now appear to be influenced by NATO policies more than by U.S. policies.

Do you feel in actual fact we are being influenced by United States policies even though you say these policies may be correct? What you really suggest is that we have a closer look at them.

Mr. GELLNER: We measure them by our yard stick. We have to have a yardstick. I want to say here that when I said it looks on the surface as though we are following NATO policy but in effect are following United States policies, this could be demonstrated by this example. The United States military doctrine now is one of flexible response under central control. This permeates their defence thinking. They want to have control of all nuclear weapons in order to be able to somehow use them as they see fit in minimum instalments. This represents a limited nuclear war philosophy now being applied to all-out nuclear war. This policy is at variance with the policies of France and Germany, that in Central Europe there should be absolute deterrence. They cannot wage a kind of conventional war perhaps with putting in a few nuclear weapons, because in the meantime they would be wiped out.

We follow the policy of the United States rather than that of our NATO allies almost invariably. If we do that we should be sure that they are the right policies and there is no objection to them.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): Perhaps those policies are based on geography, Mr. Gellner?

Mr. GELLNER: United States policies are based on the realities of the military situation. In 1954, the United States could brandish its nuclear sword because it alone had it. In 1963 it cannot do so and it is, therefore, trying to tone down the nuclear threat.

If our military interests are in every respect the same as the interests of the United States, then there is no objection. I should only like to see a yardstick against which we can measure these interests, and this yardstick should be used to form Canadian national military policy.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): In regard to the words contained in the third paragraph, you feel a sense of national pride in that we should do a little more thinking for ourselves, but you do not actually say that we should be completely independent.

Mr. GELLNER: In practical considerations, because we have very little money for equipment, and by always following other peoples policies, we have already spent a lot of money on equipment which we now find we are unable to use.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): For that very reason you suggest we should dovetail our defence policy with those of our allies?

Mr. GELLNER: I suggested in paragraph 4 that we should not go it alone, but also that we should first of all look at it from our standpoint and not from the standpoint of our allies.

Mr. ASSELIN: Thank you very much, Mr. Gellner. In relation to your opening remarks, I do not think you need be too humble as an expert.

The CHAIRMAN: Mr. McMillan, are your questions along this same line?

Mr. MCMILLAN: Yes they are, Mr. Chairman, although a number of my questions have been covered.

At page 2 of your statement, Mr. Gellner, you mentioned four objectives, and you state that you are prepared to present your opinion regarding our requirements in respect of manpower, materiel and organization. Would you outline your opinion in this regard?

Mr. GELLNER: Yes, if I may start with the first objective, which perhaps you could call briefly "territorial defence", I have here some notes which I made for this meeting and I should like to read them. Please interrupt me if you want further explanation of any particular point.

It can be taken as certain that if Canada is attacked, it would only be in the course of a general nuclear war involving the two big nuclear powers, the United States and the Soviet union. It is not believable that such a war could be fought, not in the accepted sense of that word. There would be no real tactical operations. Warfare would consist of an attack and a counter-attack prepared at long hand, followed perhaps by one or two more strikes and counter-strikes of diminishing weight and accuracy. All long-range weapons available to the two sides would be used; there would be no point in keeping anything in reserve. Canada could and would play no part in this exchange of all-destructive hammer blows. It would, however, probably sustain some, and perhaps a good deal, direct damage and would undoubtedly suffer very severely from the long-term consequences of a nuclear war.

Under these circumstances it makes no sense to prepare for a fighting defence of Canada. It is still important, on the other hand, that we maintain the closest possible surveillance of our land, sea and air spaces in time of peace—I should like to emphasize that statement—not only to uphold our sovereignty over them, but also because such surveillance helps to provide warning and to prevent preparation of a surprise attack. In this sense, it can be said that peace-time surveillance discourages aggression and thus acts as a kind of deterrent. I advocate only the means of surveillance in peacetime in Canada without trying to attempt the fighting defence of Canada.

We should, for instance, be able to spot and to prevent the establishment of weather, electronic homing and advance refueling bases in the Canadian Arctic; deny Canadian air space to reconnaissance flights and monitor the movements of submarines off the Canadian coast.

For these purposes we need firstly an array of electronic devices for spotting, identification and tracking. Secondly we need a land-based fighter reconnaissance and maritime aircraft to supplement the electronic devices and, thirdly, ship-borne means of reconnaissance including fixed wing and rotary wing aircraft. Finally, we need a small but entirely air transportable and thus highly mobile ground force to deal with incursions into our territory.

These forces must be armed with such weapons as can be employed to enforce the right of sovereignty in time of peace; the ground forces with portable or light carrier borne weapons to overcome resistance if such should be offered by an intruding party, the fighter reconnaissance aircraft with air-borne armaments, including air to air missiles, to destroy an ariel intruder who refused to obey the order to land, and the maritime forces with armaments

suitable for dealing with a vessel that penetrated Canadian territorial waters. It goes without saying that all these armaments must of necessity be non-nuclear because they are only in respect of time of peace.

All Canada could not be defended by active means once a general nuclear war had broken out between the United States and the Soviet union, and there would then be the greatest possible need for effective passive or civil defence. We should have only passive defence because I maintain that a nuclear war cannot be fought, one can only die. It will not only be necessary to intensify and to broaden, as far as the organizations affected are concerned, the specialist training given in rescue and survival, but it will be imperative to arrange for universal instruction in self-protection, and for a compulsory holding and maintenance of the equipment necessary for such self-protection. All plans for survival in and after a nuclear attack, even if the latter should not fall on Canada itself, are unrealistic unless every Canadian of thinking age knows what to do in such an emergency and has the wherewithal for doing so.

To summarize, I advocate only non-nuclear means for surveillance in time of peace and a very much expanded compulsory civil defence for time of war. This is an example of what I meant when I said, if you so desired, I could give you chapter and verse regarding the type of forces, manpower and materiel which we need to fulfil each of these four suggested tasks.

Mr. McMILLAN: You mentioned something about the incursions of foreign forces on our soil. If such forces were armed with nuclear arms would you be in favour of our forces having nuclear arms to defend themselves?

Mr. GELLNER: Forces to which you have made reference would only be armed with nuclear weapons if they intended to start a nuclear war. Surely, if a reconnaissance aircraft comes along with a hydrogen bomb aboard and is ordered to land because it has no business in our air space as it has not been reported to our organization, and it drops a hydrogen bomb, then the fat is in the fire and you arrive at the point of a nuclear war. I do not think that is a likely contingency.

The CHAIRMAN: Have you completed your questions, Mr. McMillan?

Mr. McMILLAN: Yes.

The CHAIRMAN: Mr. Brewin, I have your name next on my list.

Mr. BREWIN: Mr. Chairman, I think my questions follow the general line of discussion.

Mr. Gellner, I wondered whether you could apply some of your suggestions to some of the evidence we have heard. First of all, I put it to you that an illustration of the result of the selection of military doctrine, would be, that Canada should reject tactical nuclear weapons or the strike reconnaissance role because that is not the sort of war we are likely to be involved in, is that right?

Mr. GELLNER: I think it is impossible that we can be involved in this way.

Mr. BREWIN: We have heard the evidence during the last few meetings of two very distinguished former generals. General Simonds suggested if, I remember rightly, that our major role should involve a tri-service conventional force for peace-keeping purposes. Would that suggestion fit your view as to the role to be carried out by Canada?

Mr. GELLNER: Providing you on the political side decide that keeping peace everywhere is a Canadian national objective, and this, obviously has not been decided yet. It is premature to say that we need an intervention force to keep peace everywhere in the world, roaming around, let us say dividing Algeria from Morocco and preventing an Egyptian intervention in the Yemen. Providing you on the political side have decided that we have such an interest regarding the preservation of world peace, then perhaps Canadian forces could be used, but I would not want to say that we should put up such forces at once.

It is only necessary provided you want to do that. So far you have only committed Canada to the defence of central Europe.

Mr. BREWIN: But that is my point; I think we want help from someone like you. You told us we have to make that decision. We, as a committee, can only advise, I take it, but we should advise the political authorities on such a role. You have told us that a nuclear reconnaissance force is not, in your view, useful because that is not the type of war that is likely to occur. Now, the object of the peace-keeping forces, as General Simonds suggested, is to deal with brush fire wars, with the minor troubles, before they develop into large scale wars. I think we would like some help from you as to whether you rule that out as a role that is not realistic. You ruled the others out as not being realistic; do you rule this one out as being unrealistic?

Mr. GELLNER: I would say that it is in Canada's interest to prevent the diminution of the free world. This is in our interest. We do not want a further loss of territory in which we can move freely, trade freely and so on. Therefore, to man the ramparts of the free world is undoubtedly in the Canadian interest. If we decide to do so, we need very much the intervention force which General Simonds described.

At present the situation is this: we have contracted for two things, for the defence of North America, where we obviously do not need an intervention force, and for the defence of central Europe through NATO. Now, the central European sector is probably the least likely to see a brush fire war—the least likely of all except perhaps North America—because there the stakes are so high and because the overrunning of western Europe by the Soviet union would possibly be the end of the free world; secondly, because we have allies who are determined not to allow a conventional war in central Europe—this, after all, is the sense of the French *force de frappe.*

Therefore, as our commitments stand now, we really have no need for an intervention force. However, I suggest to you that we should take on other commitments and we should actually be ready to defend the free world, with certain limitations and under the aegis of somebody or together with somebody, elsewhere than only in central Europe. If we take on this commitment, then indeed we very badly need an intervention force.

Mr. BREWIN: If I may carry this through, in the past, as I understand it, you have been somewhat critical of the views that were apparently put forward by General Foulkes, in that you have suggested that General Foulkes was advising the government at that time that they adopt the strike reconnaissance role in the brigade in Europe. You were somewhat critical of that as aping the United States or as following an American doctrine. Am I right in saying that you were critical of that?

Mr. GELLNER: I would like to say this; the stationing of Canadian forces in Europe has its advantages. It has its advantages because it allows us to work with allies—which is always a tricky thing—and secondly, it allows our smaller units to train in big formations. Therefore, I have no objections whatsoever, I never had, to the stationing of Canadian forces in the NATO area. It seems to me that the air division has the wrong role because it is fitted for a limited nuclear war and thus not useful, and that the second difficulty is that we are bound to the defence of a sector which is quiescent and which is not likely to allow for a conventional war. Therefore, we are binding forces through a treaty in a sector where they cannot do much good. What I would advocate is to leave them there in the NATO area, if we can, for training reasons but also arrange so that these forces can be withdrawn from this area and used elsewhere if the need elsewhere is greater.

Mr. BREWIN: That is what I want to come to now because you said—and you are probably right—that General Simonds changed his view. I want to put to you what I understand to be his present view. At the present time he seemed to suggest that there was very great value in having an air portable conventional formation in Europe to be in reserve rather than in the forward role. Does that seem to you to fit in with these national objectives and the national military policy which you recommend?

Mr. LAMBERT: That was not General Simonds. That was General Foulkes.

Mr. BREWIN: Yes, I meant General Foulkes.

Mr. GELLNER: I do not want to go into any discussion with generals Foulkes and Simonds about what they are saying. May I say what I think. I think that the forward strategy in NATO is not very useful because I do not believe that conventional warfare is possible in central Europe, or else it is so unlikely as not to be worth considering. Therefore, it would not make any difference whether our brigade is right up to the East German boundary or in the Ruhr, as it is now, or even in Brittany if they wanted to. It does not matter, because a conventional war, I think, is impossible in central Europe. I am very much in agreement that this brigade should be freely usable at the call of the Canadian government in agreement with Canada's allies to be used elsewhere. In this sense I think the words "kept in reserve" are perhaps good. "Kept in reserve" simply means that we want to have a free hand with it in conjunction with our allies.

As far as air portability is concerned, it would be very highly desirable, but air portability is a very difficult thing to achieve. You have read the figures in operation "Big Lift", and these are figures for a force about twice as strong, a little bit more than twice as strong, as the Canadian brigade in Europe. This force does not carry any equipment, it has prepositioned equipment, and yet it require transport which is, of course, greater than our transport force plus all the civil aircraft which we have in Canada. Therefore, air transportability of such a force is an aim, but an aim which is utopic to a degree.

On the other hand, if it is a question of intervening in a conventional war, time is of course of the essence, but not so absolutely essential, and therefore possibly we could settle for a combination of air and sea transportability with great emphasis on sea transport because in this way you can transport the heavy equipment.

Mr. BREWIN: I have one final question and I think perhaps you have already answered it by implication. General Foulkes did say that in his view we should abandon the nuclear strike role which he said was unsuitable and precarious for Canada, and concentrate on greater transportability. I wanted to know whether there is any real conflict between the present views expressed by General Foulkes and what you have been telling us.

Mr. GELLNER: I believe that even if we converted the whole air division into a transport force, it would still not give air transportability to the Canadian army; it would give it only to one brigade in Europe. I would say that we have several choises there and they may be acceptable to NATO. Air transport is one, tactical support of ground troops, and above all our own ground troops, is another. Where I agree completely with General Foulkes—but where General Foulkes has completely changed his mind since he left the services—is on the strike reconnaissance role being unsuitable.

The CHAIRMAN: Mr. Deachman, you are next on the list.

Mr. DEACHMAN: I will pass now. Most of the questions I had are being answered, and I will let it go for now.

Mr. BALDWIN: Mr. Chairman, I wonder if it would be too much of an oversimplification of the effect of what Mr. Gellner said in reply to Mr. Lambert to say that the major, if not the most, important factor in our defence program,

should be, to use the words of a famous author, to win friends and influence people.

Mr. GELLNER: I believe that NATO is an essential alliance for us. It is the way in which we are tied to the Atlantic community. In NATO everyone has to chip in. It is unthinkable that a rich country like ours should not put its share into the common pot. This chipping in is done by the provision of military forces because NATO is a military alliance, and therefore we have to have a miiltary contribution to put into.

The other point is to influence people, as you said. I have no experience in diplomacy but I would suggest that the word of a country which can back its decision by material force is undoubtedly much stronger than the word of a completely disarmed one. Even if Iceland were as big as Canada, the fact that it has not military force obviously would hamper it on the international scene. It deals with it by not appearing on the international scene, or not very much. However, we do operate everywhere in the international scene, and we must have the backing of force for our policies. In this sense I would agree with your statement.

Mr. BALDWIN: What you said appears to be something like a footnote to what General Clausevitz said, that the national defence effort is a continuation of the national policy by other means.

Mr. GELLNER: I would say that in modern times it is not a continuation, because it would be terrible to say that war follows diplomacy. This is much too dangerous for modern times. It is rather a corollary and it goes together with diplomacy. It is something like the idea of the velvet fist; there is a velvet glove on it but it is still a fist. This is not a continuation of the policy. This is early nineteenth century thinking where wars did not have the terrible consequences which they now have.

Mr. BALDWIN: With respect to the practical application—and I am really speaking purely hypothetically—if we have to take a decision as to whether or not we should acquire a nuclear weapon of somewhat doubtful validity, just as important a factor in our decision should be the effect of our decision, say, on a large and powerful friend as well as the military significance of the weapon.

Mr. GELLNER: The large and powerful friend certainly would take some cognizance of a well established national policy. You refer undoubtedly to the United States, and from my reading I would say that they take cognizance of our established, let us say, economic policies. I would say they would have to be asked to take cognizance of our military policies as well. We cannot accept weapons simply to please the United States or someone else. It has been suggested, for instance, that we join the multilateral nuclear force, about which there is almost general military agreement that it is superfluous and unworkable, because the Americans wish it, because they see in it a means of stopping the proliferation of nuclear weapons. I suggest to you that we cannot afford such things because with the military budget as it is now, with the continuing increase in personnel and maintenance costs and with the decrease in the budget, or the budget remaining more or less stable, we would come to the position in 1970 where not one dollar would be available for equipment. We are now down to about 20 per cent of the budget for equipment. This goes down all the time because maintenance and personnel costs increase. So, we simply cannot afford to take on commitments when we know that the equipment we are purchasing serves no military purpose. We cannot buy weapons just for political reasons. Gertrude Stein said: "A hat is a hat is a hat." You can say a weapon is a weapon is a weapon,—it his to have some military value. To buy a merchant ship and to put in Polaris missiles only for political reasons would be a terrible waste of money.

Mr. BALDWIN: It boils down to the weight you put on the words "some military value".

Mr. GELLNER: It has to be a combination of political appropriateness and military value.

Mr. BALDWIN: Thank you.

Mr. TEMPLE: Mr. Gellner, do you believe that Canada should have any nuclear weapons?

Mr. GELLNER: I would like to put it in this way. We have made commitments, and I guess there are very good political reasons, which I do not like to discuss here because this is a defence committee, which forced us to take these weapons. However, I cannot see any kind of strategic concept for this country which would make it necessary to acquire nuclear weapons. My suggestion would be gradually to get rid of the nuclear commitments because they do not contribute anything. Nuclear weapons in the defence of North America—anti-bomber defence of North America—are only advantageous if you think you can fight a nuclear war. A nuclear weapon on the CF-104 or Honest John rocket is only useful if you believe you can fight a nuclear war in Europe. If you determine you cannot do either, then you do not want nuclear weapons.

I do not like to talk about the past and whether commitments ought not to have been made, or whether they should have been honoured, because these are political questions about which you know much more than I do; but militarily I cannot see any situation within sight which would make it necessary to purchase nuclear weapons, except possibly if a useful antimissile defence were found. This is very far away, but it is not excluded. I am not antinuclear for moral reasons. I just cannot see any usefulness in them right now.

Mr. TEMPLE: Can you not see some usefulness in nuclear depth charges in anti-submarine warfare?

Mr. GELLNER: Again this presupposes the fighting of an all-out nuclear war. One has to have a picture of this all-out nuclear war in order to determine whether this weapon, a depth charge, torpedo or missile, is useful. I look at it this way. The Soviet Union—and that is the only possible enemy in a war against North America—would attack North America only if one or the other of two situations existed; either the Russians believed that they can knock out an American retaliatory force or, secondly, if they believed they cannot knock it out but can repel a counter-attack. The first possibility is obviously impossible. The retaliatory force is even now almost invulnerable and progressively is being more invulnerable. The effect of nuclear weapons is such and the size of the retaliatory force is such that even if a high proportion of it were not knocked out, a counter-blow would still pulverize everything.

The second thing, that they believe they can not knock out the retaliatory force but could ride out a counter-attack, would mean that they had made a significant breakthrough in defence. This breakthrough is not in sight. We do not know how it could be done. Imagine, then, that somebody were crazy on the other side; he has no chance of knocking out the retaliatory force, but he attacks just the same. Obviously he would at least want to gain a surprise and to do this he would have to lead with his missiles, because if he sent bombers and missiles together, the approach of the bombers would give the show away. He would do it with missiles first and then bombers about three hours afterward. Now then, the missiles have fallen and the American retaliatory force has taken off for the counter-blow. What are we defending? We are not defending the retaliatory force because it has already left for Russia. We are defending cities. Now, look very carefully at whether the cities can be defended in a

nuclear war. It only takes one weapon to remove a city. We are speaking in terms of over 1,000 Russian bombers. It seems to me that the situation where we could use a fighting nuclear defence is so remote and so unlikely that it is not really validly part of a military plan. It would be different if we had an I.C.B.M. defence. Possibly we may need nuclear weapons to do it, but this is in the very far future, and I am not opposed at all to our trying to find an I.C.B.M. defence against nuclear weapons if necessary. I would like to reiterate that this does not apply to what we have already done. We did not have a strategic concept. I am suggesting we do not have one now.

Mr. TEMPLE: Would you agree that there are two main threats in so far as North America is concerned; I.C.B.M.'s and/or bombers from Russia, and submarines from Russia.

Mr. GELLNER: No, I would not. I think almost entirely the threat is from land based I.C.B.M.'s, because after all this is all-out nuclear war. They are going to fire off everything they have. There is no point in keeping anything in reserve. As they obviously do not believe we will start it, they will want to concentrate on the cheapest means of carrying out the attack in one blow, the first one. Obviously, the cheapest and most accurate means is by land-based I.C.B.M.'s. They are much less complicated than submarines; you just put them on the ground. There is, of course, the launching equipment, but it stands on the ground. If you read Marshal Sokolovski you will see that they are almost entirely interested in land-based I.C.B.M.'s with the biggest possible yield, because they are the only ones which they think they can usefully employ in an all-out war.

I once said in this connection that we have put up a straw man in the missile carrying nuclear submarine, but we have built it up so strongly that now we cannot knock it down.

Mr. TEMPLE: It is incomprehensible to me that the Russians, who have this nuclear force of submarines with intermediate range ballistic missiles would not throw them into an all-out attack at the start.

Mr. GELLNER: Yes, but your question was what was the main threat. I think the main threat is the I.C.B.M.

Mr. TEMPLE: If you agree that the Russians would in an all-out attack be throwing their submarines in, would it not be an advantage to Canada to have nuclear charged defence weapons against these submarines?

Mr. GELLNER: The question is when would they use them. Surely they are not going to declare war, and if it is a surprise attack you could only attack the nuclear submarine after the missiles have already been fired. Obviously we would like to let them have it, but it is not really terribly useful after the war has broken out. After the war has broken out the Americans will retaliate against the Soviet Union. If we could sink them before they are fired, I would agree with you, but we cannot.

Mr. TEMPLE: You state that in conjunction with Canada's arrangements to act generally it is not a deterrent to war. Do you not think we are lessening our chances of deterring war if we, in fact, disarm nuclear-wise?

Mr. GELLNER: I do not think so. The Americans themselves very strongly insist on complete control of nuclear weapons. I agree with them wholeheartedly. They should have complete control of nuclear weapons. I feel completely comfortable with the Americans having the deterrent. They want it. The sense of the Nassau agreement was to bring Great Britain to heel. Their opposition against the French is built on this idea that they have to have central control of this very touchy and very deadly weapon. I think they are right; they should have it. I cannot see any particular advantage in other people having it and adding, say, one per cent to the 99 per cent of it that

is already under United States control. Why not let them have 100 per cent under their control?

We want to support the deterrent, of course, but we can do it in many ways. We are doing it now by providing antibomber warning and by providing communications from the ballistic missile early warning sites for the Americans in the north. We are still providing some refuelling facilities for United States bombers. We contribute to this deterrent, and I do not think we are hiding that fact.

Mr. MACLEAN: Mr. Gellner, on page one of your statement in the third paragraph you say:

> We have supported American military policies more than allied military policies.

Well, America is one of our allies; do you mean to imply that American policies and allied strategy as a whole are sometimes at wide divergence?

Mr. GELLNER: That wide divergence, as you know, is right now in NATO; very much so, and we support American policies. This is not meant as a criticism; this is a statement. When policies differ, as they do now—the American policy as to the strategy of NATO differs very widely from the Franco-German policy—we follow the American policy. I would have no objection if we followed it because it happened to be in accord with our policy. The question is, is it?

Mr. MACLEAN: Your answer leads to my second question. Our potential enemy is a monolithic organization which can arrive at what it decides is its best policy, while we as allies in an alliance are sort of mosaic in contrast to the monolithic structure and, therefore, must compromise in respect of what the general over-all policy should be. In your judgment is it more important to have what would perhaps be the best policy if we had a monolithic structure, or is it better to have an agreement on action in concert even on perhaps a second best policy? Which is of over-riding importance?

Mr. GELLNER: I would say that by and large an agreement would lead to a better policy, because a policy is not necessarily the best because it had been dictated. The Soviet union started a second world war with a completely wrong strategy it did suffer very heavily as a result. It was a monolithic and dictated strategy, but they started with invariable principles of warfare which did not bear fruit in the opening stages of the war.

I think we can make a useful contribution to such an agreement but we have to start somewhere, such as with a Canadian outlook on defence.

I should like at this stage to digress very briefly by saying that whenever I have spoken with people from mixed staffs they have always commented on the very high quality of Canadian members. These are not compliments because, after all, my accent is such that they do not recognize me at once as a Canadian. These are statements of fact.

We have something to contribute but we first of all have to sort out what we want to contribute.

Mr. MACLEAN: At some point of your evidence I understood you to say that you believed that conventional war in central Europe was highly unlikely, or something to that effect.

Mr. GELLNER: I would say that it is impossible.

Mr. MACLEAN: I should like you to expand on that suggestion. Why do you say that such a war is impossible?

Mr. GELLNER: Perhaps I am now entering the political sphere, but briefly the German standpoint, and not necessarily the official one because they have to remain in the good graces of the United States, as expressed by German military men and German military analysists, is that Germany is politically,

militarily and morally incapable of fighting another war. They just cannot fight anymore. They have given the last of their moral fibre to this miraculous rebuilding of Germany. Therefore, they say, they must deter war absolutely on German frontiers.

Mr. Straus, when he was minister of national affairs in Germany, once stated very bluntly that a rifle shot on the Elbe must be echoed by the explosion of an H-bomb. This is a terrible thing but it is the central European standpoint. They state that they cannot fight a long-drawn destructive conventional war in Europe again, and, therefore, they are mainly interested in absolute deterrence, just as absolute as the deterrent which protects North America. If they are not going to get such a deterrent from the United States then general deGaulle will provide it for Europe.

Mr. MacLean: Perhaps I am mistaken in this understanding as I cannot find the reference quickly, but I understood you to say that you considered atomic weapons as not being a deterrent to conventional warfare. Considering the great imbalance of conventional forces in Europe and the Germans demoralized condition, if you like, which will not allow them to contemplate defending themselves with conventional weapons, what then would deter the over-running of Europe with conventional weapons?

Mr. Gellner: I suggest that a strategic nuclear deterrent would have this effect. After all, a deterrent is psychological, a state of mind, is it not; that is to say, what matters is what the other side believes will happen if it makes a move. A strategic deterrent is developed as a result of implanting in the mind of the other side the certainty that it will be hit by nuclear weapons if it crosses the iron curtain. This is the type of deterrent which I believe the Europeans demand.

Mr. MacLean: In your judgment, is the potential enemy convinced that if it starts to nibble into western Europe with conventional weapons, perhaps in those weaker sections such as Norway or Turkey, inevitably there will be retaliation by a nuclear force, or does the danger exist that it might take a calculated risk, thus putting the western allies in the position of having to commence a nuclear war?

Mr. Gellner: I should like to make a distinction between Central Europe on one side and Greece and Turkey on the other. I am not saying with certainty that an absolute deterrent will work, but in Central Europe the Russians are aware of the temper of the people on the other side, and the temper of those people on the other side is significant because these are people who are capable, and have proved they are capable, of providing themselves with strategic nuclear deterrents.

Further than that, if you should read Russian military literature, then you will be aware that the tenor of this literature is that any war in which the Soviet Union and the United States would be directly involved would of necessity be an all-out nuclear war. Therefore, in any kind of big war where there would be a confrontation between the Soviet Union and the United States as in the case of the Cuban crisis about a year ago, an all-out nuclear war would be involved, and they are suitably deterred by the overwhelming might of the United States. Any other war they will fight by proxy. They say quite openly they are not going to fight it themselves. They are not giving nuclear weapons to any of their allies and, therefore, this would necessitate a conventional war by proxy.

Mr. MacLean: So you would agree that atomic weapons deter that kind of a possibility in respect of a conventional war?

Mr. GELLNER: Yes, because in Central Europe any such war would be nuclear as it would require direct intervention on the part of the Soviet Union.

Mr. MACLEAN: Thank you.

Mr. GROOS: I am sorry Mr. Gellner that I was not here during your presentation as I had to attend a meeting of the veterans affairs committee.

We are attempting to establish the role of the Canadian armed forces in defence. I note that you have outlined in your brief four main tasks. I am interested in the first task you have listed which is to keep inviolate the national territory, the sea approaches to it and the air space above it. It seems to me that the first thing about a task in respect of which Canadian forces are used is that it must be capable of achievement. We already have a task for our Canadian armed forces which I think is just about similar to this task you have suggested. The assignment given to the navy is to defend Canada from attack by sea. The fact that Canadian armed forces are not capable of carrying out this role has been somewhat demoralizing to the navy as well as to the air force and army because there is realization that we cannot do this on our own. I therefore, suggest that this is not a reasonable task to give to our services. The fact that we are unable to do this on our own forces us to rely on our allies in respect of the other tasks which you have mentioned.

The reason I have commented on this point is that the task you have suggested I think is unrealistic and we should, therefore, rely upon our allies to fulfil these roles.

Mr. GELLNER: I gave a full explanation in answer to a previous question asking me to elaborate in respect of these tasks. I will repeat it very briefly.

I envisage this first task as consisting of surveillance only in time of peace, and civilian defence in time of war. I do not believe that a nuclear war can be fought. I do not think there can be anything but all-out nuclear war over North America, and, therefore, I can see this first task as being only surveillance in time of peace. That is, to prevent anyone from entering our territorial waters; to prevent reconnaissance flights over Canadian territory and to prevent the establishment of weather, electronic homing and advance refueling bases in the Canadian north. This is a fairly limited task, as you can imagine. It only involves, for instance, the navy and air force knowing who is in the air above and who is in our territorial waters or in the approaches to our territorial waters. This task involves surveillance in time of peace, along with the possibility, of course, of repelling an intruder in time of peace.

Mr. GROOS: I suggest to you that such a task might well eat up all our defence appropriations and still not be capable of achievement.

Mr. GELLNER: I cannot agree with you, sir, because as far as land intrusions in the Arctic are concerned, probably all we need is an air transportable, lightly armed battalion. As far as knowing who is in our territorial waters is concerned, I think the present resources of the two maritime commands would be quite sufficient for this peace time task.

Mr. GROOS: I disagree with you entirely there. I do not think they are capable of handling this task.

Mr. GELLNER: Our territorial waters still extend only to three miles from the coast but I think our two maritime commands could handle this task even if our territorial waters extended to 12 miles.

As far as reconnaissance aircraft are concerned, we would need a certain number of very fast fighter reconnaissance aircraft to identify unknowns, and I do not think this is a task beyond our resources.

Mr. GROOS: I disagree with you, sir. I do not think you will find many people who will agree with you in this regard. The Canadian Navy, for ex-

ample, at this moment, cannot tell you that there are or are not enemy submarines within the three mile limit.

Mr. GELLNER: I would say, of course, there is no 100 per cent certainty in regard to anything. I would suggest that the Canadian Navy probably has a good idea in this regard, or knows with a high degree of probability.

Mr. DEACHMAN: Mr. Gellner, the Canadian Navy does not know whether there is a submarine 250 yards away.

Mr. GELLNER: I beg your pardon, sir?

Mr. DEACHMAN: The Canadian Navy cannot see a submarine when it is 250 yards away.

Mr. GROOS: That is true, under certain conditions.

The CHAIRMAN: Have you completed your questions, Mr. Groos?

Mr. GROOS: Yes, thank you.

Mr. CHURCHILL: Mr. Gellner, on page 1 of your brief, in the fourth paragraph, you say that Canada has not developed a national defence policy. I suggest to you that Canada has always had a defence policy. One hundred years ago her defence policy was to provide a militia, and in 1911 it was decided that sea power was important as well as a close link with our allies. You outline Canada's policy on page 2, which you call the four main tasks. We have a lot of fun politically saying whether or not Canada has a defence policy, and I reserve the right to use the words again, but are we not talking rather in terms of what you later call "military doctrine" or, as Mr. Groos has said, "the role of our armed forces"?

I do not think there is any serious disagreement with regard to national defence policy as outlined under what you call "tasks". So, for clarity of thinking, should we not admit that we have a policy: defence of our country; protection of the free world through a NATO alliance; assisting when called upon by the United Nations in tasks that may be allotted to us, and things of that nature? Our trouble is in this other field of military doctrine and the role of our armed forces.

Would you make that segregation in your conclusions?

Mr. GELLNER: The military doctrine comes first. A defence policy which is not based on military doctrine is simply no defence policy because, first of all, you have to have an idea of what wars you can and must deter and what wars you may have to fight. You have to have a military doctrine, a strategic concept. In this strategic concept you have the basis upon which then a Canadian defence policy can be built. Therefore, I submit that as long as we do not have a Canadian military doctrine which makes sense, which hangs together, we cannot develop a national defence policy.

You gave certain examples. Of these examples I would very gladly accept the first one—that is that at the time when the United States was still a threat, possibly up to the treaty of Washington, we had a very clear defence policy. We had to defend our border against the United States and we did it by saying that we had to have a mobile regular force, which Britain provided, and a militia to man the border.

Your second example is one with which I cannot agree, that of 1911 and the naval policy. This seemed to me to be one point in the general Canadian defence set-up which was taken just out of the blue. The mother country needed help in its impending difficulties with Germany. We wanted to contribute just as at that time Malaya contributed a battleship, and so on; we tried to do it, as you know, but not successfully. However, this was not a defence policy; this was simply one defence method which came before the consideration of the Canadian parliament. It was not based on a strategic

concept; it was not based on the Canadian outlook on commonwealth defence, because if there was such an outlook, I do not know about it. I do not know what this outlook was.

Mr. CHURCHILL: I thought it was an extension of Canada's world outlook at that time, that the threat on the Canadian-American border was non-existent but a threat had developed to world peace in Europe, and that Canada, working with her allies, then was going to make some contribution.

But what I am not clear about, although I agree with almost everything you say, is the statement that we have not developed a national defence policy. I think this is what makes it so difficult for a committee of this type, also for the Canadian people.

We are talking about and have talked in this committee about the question as to whether we have frigates or submarines, strike reconnaissance aircraft or transport aircraft and surveillance aircraft; in the army, do we have infantry moving forward still on their flat feet or carried on armoured carriers. These are policy decisions within a defence department but they are not part of Canada's national defence policy.

Mr. GELLNER: They are results of Canada's defence policy, or should be. If a question comes before you as to whether or not you should have the "Bobcat", you must ask yourself whether it fits into Canadian defence policy, into the military roles of Canada; and the military roles of Canada in turn must be based on political considerations but, on the military side, on a clear military doctrine. Therefore, unless there is a clear military doctrine, unless we have clarity on the questions of deterrents of war and waging of war, we cannot have a national policy because one of the fundamentals is missing—the military basis of it is missing.

These questions of detail can only be solved by measuring them against the policy and by measuring them against the military doctrine.

Mr. CHURCHILL: Narrowing it down a little, Canada's defence policy involves Canada's alliance within NATO. The argument within NATO then, is not on that question of national defence policy but as to what role we should play within the NATO forces, and that is where we argue as to whether it should be with the air force strike reconnaissance or something else, or whether it should be an independent brigade or something quite different.

Mr. GELLNER: I tried to say that this question cannot be reasonably answered unless we know what we want to do militarily. Our own interests, our own outlook must come before any negotiations in NATO.

I said in the beginning that NATO countries take different tacks, let us say, on the nuclear question. I gave the example of Norway and Denmark taking a different tack from us. But if our decision on nuclear questions was based on a military doctrine, then what was this military doctrine? The Norwegian and Danish one I assume is based on the doctrine that nuclear war is impossible and therefore there is no point in spending money on it, but we decided the opposite. We accepted the nuclear role. We accepted nuclear weapons carriers, and we accepted them, I believe, without really having a clear policy, a clear doctrine as far as the possibilities of limited nuclear war are concerned.

Mr. CHURCHILL: This is what makes it so difficult. You see, the layman accepts that Canada's national defence policy involves a commitment in the military alliance. Then the service people fight the battle as to what the commitment is within that alliance, and the layman is left standing in the wings. As you mentioned earlier, the acceptance some years ago that there could be a limited nuclear war was a military decision. How can the layman make an appraisal of that, except a person like yourself who makes this a specialty?

Mr. GELLNER: The voter must make up his mind. Obviously the man in a responsible position will be followed more readily than the outside critic, but the fact remains that the one military critic who as far as I know was consistently right was an outsider; that is Captain Liddell Hart. He was not believed by the powers-that-be and he was not much believed by the public either. The public believed in the people who had the responsibility.

The people who have the responsibility should have as much insight into these military questions as possible. After all, the decision is on the political side. I am not saying that I would ever be able to influence people; I was completely unsuccessful in 1959 when I wrote that this is all nonsense, that you cannot wage a limited nuclear war and therefore that to take the strike role is not useful. The best the military critic can do is to offer his opinion to the powers-that-be and to the public; if he is rejected he can do nothing about it. But it is not he who creates confusion; it is the inability of too many people to really look at these things in accordance with some kind of a system, and this system is provided by the military doctrine, by the strategic concept.

I can only say that the decision to take the strike reconnaissance role was either based on the concept that there was a possibility of limited nuclear war and that we had to provide the weapons for it, or that there was no military concept and that this decision was simply taken to conform with the allies, one or the other. The result, however, was the difficulty in which we are now.

Mr. CHURCHILL: Thank you very much.

The CHAIRMAN: It is now almost 12:30 and I have five members who still want to ask questions. Shall we go on until 1 o'clock or adjourn until 4 o'clock?

Is it agreed that we adjourn until 4 o'clock?

Agreed.

AFTERNOON SITTING

THURSDAY, October 24, 1963.

The CHAIRMAN: Gentlemen, we have a quorum and the meeting will please come to order.

Have you a question, Mr. Smith?

Mr. SMITH: Mr. Gellner, in connection with the matter of antisubmarine defence, I suppose that the only effective way would be to deter submarines or to try to keep them far enough away from our coasts so that their missiles, when launched, would not be effective. Is that correct?

Mr. GELLNER: Yes. Of course, it would be an impossible task in peacetime. Apparently the American Polaris has a range of 1,500 miles. I do not know what the range of the Russian weapons are, but even if it was much less it would be impossible to keep the Russians so far from our coasts. I suppose we could attack missile carrying submarines only after the launching because if they want to launch a surprise attack they would be in position to do so. Therefore, I cannot see a great advantage in it.

Mr. SMITH: Would you care to comment on what you know of the accuracy of the intercontinental ballistic missile as compared to a missile carried in a bomber?

Mr. GELLNER: I would say that you have to distinguish between the reliability and the accuracy. Now, the reliability of a missile is obviously very much smaller than the reliability of anything which has a human being in it. I come from a flying environment and I cannot even count the number of times when something went wrong but, through the ingenuity of the crew, it was

resolved or some other alternative action was taken. This cannot happen in the case of the missile. Even with the best of workmanship one of the hundreds of delicate parts can break down. The reliability of the unmanned weapon as against a manned one is obviously much smaller in the case of the unmanned weapon. As far as accuracy is concerned, big missiles are inertially guided and the whole program of flight is very carefully calculated in peacetime, and it is fed into the missile like into an I.B.M. machine. I suppose that every missile now has its target with all available data very carefully calculated and checked. The accuracy of the missile which really goes off should normally be fairly good. Furthermore, this is increased by the size of the warhead.

The American Titan II carries a ten megaton warhead, that is 10 million tons of T.N.T., in which case a very great accuracy is not really necessary because of the tremendous effects which an explosion of a 10 megaton weapon would have. To give an example, suppose the aiming point was the parliament buildings and the weapon fell somewhere on the edge of the city. In this case I would say its effects would almost be the same and, therefore, very great pinpoint accuracy is not necessary with warheads of that kind when they attack cities. So, my answer to your question would be that although a manned vehicle is more reliable than an unmanned one, an unmanned vehicle, if it carries a big nuclear warhead is, for practical purposes, quite accurate enough.

Mr. SMITH: Are there manned planes which would carry a bomb as big as a 10 megaton?

Mr. GELLNER: The Americans carry a 24 megaton bomb in the B-52. This is unclassified information which has appeared in *Time* magazine and newspapers. Of course, the explosion of a 24 megaton weapon will achieve the results even if the lack of accuracy was in the order of 10 to 20 miles.

Mr. SMITH: On page 2 of your general statement, Mr. Gellner, you say:

> I will be glad to give my views on what I believe we need in men, materiel and organization.

You have given us information in connection with some of it as you have gone along but would you care at this time to add anything.

Mr. GELLNER: May I run through very quickly what I think in this respect?

Mr. SMITH: If you would, please. Would you comment on men, materiel and organization. Would you deal with them under the three heads?

Mr. GELLNER: First of all, I would again reiterate that I do not want to be looked upon as one giving a lesson in military organization as I am not qualified for that, but I would like to give my own opinion.

As to the first point, I already have said that I do not believe we need a fighting defence for Canada, that we only need the means of surveillance in peacetime, which would necessitate the use of maritime forces for surveillance of our territorial waters and the immediate approaches to them. Then, fighter reconnaissance aircraft of high speed, capable of identifying any kind of aerial intruders, and a very small manned air transport force to deal with operations in the Arctic. In time of war, because on the North American continent I believe, it would be an all-out nuclear war, we should have a tremendously increased civil defence organization over what we have now. I would advocate compulsory training in civil defence and compulsory holding and maintenance of equipment necessary for civilian defence, together with periodic inspection to make sure that this equipment is kept in good order.

In connection with the second point, the deterrence of war,—that is, a nuclear war—I believe it would be met by the retaliatory power of the United States, and we want to help the United States to maintain its power to retaliate. We are doing it now by providing warning against bomber attack and providing

communications from the so-called BMEWS, which is the ballistic missile early warning sites. These communications go through Canada. Also, I feel we should provide some refueling facilities. On the other hand, I cannot see that any kind of an active defence would help the deterrent because I believe the deterrent to be, for all practical purposes, invulnerable.

Then, in conjunction with our allies, somehow to prevent diminution of the free world, I would advocate intervention forces of all services, which need not—in fact, could not be—all air transportable because it would go far beyond our resources. However, we should have enough air and sea transport to carry them to where an intervention would be necessary and decided upon. This would be a non-nuclear force which would be self-contained. It would be somewhat like the American marine corps where the marine division is supported by a marine air wing and carried by transport which is assigned to the marine division, and screened by warships. Then, from these intervention forces you could draw whatever small forces you need for the peace preservation activities of the United Nations. In this connection I would say there is no value in a standby battalion. It is an empty gesture. I think it would be the last thing the United Nations would want from us. They want mainly administrative personnel. I think we should make available to the United Nations all we can, if we are in a position to provide it. It would be much more useful than a standby battalion. So, this all would amount to a comparatively large military force, and it would be a force which would take account of the principles that we ourselves cannot deter nuclear war, that we can only help the Americans to do that, and that we can only fight a limited nuclear war, and that an all-out nuclear war cannot be fought. I do think we can help the Americans to deter the big war and help to deter small wars—that is, conventional wars—and fight conventional wars, if we have to.

As far as organization is concerned, I would like to say that I look at unification somewhat differently from most others. I think unification at the operational working level is almost impossible because specialization is now such that it is just not possible. On the contrary, I think the division into land, air and sea is too big already. They should be subdivided. But, what I think is essential is unification in the support services, the support and supply services, and then unification at headquarters level. Headquarters and everything around, but not in the operational working level I think can be unified.

Now, if you go along with the four tasks which I set out, then I think what we need is a unified defence command for the whole service; a unified intervention force command, divided into a command for home troops and a command for overseas troops; a unified logistic command, and a unified training command.

I would again like to emphasize the necessity of looking practically at unification; that is, unification of staff and of supply services, but not unification of operational branches.

I myself was a pilot in the air force. I do not think I could have learned to navigate a destroyer as well. The pilot's branch is big enough. But once you go beyond the level of wing commander, lieutenant colonel, and commander, then you can unify; then you go out from the working level.

If I may, I would like to quote from a few notes here. This unification and reorganization at the top levels would streamline the armed services which have suffered in the past from a surfeit of "planners" in relation to the number of "doers" and from too much administrative tail for the available fighting strength.

The increase in the number of operational units in the scheme which I propose would absorb a proportion of redundant staff officers, but probably

not all. To make the armed forces flexible and mobile, as they must be in modern times, their staffs and supporting services must be kept comparatively small in size.

The overriding objective must always be the best possible ratio of personnel to fire-power. Furthermore, at the highest headquarters, which, of necessity, must be static and therefore could be bigger because they must stay in one place, it is not the quantity of officials which makes for good planning and efficient administration, but rather their quality. You can have a small effective staff which can do more.

So in this very important question of unification I think the emphasis must be on unification of staff and of support services while keeping the operational services separate.

Mr. SMITH: Have you read any articles concerning the United States strike command? Is that something along the lines you suggest?

Mr. GELLNER: I think the United States are going in this direction. I mentioned the marine corps as a wonderful example of people who are capable of operating on the ground, in the air, and on the sea always with their own resources. The British are doing the same in their integrated commands outside of Europe in Aden and Singapore. The general direction is towards unification at these command levels. So there is nothing new and startling in what I propose.

Mr. PATTERSON: I think the more important questions have already been answered, especially those raised by Mr. Smith just now. But I wonder if there is anything more to be added to the last statement on page 3, with respect to the two basic questions: "How can this kind of military force be obtained most effectively?" The witness has covered it completely, but I wonder if he has anything further to say.

Mr. GELLNER: I would like to say that once you have a military doctrine or a strategic concept, if you wish to call it that, and then you fit it into a policy making body, and you add political considerations to it, then together the political and the military considerations will result in a defence policy, a national defence policy.

This national defence policy must then be translated into manpower and into equipment.

When I say "most effectively" what I mean is that every requirement, every proposal, every new piece of equipment which seems to be desirable must be measured against this national policy and against the strategic concept, because this will then avoid the purchasing of equipment and the increase and decrease in personnel which, when they are finished, do not achieve any purpose.

Previous witnesses have drawn attention to the fact that certain equipment which seemed important a few years ago has no importance when it is really available. This is not altogether so. You were told last Tuesday that the life of modern equipment is very short—the life of an operational aircraft was stated to be three or four years on the average; I mean the useful operational life of a type of aircraft, not an individual aircraft, but rather of a type. I cannot agree with this at all because, for instance, the mainstay of the strategic air command, the B-47, and the B-52, when they are phased out, will have served very usefully for 20 years, which is rather more than that of previous types.

I would not be surprised if the nuclear submarine, which is, after all, not new—I believe something like 10 years old—should prove to be a useful weapon for another 20 years. Therefore it is not correct to say that modern equipment becomes obsolete as soon as it is produced. But it does become unusable if the original use was not thought out carefully enough.

I would like to make this distinction. Therefore once you are able to measure the requirements against the Canadian policy and the Canadian military concept, then I think you have a chance of purchasing the right type of equipment and getting the right type of organization. But if you take requirements piecemeal and try to fill them, you will always be left with the Avro-Arrow, the frigate program, and the CF-104 type of thing.

Mr. PATTERSON: You made passing reference to the proposed multilateral nuclear force. In your opinion would you establish such a force, subject to proliferation of a national nuclear force? You mentioned that was what the Americans had in mind.

Mr. GELLNER: I do not believe so. What I said was that the Europeans, I believed, were developing an independent nuclear force which will make it an absolute certainty, and be a real assurance that the American deterrent will be operative in Europe.

That is the reason for the proliferation. I do not think anybody goes into this terribly expensive experiment of producing nuclear military power unless he thinks he has to do so.

But a multilateral force is not going to reassure Europeans, because actually nothing has changed. The crews will be mixed, but the warheads will still be under American control until released to the alliance. It is only a variation on what we already have, a variant which is perhaps more acceptable, because the allies will be actually on the ship operating these weapons; but the warheads will still be controlled by the United States. Therefore, I do not think much will change in the views of those European nations. I mentioned France and Germany who doubt whether the American deterrent is as unconditional as it used to be. On top of this, that it is a multilateral force militarily does not make sense, because we really have already too much strategic deterrent. We are simply piling on more strategic deterrent at the cost of $5 billion.

I would like to quote from General Macklin who said in January of this year:

> We suffer from a plethora of a nuclear deterrent and a frightful deficit of conventional force. Our role should be to reduce the deficit.

The multilateral force only adds to the already overwhelming strategic deterrent in the hands of the United States.

Mr. PATTERSON: Then you would say there is no useful purpose that would be served by the establishment of this.

Mr. GELLNER: I would say there is no useful military purpose. There may be certain political considerations. It was suggested, even in Canada, that we should do it in order to be co-operative. This is a political consideration. Militarily I cannot see any advantage.

Mr. PATTERSON: There is one other question. I do not know whether or not this falls within the terms of reference of this committee. I do not know whether we are supposed to deal only with military matters. I was going to ask Mr. Gellner if he had any suggestion with regard to what attitude we should take in the field of psychological warfare and in the face of psychological offensive by the communist world?

Mr. GELLNER: I could not answer that question. I myself do not believe very much in psychological warfare. I would be very much afraid if we went into this field.

Mr. PATTERSON: I might ask the Chairman whether this is a suitable subject to be considered in such a committee as this?

The CHAIRMAN: I do not think there is any limit to what we can study in the realm of defence. If this is a subject you think we should discuss, I do not see why it should not be brought up.

Mr. PATTERSON: Then I will reserve any questions I have on this subject until another occasion.

Mr. LAMBERT: Mr. Gellner, this morning you made quite a point of emphasizing that Canada had failed in having a defence policy because it lacked a clearcut military doctrine. You developed this theme as you went along. In so doing you paralleled, I believe, a good deal of the burden of your argument in the article you wrote in *Executive* magazine in July of this year. The article was entitled "Futility in Ottawa". If I may say so this struck me as a charge that NATO was without a military doctrine as it now stands; that it is at a crossroads. Would you then not agree that you cannot consider a military doctrine in isolation, but as a political entity within NATO which is subject to a great number of what you would call political considerations, and that a lot of things that are done within NATO and decisions that Canada adopts are because of this political commitment, or political involvement in NATO, rather than an absence of military doctrine?

Mr. GELLNER: I would say we should, if possible, go into the NATO councils with a military doctrine of our own. I think this would be very helpful also to the other NATO members, I do not think I said that NATO now has not got a military doctrine. The old one is still in power and is quite clear. It may well be the wrong one. I believe it to be the wrong one; but they have it.

I am not saying that the Canadian military doctrine should be immovable. Obviously a military doctrine is continuously open to rethinking; but we still should have a certain accepted outlook on basic military questions. We should agree inside, within our own establishment, on the outlook in respect of deterrence and war, and then we should mould our forces accordingly. We should also endeavour to present this outlook of ours to our allies and persuade them that they should accept our contribution in accordance with this outlook. It is difficult to say what the reaction would be. That is a hypothetical question. However, the contributions of the smaller NATO allies are very different one to another, and they seem to be by and large all acceptable. Why would not our military contribution, based on our military thinking, be also acceptable to NATO?

Mr. LAMBERT: In theory that may be all right within limits, except that I think you would arrive at a tower of Babel, and NATO as a united force would disappear, because if all NATO powers arrived there with preconceived military doctrines of their own from which they are inflexible, then the whole NATO structure is meaningless. I think you would agree, in the example you used of the strike reconnaissance role for Canada's air division, that we had no military doctrine because this was a meaningless role and, in fact, in this sector it would seem that NATO's military doctrine is sterile. Yet I think if one looks behind one will see that Canada was not favourable to this role in the original instance, and that Canada made alternative suggestions, but these were not acceptable politically by the dominant NATO partners. We know that in 1959 had Canada withdrawn its air division it would have been politically unsound from NATO's point of view because there was a sort of crisis of membership at that time. Yet, subject to all the pressures, Canada finally agreed to go into this.

Mr. GELLNER: That is, if it did not believe in the possibility of a nuclear war. You have an advantage over me because you know what happened behind the scenes. I understood you to say that if we had said "we will not provide a strike reconnaissance force because we do not believe that you can ever use it, but we will provide tactical support", NATO would not have accepted it. Of course this would change the situation completely. This is something which you know and which I do not know. I have always believed that if we had at that

moment said, We are not taking this role. We do not believe that we can interdict a battlefield by throwing nuclear bombs on eastern European cities, but we are quite ready to take, for instance, the role of tactical support of ground troops. I think NATO would have accepted it. However, I do not know; it is just a suggestion.

Mr. LAMBERT: Then there was another area in which I would like to have some discussion, and that is the following. There has been some similarity between your approach to the concept of the Canadian military force and that of General Simonds. Maybe I should not cite his name, but I think you part company there. I believe you told the committee this morning that you feel that a confrontation of major powers leads to an inevitable nuclear war, and yet we have been told by General Simonds and by others that that is unthinkable because in effect the man who presses the button sends off two bangs—the one going from his bases, and the one coming back. That would just not make sense. In other words, why start something if you are going to be annihilated? You wage war to gain an advantage, and therefore, why feel that a confrontation of major powers means an inevitable nuclear war?

Mr. GELLNER: First of all, I would like to say that I understand you undoubtedly mean by the major powers the Soviet Union and the United States. I would like to say it is my belief that if they got into a direct war, they could not wage it otherwise than by nuclear weapons. They would not wage a conventional war. I think I am supported by history because in the Cuban conflict there was no suggestion of the United States saying "unless you do what we want—that is, remove these missiles—we are going to wage a conventional war against you", because if this had been the threat, it would not have been a very big one for the Soviet Union. However, the threat, as we know, was actually a nuclear war. In the last *Newsweek* you will find a full account of how many nuclear weapons were actually ready to go to support the American threat. I cannot think of the possibility of the United States and the Soviet Union fighting one another between Alaska and Kamchatka—that is where they get together —with conventional forces.

However, I agree with you that the purpose of war is peace, at least the one who thinks he will win thinks peace will be better than what was before. I agree with you there, and I also consider that a nuclear war between the two big powers is unlikely because the purpose of war would not be achieved. But I do not believe that they could engage in a conventional war. The Russians certainly are absolutely sure of it and say it right out, that if they are directly involved it will be an all-out nuclear war.

Mr. LAMBERT: Now, the third and last area on which I would like to get your impression is the following. In the organization of our forces, in their relationship to the Minister of National Defence, this is in the determination of defence policy, we know that our present set-up is a minister with a chairman of chiefs of staff and the chiefs of staff—all purely military persons. It has been suggested that we would gain in adopting a modified British approach by the introduction of more civilians in the advisory bodies to the minister. In other words, the army council would be composed of some non-service personnel, the naval board and the air council, so that you would get a levelling out of the purely professional service approach. This applies at the defence committee level, at the ministers' committee level and down to the various service levels. Have you considered this matter, and do you think that there is a problem here, and if so, what would be your thoughts on it?

Mr. GELLNER: I have never thought that any policy should be made only by service personnel or only by civilians. It does not really matter whether

you are in uniform or out of uniform provided you are the best qualified person. However, there is one improvement, I think, which could be made and which would help the unification and would also clarify the defence policy, and that is the concentration of strategy planning directly under the minister, and to leave it to the services to deal with the tactical field. The French have done it by the introduction of a chief of staff of national defence, with his proper staff. This chief of staff of national defence is a kind of military deputy minister, side by side with a civilian deputy minister. Under him comes all strategic planning which is unified directly under the minister. Next to him come the different services under their chiefs of staff, and they carry out the strategies which have been devised in the minister's department with the help of the civilian deputy minister and the military deputy minister, the chief of staff of national defence.

Now, the Russians in the second world war had a similar arrangement. All their strategic planning was in the hands of the so-called STAVKA, and the STAVKA was directly under Stalin. It did the strategic thinking. Then came the services which carried out the strategy. Now, this would be a help to unification, and in this department of the chief of staff of national defence all the services would be represented, the defence research board, the civil defence authority, and also, quite usefully, civilians with a knowledge of economics, and so on. This, I think, would be a very great improvement.

Mr. GROOS: Could I put a question to you? This sounds directly contrary to one of the prime principles of warfare which is that you should not give the job to be done any person who is not responsible for its planning. This was the downfall, was it not, of the German army who had their special staff planners who did all the planning in one little box and then handed out their plans and services to another for execution. If I understood you correctly, this is what you are now suggesting should be done with our force.

Mr. GELLNER: First of all I cannot agree with your historical example. I think the German army did admirably in the second world war, but it was ruined by political interference. In most cases where the general staff did the planning and where they carried out their strategy they were very successful. In fact some of the military gems with the greatest results achieved using minimum forces, were actually produced by the German general staff. I do not think your example presents a strong supporting argument.

The question which you really posed is this: Where should the execution of set strategy start? At present the execution of strategy in warfare would start, in the fleet, for instance, with the flag officer who is afloat. He would probably be a rear admiral who would not deal with strategy. He would be a practical commander and receive instructions as to tasks to be carried out.

In the air force, the commander of an independent air force in Europe for example, or someone of that nature, would be in the same position.

The chiefs of staff and their organizations are now still in the strategic field. I said that it might be just as useful to keep the whole service organization in the tactical field, but to take some individuals from these services and put them into the department of the chiefs of staff of national defence so as to concentrate there on strategy planning. This is, of course, a manner of opinion. I suggest there would be very little change in this regard because, in fact, strategic planning ends very high up in the services in any event.

If one takes the last war as an example, in the air force, the largest conventional unit was 6 group of bomber command. That headquarters did not do strategic planning. It was a tactical unit and received instructions and strategic planning from the mountain of the bomber command.

Strategic planning is anyway reserved to the highest levels, and I suggested that it be taken still one step higher. This is a matter of opinion, as I said.

Mr. GROOS: Are you proposing the removal of strategic planning from the services directly and putting it into a separate unit?

Mr. GELLNER: Yes.

Mr. GROOS: I disagree with you in that regard.

The CHAIRMAN: Mr. Deachman, I have your name next on my list from this morning.

Mr. DEACHMAN: Mr. Chairman, I just have a few questions to ask.

Mr. Gellner, in outlining Canadian policy I believe you mentioned a compulsory civil defence and the compulsory holding of equipment, which I presume would be held in readiness?

Mr. GELLNER: Yes.

Mr. DEACHMAN: In view of the political knowledge we possess regarding the Canadian attitude toward compulsory military service, how do you envisage such a policy being put into effect?

Mr. GELLNER: How you should go about making this law I am afraid I cannot advise.

Mr. DEACHMAN: I think we must be able to foresee these things within our existing political framework.

Mr. GELLNER: Yes. I should like to say that people are rational and will realize that all rescue and survival operations by the emergency measures organization cannot prevent calamities unless every Canadian knows what to do and has the wherewithal to do it.

Let us assume a nuclear weapon fell somewhere in Canada which destroyed everything within 3 or 4 miles of ground zero. It would start conflagrations which could only be dealt with by professional firefighting services within 10 miles. Beyond this 10 mile limit it might start bush fires and set fire to the paint on houses. These very small conflagrations should be dealt with by the people on the spot and unless they were dealt with by those individuals these small conflagrations could actually burn perhaps as much as would be burned in the immediate area of the nuclear explosion.

I believe the subject involves a matter of self-preservation. I believe that Canadians will agree to purchase hand pumps and to take, let us say, 12 hours of instruction with repeat courses of 2 hours in the evening once per year, in order to be able to protect themselves.

I think this same theory applies to decontamination. Obviously, where there is contamination to a high degree it must be dealt with by professional units. Where the contamination and the effects thereof can be avoided simply by an individual taking a shower, this must be done, if the consequences are not going to be serious, by the individual.

This is realized in other countries. I suggest to you that Sweden and Switzerland are just as good democracies as we are. They have this in existence not because they can impose this on Swiss and Swedish citizens by force, where we cannot, but because they have gone to the trouble of explaining to the Swiss and Swedes. These people have accepted this information and I am sure Canadians would do likewise.

Mr. DEACHMAN: Would the civil defence people be armed in any way?

Mr. GELLNER: No.

Mr. DEACHMAN: You do not envisage a home defence force which would be armed in any way?

Mr. GELLNER: No, I do not believe that a fighting war in North America is possible and, therefore, there is no need for arms. If the deterrent fails and the terrible calamity of an all-out nuclear war develops I think we must try to

save what can be saved, and to do so, I say very earnestly, requires the knowledge and work of every citizen of thinking age.

Mr. DEACHMAN: Turning again for the moment to the subject of national policy, you mentioned that Norway and Denmark had chosen unique national policies for themselves within NATO. Can you describe what those policies are and how those countries arrived at those policies?

Mr. GELLNER: I do not know how they arrived at these policies but certainly Norway and Denmark have refused to accept any commitments which would involve the use of nuclear weapons. They take part in NATO and provide forces which are not nuclear armed.

The point which I wanted to make in this regard was that this attitude did not result in the exclusion of Norway or Denmark from NATO, and perhaps not even in a weakening of NATO. I think they are making a favourable contribution in a different field.

I only wanted to make the point that national military policy in respect of so important a point as going along with NATO policy or not going along with NATO policy in regard to nuclear arms is perfectly possible within NATO without tearing the alliance asunder.

Mr. DEACHMAN: Let us suppose that smaller countries had taken independent policies. Let us suppose that Portugal, Greece and Turkey were to take independent policies in this regard. Do you not envisage the whittling away of the main policy of NATO and the gradual disintegration of NATO as a result of such a move on the part of these countries in this direction?

Mr. GELLNER: I do not think that would result, providing these are rational policies which are directed toward the aim of NATO. The aim of NATO is to protect the free world in certain areas, that is, in these areas of the 15 NATO powers.

You mentioned Portugal and I should like to state that Portugal, certainly in respect of the nuclear question, has a different policy from ours. If Greece and Turkey said they could not possibly defend the free world on their borders with nuclear weapons and, therefore, would not accept them, this would be perfectly possible and would not result in a disintegration of NATO.

You have to bear in mind that deterrence is already provided by the United States in abundant fashion. After all, one can only frighten a person once. Once a person is frightened he is already deterred; more deterrence and more deterrent weapons will not increase the deterrence.

Mr. DEACHMAN: I see this point, but let me ask you this. Deterrence is not merely a case of I.C.B.M.'s or great strategic weapons aimed at each other's cities; it comes down to the deterrent force of military forces on the border, themselves equipped now on the Russian side with nuclear weapons of a field force of distances of 15 to 25 miles and so on. Is this not so?

Mr. GELLNER: They have short range missiles, but I think they go farther than that. This is beyond the point, however, but I understand what you are driving at.

Mr. DEACHMAN: On the Russian side they are coming down to the divisional level and to the battalion nuclear weapon, are they not? Is that not so?

Mr. GELLNER: No, I do not think so. But again this would not be very relevant. In the Russian forces I believe the nuclear weapons are actually held by the army group. They do not go as far down as you suggest. The army group have nuclear weapons, but I am not sure on this point and therefore would not like to state it categorically.

Mr. DEACHMAN: Let us now come to Turkey. Let us suppose that Russian forces opposing Turkey are equipped with nuclear arms at the divisional

level. Do you not feel that the Turkish forces, if NATO is to retain its strength on a strike-for strike basis, must themselves be equipped with a similar and equivalent force, so being able to retaliate?

Mr. GELLNER: It is not necessarily so because on this level what is the purpose of the deterrent? The purpose of the deterrent is two-fold: first, you want to prevent the other side from using his nuclear weapons; second, you want to impose on the other side the limitations which the knowledge that you have nuclear weapons imposes upon him. That is to say, he cannot concentrate because he does not know that he is not going to be struck by nuclear weapons. This imposes certain tactical limitations.

This type of deterrence is undoubtedly necessary but the question is in the case of Turkey, is it necessary that the Turks have this kind of deterrence? If you feel that this deterrence must be exercised by the Turks, you may well be right. I suggest to you that this deterrent is also available through the presence of the United States Sixth Fleet in the Mediterranean, and the Turkish tactical nuclear weapons again only pile further deterrence on top of that which is already available.

You have to consider one more thing. All the weapons, whether in American hands or in Turkish hands, are under American control. It is still only an American decision as to whether these weapons will be used. What advantage is there, then, if these weapons are handled by the Turks? If the decision must anyway come from Washington, they may just as well be handled by the Americans. I am not saying that the Turks would not be justified in saying that they would be happier, although they have no control over these nuclear weapons, if they were the ones who were to shoot them in case it became necessary; but I do not think that this is absolutely necessary. The Americans have full control anyway. They want this complete control now more strongly than ever before. I cannot see the advantage in somebody else doing the actual shooting after the Americans say "okay, you can go".

Mr. DEACHMAN: The *Globe and Mail* of a day or two ago had an article of considerable size indicating a whole range of small tactical weapons with which the United States was equipping or re-equipping its force in NATO. Did you read that article?

Mr. GELLNER: Yes.

Mr. DEACHMAN; This dealt in ranges of 15 miles, 20 miles, up to 75 miles for this array of armament. Do you not think that if war were imminent on the Turkish border that small nuclear tactical weapons of 15 mile range would have to be in the command of local forces not in the command of a fleet anchored somewhere in the Aegean, and that this weapon was never designed for any other purpose than the close support of troops on a border facing an enemy similarly equipped?

Mr. GELLNER: I do not believe that these 15 to 75 mile weapons can actually be used in war because I do not believe in limited nuclear war.

Mr. DEACHMAN: Then, sir, may I ask you why —

Mr. SMITH: Just a minute, Mr. Chairman. Mr. Deachman has not been allowing the witness, for some time now, to finish his answers. I know Mr. Deachman's opinion is valuable, but we have the witness here and we would like it if he could be given a chance to complete his answers before he is interrupted.

The CHAIRMAN: Mr. Smith has just said what I wanted to say. It has seemed to me also that the witness has not been given the chance to complete his explanation before you continue with your questions.

Mr. GELLNER: I do not believe that these weapons can be used in practice, because I do not believe in limited nuclear war; but this again is an opinion. Therefore I do not consider this re-equipment of the American forces with these small weapons to be particularly significant. I do not think they can shoot them off anyway because I do not believe you can wage a limited nuclear war.

Again, if the Turks believe they can, they would be fully entitled to demand them. The question is, do we believe that limited nuclear war is possible? If we so believe, if this is part or is going to be part of our military doctrine, we would be fully entitled in demanding that our troops be so equipped. I do not believe that this is the general thinking in Canada, however. And if it is not, then it is a complete waste to have such weapons.

The CHAIRMAN: Are you through?

Mr. DEACHMAN: I have one more question.

I am left with the feeling, Mr. Gellner, that you would withdraw virtually all nuclear weapons except the main deterrent. The only nuclear command that you would give, then, would be the ultimate command. I feel if your philosophy of withdrawing smaller weapons from a front were carried out instead of a theory of flexible response, which we discussed this morning, the flexibility of your response would be gone and on the first strike of an enemy, even with the smallest kind of tactical nuclear weapon against a local force of troops you would be left with only one decision—the ultimate decision of an I.C.B.M. or equivalent weapon.

Mr. GELLNER: No, I do not say that there has not to be this deterrent for the two reasons which I have stated, to prevent the enemy from using his nuclear weapon and to impose limitations which the presence of nuclear weapons in American hands would impose upon the Russians. I do not say that. All these weapons of all categories are available. I think battlefield weapons of 15 to 75 mile range are not important, because after all tactical deterrence can be exercised from an aircraft by an airborne weapon of any size you want to load on the aircraft. It is not necessary to drop a megaton deterrence can be exercised from an aircraft by an airbore weapon of any weapon every time.

The other point is that I do not think anybody—and it is always only a question of the Americans or Russians, either the one side or the other—would think of starting with the small weapons. I do not think that they really believe they could limit it to small weapons. Perhaps the Russians want to fool us, but the Russians have said again and again that if they start, they will start with everything they have. Therefore we do not have to consider their starting with a small nuclear weapon. The Americans would not, I believe, start any war at all, I hope. So, I agree with you that there has to be a variety of nuclear weapons, possibly from one kiloton to one hundred megatons. However, I personally am sure that it is not necessary that we hold them. In any event, the Americans have reserved to themselves the control of them and, therefore, they may just as well hold them if they want to control them, and rightly so.

Mr. TEMPLE: Mr. Gellner, I believe you said this morning there is practically no threat of conventional war in western Europe.

Mr. GELLNER: I did say that.

Mr. TEMPLE: Then you have stated that a limited nuclear war, in fact, could not go on. Am I correct in that?

Mr. GELLNER: Yes.

Mr. TEMPLE: Do I take it that there is practically no danger now of a nuclear war?

Mr. GELLNER: I do not believe there is a real danger of nuclear war. I think the danger of nuclear war breaking out by accident has been very much exaggerated. When one sees the controls the Americans have built into the organization of the nuclear forces I think you will agree that it is practically foolproof. I do not think anyone knows whether or not the Russians have the same control system, but if they have any sense at all they will have it. As I said, in my opinion, deliberate nuclear war is most unlikely because of almost certainty that these murderous actions would also be followed by suicide. The possibility of nuclear was is limited to the possibility of one side losing its senses and becoming irrational. Now, although there is no way of eliminating that, on the other hand, you cannot gauge the chances of such a war either. However, I would eliminate this as something with which we can count, and I would say there is no danger of nuclear war because of the effectiveness of the deterrent.

Mr. TEMPLE: Then there is no danger of practically any major war?

Mr. GELLNER: You have to define what a major war is. A war between Red China and India, such as occurred last year, is a major war because it is a war between two big powers.

Mr. TEMPLE: I am referring to Russia and the United States.

Mr. GELLNER: I do not believe so.

The CHAIRMAN: Have you a question, Mr. Brewin?

Mr. BREWIN: Yes, I have, Mr. Chairman. However, before I ask my question I would like those who have questions to put theirs at this time.

Mr. GRANGER: Mr. Chairman, most of the questions I wished to ask have been answered. However, there are one for two comments I would like to make and one or two comments I would like to invite from you, Mr. Gellner.

In reply to Mr. Lambert's question you used the phrase that the purpose of war is peace. My interpretation of history is that the purpose of war is profit. Perhaps we should harmonize both by saying a profitable peace. In my opinion, in an all-out nuclear war—and it is generally accepted—all that would be left is what could be called the spoils of war. In such a case would there not be an attempt to stop just short of a nuclear war and to have a war waged between the major powers without ever using all-out nuclear weapons?

Mr. GELLNER: What then would be the purpose of a war between the United States and the Soviet union? Surely it then becomes a war for world domination, as a result of which there would be a dominant power alone in the world. If they would go so far as to wage such a war I cannot see how they could stop by using conventional forces only. Although we are in a field of speculation here, I cannot envisage it.

May I add this footnote to the statement that the purpose of war is peace. A country which goes into a war wants to create a situation which is better than that which existed before the war. We now have a war between Algeria and Morocco. I do not know how important these two border posts are over which the war is being fought, but I suppose that either side thinks they will be better off if it wins. Now, this is the kind of war which is still being fought all the time. We had them in Yemen, South Viet Nam, in Laos, and so forth. But, the war between the Soviet union and the United States would obviously grow into something which would be much bigger than a border war, a war over an island or something of this nature. Although I cannot envisage anything less, nothing is impossible.

Mr. GRANGER: Inherent in the discussion between yourself, Mr. Deachman and Mr. Temple, there did seem to be evolving the possibility the spot where conventional war but a limited nuclear war, without reaching the spot where

someone completely lost his senses, so to speak. I would like to ask you about the overwhelming nuclear forces which exist in the world today. Is it a fact that far more nuclear weapons are stockpiled than necessary.

Mr. GELLNER: I think I already have made reference to that. For instance, at the time of the Cuban crisis, American forces were in defence readiness just one stage short of war and, among other nuclear forces, they also had cruising over the Atlantic 90 of their 600, odd, B-52 bombers. We know also from open sources that these B-52's carry a 24 megaton weapon, so 90 B-52's carried about 2,100 megatons or 2,100 million tons of T.N.T., which is ten tons of T.N.T. to blow up every single Russian. But, this was only one of several nuclear forces available. We are in a state of unbelievable nuclear plenty. The over kill probability of the United States is tremendously high, and I presume the same is true of Russia.

Mr. GRANGER: Would you care to comment further on the remark that the retaliatory forces of the United States are invulnerable.

Mr. GELLNER: The retaliatory forces now rely on the dispersal, hardening of their bases, and mobility for their protection. The plan of the United States is to rely in due course entirely on 1,500, odd minutemen, all in silos, and Polaris missiles on, I believe, 41 nuclear submarines. Now, the nuclear submarine obviously cannot be hit because it can be submerged for indefinite periods and hide beneath the ice and so on, and the silos in which the Minute-men are, are resistant to such overpressures that according to information which has appeared you would have to get within seven tenths of a mile with a ten megaton weapon to knock out one silo. There being 850 Minute-men, each in an individual silo, the necessity of coming within seven tenths of a mile of each of the silos and, with a very big weapon, the biggest an I.C.B.M. could carry, to knock out just one silo, would prove to be a very difficult task. Mr. Khrushchev has said that the Soviet union has between 80 and 120 I.C.B.M.'s; how can they knock out 850 Minute-men with these? It is just unbelievable. This is the consequence of the dispersal of the American nuclear force, the hardening of their bases and their mobility. I gave the Polaris submarine as an example; another is the carrier born nuclear force, and so on—it makes the American retaliatory forces virtually invulnerable.

Mr. MACRAE: I have just one question. If the answer has already been given to us, you may shoot me down immediately.

The CHAIRMAN: I won't do that.

Mr. MACRAE: You might assist me in the reading of the minutes. But I wonder if the witness would explain what the difference is between military doctrine and military policy.

Mr. GELLNER: To distinguish them, I used the term strategic concept. I would like to say that the military policy of a nation is obviously based upon military and political considerations, while strategic doctrine only encompasses military principles. Therefore the national policy will be something higher than a mere military doctrine, but it would be based on a military doctrine.

Mr. MACRAE: Thank you. That answers my question.

Mr. BREWIN: To return to one point in the discussion earlier, in answer to Mr. Churchill when you described yourself as a military analyst, I suppose that is a fair description of your role here. You told us that some time ago you had arrived at the view that tactical war was not a practical proposition, I mean tactical nuclear war. Am I right?

Mr. GELLNER: Yes.

Mr. BREWIN: And at one time, I take it, tactical nuclear war was a current military doctrine; it was a doctrine of NATO, and it was a doctrine as a result of which we have made a lot of defence dispositions in Canada, such as the Honest John rocket, the strike reconnaissance role, and so on. At that time you held a minority view among military analysts, although many agreed with you. Therefore, at that time we had a divergence of opinion about the feasibility or advisability of the use of tactical nuclear weapons, partly, I take it, because of the great conventional military superiority—either real or supposed—of Russian forces in Europe. Is that right?

Mr. GELLNER: Yes.

Mr. BREWIN: Has that military doctrine changed now that there is no universal but a very widespread agreement among military analysts that tactical nuclear war is not impractical but is extremely dangerous.

Mr. GELLNER: I think you are right, but I would not like it to be understood that I was more clever than the others. I simply had this idea, and I shall also say that it is a credit to the Canadian forces that I was allowed to express this idea in writing at a time when I was still in the forces. It was a discussion among military theoreticians; by and large those who thought a limited nuclear war is impossible were in the minority. You are quite right to say that they are now in the majority. But this is a development which is not extraordinary.

Mr. BREWIN: I did not mean by my questions to qualify you as a great expert who foresaw all these things. But I would like to put my emphasis on the second part of the question which was the view you hold, and a view held by a very great majority of military analysts.

Mr. GELLNER: Even the main inventor of the theory of limited nuclear war, Henry Kissinger, has in fact now changed his opinion.

This morning I quoted the difference between what Field Marshal Montgomery said in 1957, that we would answer with nuclear weapons right away, with what Gilpatric now says, that we will answer at the point when we have no other recourse. This policy of course, militarily is also not understandable, because if you are already at the point of losing, after a conventional war, you are usually locked with the enemy whose forces press you back, so that you can no longer use nuclear weapons.

Therefore, this present theory that we would wage a conventional war and use tactical nuclear weapons as a reserve, as Gilpatric says, at the point when we are about to be overwhelmed is, of course, also unthinkable. If you use nuclear weapons, you must use them in the beginning when you are still divided.

Mr. BREWIN: You are referring to Professor Kissinger?

Mr. GELLNER: Yes. I believe that a limited nuclear war is not a very live issue anymore. But the Americans have a new theory, and it is that of a controlled all-out nuclear war. I consider it equally impossible. The only difference is, I think that the critics of the present American doctrine are already in the majority. That is the only difference from before.

Mr. CHURCHILL: I did not get the last phrase. What sort of nuclear war is the new theory?

Mr. GELLNER: The military theory is that you can wage an all-out nuclear war under precise control. It need not be just a slugging match, even if it is a nuclear war where you do not have any limitation as to targets and as to weapons used. It is a global war. They believe now that they can also wage it under strict control provided that they have a central control of the weapons used. This, it seems to me, requires superhuman restraint, and of course an enemy who will use the same restraint. However, this is at present the theory.

The Americans now speak of a possibility of prevailing in a nuclear war. Obviously they cannot use the term "winning". Nobody wins a nuclear war. So they say prevailing. They aim coming out of an all-out nuclear war is the surviving power. But this too, of course, it seems to me, is quite impossible. I very earnestly believe that any nuclear war, if it comes, will very soon become an all-out, destructive slugging match.

Mr. CHURCHILL: Referring again to the NATO alliance, you mentioned one or two nations in that alliance which have not accepted the nuclear role. Are their present contributions considered to be satisfactory, from your point of view?

Mr. GELLNER: From my point of view, certainly, but whether the NATO command is very happy about it, I do not know. There have been noises to that effect. They are doing within the limitations of their policy whatever is required of them.

Mr. CHURCHILL: They are maintaining a navy, army, and air force?

Mr. GELLNER: Yes, but with conventional weapons only.

Mr. CHURCHILL: Just to sum up some of the things you have been saying today, on your very last page you mentioned two basic questions: "What military force does Canada need to back its national objectives?" If we accept as "national objectives" the four items which you put down on page two, where do we go from there? Do we determine to maintain a navy, army, and air force, and if so, of what size?

Mr. GELLNER: I could not really say what size. It is quite possible that we would need as much personnel as we have now; and also, a re-examination as suggested by General Foulkes might result in a cut somewhere, but I do not know. I suggest if we accept a military doctrine, then we can sit down and really see what we will need. I myself think we would still have need for a fairly substantial force. I could not say how many men, of course, because it would be a matter of considering every task separately and seeing how much of a force you need to accomplish each one. If you take the first one, surveillance in peacetime, you would need to know how many reconnaissance aircraft would accomplish that. This is a highly technical question which obviously a military theorist would not have a means of working out, because it is a question of air space, service-ability and endurance of the type of aircraft, and so on. Therefore, I could not go into the details of manpower but only say in general that for this type of surveillance we would need this type of force.

Mr. CHURCHILL: If we accept that, then we are really back to the point where the military adviser has to make the determination as to the type. What can the layman do under these circumstances other than say, we have only so much money to spend and you have to cut your coat according to the cloth.

Mr. GELLNER: Under no circumstances would I want to give the impression that the technical part—and also, of course, the strategy, tactics, and so on—can be worked out by an armchair strategist. They obviously have to be assigned to experts. However, once the policy is determined, and once the perimeter of the task is given, then you obviously will come out with the proper answers on the basis of careful calculations, of staff work, and so on. The decision which the political leaders must make is whether to build a bridge and what king of a bridge. The calculations of the bridge will still have to be left to the experts.

Mr. CHURCHILL: With regard to the employment of the army, earlier you mentioned "what kind of a war are you likely to fight?" If it is not a war in Europe and is one of the so-called minor conflicts, then what type of an army would we maintain in Canada for that purpose?

Mr. GELLNER: Again "minor" has to be qualified. The French waged what you would call a minor war in Algeria. There were no nuclear weapons. For this war they required 500,000 men and, incidentally, they did not even win it with 500,000 men. Therefore, we would have to see what kind of intervention may be required from us. We have had only one experience and this was the experience of the Korean war. We can see what kind of intervention force we needed then.

It seems to me we have to have an intervention force in order to intervene in conflicts where we may be called upon to intervene. That is, let us say, if there were a conventional war on the flanks of NATO, where I believe a conventional war may be possible in Greece, Turkey or Norway, or if there were a conventional war somewhere where we have a burning interest, possibly in the Commonwealth, we may need such an intervention force. We may determine that we would never intervene with more than one division. All right; it would have to be a force based on this maximum intervention of one division. This is not such a far-fetched idea. Australia now is coming to the position where they have to make a basic decision. They have said that if Malaysia is attacked they will support Malaysia militarily. They made a commitment in the field of Commonwealth defence. This is the kind of commitment they could make only on the basis of an intervention force which they think they can put into the field. We have somehow to create a hypothetical case; that is, decide the greatest effort which may ever be asked of Canada in this type of a war, and then plan our forces accordingly.

Mr. CHURCHILL: May I ask one final question of the Chairman. Would the committee consider submitting an interim report to the Minister of National Defence, whom we wish to help, and recommend that Canada get out of the nuclear field as soon as possible so that we can direct our attention to these other problems; or are we to make any recommendation to him at any stage?

The CHAIRMAN: We had a meeting of the Steering subcommittee earlier this week at which time the question of a preliminary report was raised. We are to have another meeting of the steering subcommittee on Tuesday morning at 9.30. After a discussion with the various members we probably will be able to come to some agreement as to what we should recommend to the main committee. This has been in the minds of the members of the subcommittee for some time.

Mr. LAMBERT: Mr. Chairman, we have had a very interesting day with Mr. Gellner. I think the committee is indebted to him for his contribution to our investigation into these problems, and I would like, on behalf of the committee, to thank him most heartily.

The CHAIRMAN: The committee stands adjourned until Tuesday morning at 10.30.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 17

TUESDAY, OCTOBER 29, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Lieutenant-General G. Walsh, CBE, DSO, CD, Chief of the General Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29561-8—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Baldwin,
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

MINUTES OF PROCEEDINGS

TUESDAY, October 29, 1963.
(24)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Baldwin, Béchard, Brewin, Churchill, Deachman, Granger, Hahn, Lambert, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch—(21).

In attendance: Honourable Paul T. Hellyer, Minister of National Defence; and Lieutenant General G. Walsh, CBE, DSO, Chief of the General Staff.

The Eighth Report of the Steering Subcommittee was presented as follows:

Your Subcommittee reports and recommends:—

1. Commodore Plomer is working on his summary of the Mainguy report; and it will be tabled later.
2. The Subcommittee is seeking to acquire, through the Minister of National Defence, the Report submitted in 1961, respecting the role of the Navy and related matters. (*See Evidence—Pages 398, 399, & 412*)
3. That this Committee present an interim report prior to Christmas, 1963.
4. That a number of publications from the Canadian Institute of International Affairs, will be distributed as soon as received.
5. (*a*) That the Committee meet in North Bay, Ontario on November 7, 1963.
   (*b*) That the Clerk of the Committee accompany the Committee to North Bay.
   (*c*) That out of pocket expenses of Committee Members be paid on that occasion.
6. (*a*) That the Committee meet in Europe and the United Kingdom from November 10 to 24 at which time military installations will be inspected, and military personnel as well as authorities in international and defence matters will be interviewed.
   (*b*) That two members of the Press, to be designated by the Press Gallery, be invited to accompany the Committee to Europe, with the understanding that certain of the briefings of the Committee may be *in Camera* or *off the record.*
   (*c*) That the Clerk of the Committee and a Shorthand Reporter accompany the Committee on the trip to Europe.
   (*d*) That the actual living and travelling expenses of the Committee members and staff in attendance during that period, be defrayed out of moneys to be provided by the Treasury.

On motion of Mr. Deachman, seconded by Mr. Lambert,

Resolved,—That the Eighth Report of the Steering Subcommittee, presented this day, be adopted.

29561-8—1½

General Walsh was called, and he answered questions respecting army equipment and defence matters. The Minister of National Defence also answered a number of questions.

During the sitting, the Vice-Chairman, occupied the Chair for a short time.

The examination of the witness continuing, at 12:35 p.m. the Committee adjourned until 4:00 p.m. this day.

AFTERNOON SITTING
(25)

The Special Committee on Defence resumed at 4.30 p.m. this day, the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Baldwin, Deachman, Granger, Groos, Lambert, Lessard (*Lac-Saint-Jean*), MacInnis, MacLean, MacRae, McMillan, Patterson, Sauvé, Smith, Temple, Winch—(15).

In attendance: Lieut. General G. Walsh, CBE, DSO, Chief of the General Staff.

The Committee continued the questioning of General Walsh.

The division bells having sounded calling the Members to a vote in the House, at 5.15 p.m. the Committee adjourned until 10.30 a.m., Thursday, October 31, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

TUESDAY, October 29, 1963.

The CHAIRMAN: Gentlemen, we have a quorum.

Before we proceed with our first witness this morning, I will ask the Clerk of the committee to read the Report and Recommendations of the Steering Subcommittee, which held a meeting this morning from 9.30 a.m. to 10.30 a.m.

The CLERK: The subcommittee recommends and reports as follows:

(1) That Commodore Plomer is working on his summary of the Mainguy report which will be tabled later; and

(2) the subcommittee is seeking to acquire, through the Minister of National Defence, the report submitted in 1961 respecting the role of the navy and related matters; and

(3) that this committee present an interim report prior to Christmas 1963; and

(4) that a number of publications from the Canadian Institute of International Affairs will be distributed as soon as received; and

(5) that the committee meet in North Bay on November 7, 1963; and
   (*a*) that the clerk of the committee accompany the committee to North Bay, Ontario,
   (*b*) that the out-of-pocket expenses of the committee members be paid on that occasion;

(6) (*a*) that the committee meet in Europe and the United Kingdom from November 10, 1963 to November 24, 1963, at which time military installations will be inspected and military personnel as well as authorities in international and defence matters will be interviewed; and
   (*b*) that two members of the press, to be designated by the press gallery, be invited to accompany the committee to Europe with the understanding that certain of the briefings of the committee may be *in camera* or *off the record;*
   (*c*) that the Clerk of the committee and a Shorthand Reporter accompany the committee on the trip to Europe; and
   (*d*) that the actual living and travelling expenses of the committee members and staff in attendance during that period be defrayed out of moneys to be provided by the treasury.

The CHAIRMAN: Will someone move the adoption of that report?

Mr. DEACHMAN: I so move, Mr. Chairman.

The CHAIRMAN: Do we have a seconder for that motion?

Mr. LAMBERT: I second the motion.

The CHAIRMAN: Is there any discussion in regard to the adoption of this report?

The motion is carried unanimously.

This morning we have with us Lieutenant General G. Walsh, Chief of the General Staff. He will continue answering questions in regard to his brief submitted to the Committee on Thursday, July 11, 1963.

Mr. HAHN: General Walsh, since we have received your brief, we have received briefs presented by other people, notably General Simonds and General Foulkes, both of whom expressed ideas regarding a portable mobile army unit. I should like to ask you first of all what the possibilities are of transporting a military unit by air and, secondly, what type of equipment could accompany such a unit? Could such a unit transported by air carry enough equipment to enable it to be an integrated fighting force?

The Hon. PAUL HELLYER (*Minister of National Defence*): Mr. Chairman, I thought the understanding this morning was that questioning would be confined to the brief presented by the General. Is that not the understanding of the steering committee as relayed to me?

Mr. LAMBERT: Mr. Chairman, this subject was raised in the General's brief and this is certainly an inherent question arising out of that brief presented by the chief of the general staff.

Mr. HELLYER: Mr. Chairman, of course that question involves a matter of degree and if the member would indicate the amount of airlift required to pick up a particular unit and its equipment we will attempt to answer his question.

Mr. HAHN: I did not have particular reference to number of aircraft involved but had in mind the type of unit that would be transportable by air. We all realize that an armoured unit would not be transportable in this way because the tanks could not be accommodated in the aircraft. Could an infantry unit with the necessary equipment to support that unit, having in mind modern armaments and equipment, be transportable by air?

Lieutenant General G. WALSH, C.B.E., D.S.O., C.D., (*Chief of the General Staff*): I think I can answer your question, Mr. Hahn. United States military forces have proved that such an airlift can be carried out, including the movement of light tanks. I have witnessed such an operation. In other words, an airlift can accommodate reconnaissance and artillery equipment with perhaps the exception of the very heavy artillery. Certainly reconnaissance vehicles and light tanks, of which we have none in the Canadian Army, can be carried by air as well as armoured personnel carriers. Whether the cost involved of operating the large number of aircraft necessary to perform such an airlift would make such an operation reasonably economical or not is entirely a different matter.

Mr. SMITH: Mr. Chairman, I should like to ask a supplementary question. General Walsh, what type of aircraft would be required to carry armoured personnel carriers of the type of the Bobcat, or the United States equivalent?

Mr. WALSH: The only aircraft of which I have any direct experience in this regard is the Hercules. The Hercules can carry a Bobcat.

Mr. SMITH: Can the Hercules carry one Bobcat or more than one?

Mr. WALSH: I think it can carry two Bobcats, but I do not have that technical information with me. Unfortunately we have not had the Bobcat and, therefore, have not been able to experiment in this regard.

Mr. SMITH: I should like to ask one further supplementary question. Could the Caribou carry a single armoured personnel vehicle?

Mr. WALSH: I do not believe that the Caribou could carry an armoured personnel vehicle. The Caribou was originally conceived as flying a two and a half ton truck. An armoured personnel carrier is much heavier than a two and one half ton truck.

Mr. SMITH: Thank you.

Mr. BREWIN: Mr. Chairman, you have caught me a little sooner than I expected. I understand, General Walsh, that you stated earlier we have two brigades in Canada earmarked for NATO, is that correct?

Mr. WALSH: That is correct.

Mr. BREWIN: In the event a war broke out in Europe what means would be available to transport these two brigades to Europe and how long under present conditions would it take to transport them?

Mr. WALSH: We attempt to operate on the criterion that it takes 30 days plus shipping time to move the two brigades to Europe. Shipping, of course, is not under our control. We have approached NATO authorities at the planning level in an attempt to learn what we could count on in this regard, and the only assurance we have been given is that as soon as the Canadian government releases these troops they will receive high priority. That is the best and only answer I can give you.

Mr. BREWIN: Is there not a serious danger involved in respect of any support role in Europe by these troops in that our efforts would be frustrated because of an inability to transport the troops to the scene of any outbreak?

Mr. WALSH: Our plans involve the flying or reinforcements to support the brigade in Europe at the present time. In completing our defence plans we decide what we are able to do so that in the case of an emergency the flying of our reinforcements would take first priority.

We have not been able to resolve formally the question as to the availability of ships. We must realize that in considering this problem many of the larger ports to which these ships could proceed may be destroyed, in which event we have to use minor ports not equipped with proper facilities for off-loading heavy equipment. In this regard we have carried out studies on the availability of ships in Canadian waters at particular times, and our studies have more or less proved that there would be ships in Canadian waters which could be made available following the decision to move our troops. On the basis of these studies we have developed special loading devices which can be mounted on ships enabling those ships to off-load the equipment.

Mr. BREWIN: Have you in your considerations contemplated the type of war in Europe which would stretch over a period of time, and is this the type of contingency we likely would have to meet?

Mr. WALSH: I think I referred in my brief to the spectrum of what could happen in the event of a prolonged tension, covering the necessity of reinforcing our troops as a result of anything up to and including a surprise attack, but I should hesitate at this time to say what might happen.

Mr. BREWIN: I do not suppose my next question involves a matter of security, but I should like to ask what percentage of our tanks and artillery are in Canada and what percentage are in Europe at the present time?

Mr. WALSH: I find it difficult to answer your question because in respect of certain types of equipment we have more in Europe than are used for training in Canada, but basically there is 25 to 30 per cent in Europe with the balance in Canada.

Mr. BREWIN: It would be necessary in the event of the outbreak of hostilities in Europe to transport tanks and artillery as well as troops?

Mr. WALSH: We would not necessarily have to transport artillery as a result of such an event because we do not have any very heavy type artillery equipment which could not be transported by air. Tanks, of course, would have to be transported by ship.

Mr. BREWIN: I have heard the suggestion made that we do not have any medium range antitank weapons, is that correct?

Mr. WALSH: We do not have any medium range antitank weapons but we do have a guided missile weapon on order for delivery in July of 1964. This weapon is referred to as the S.S.-11.

Mr. BREWIN: What is the range of that weapon?

Mr. WALSH: The range of that weapon is 3,500 meters or roughly 3,500 yards.

Mr. BREWIN: When I mentioned medium range I had in mind controlled weapons designed to destroy tanks from between 300 feet to 1,000 yards. Do we have any weapons of that type?

Mr. WALSH: Yes, we do have the 106.

Mr. BREWIN: What is the range of the 106?

Mr. WALSH: The 106 is effective from zero to 1,200 yards. The minimum range of the guided missile weapon is roughly 400 yards and the 106 recoiless weapon fills that gap. We also have on order a close support weapon so that ground troops will be able to look after themselves. In other words, they will have a defence against being run over by tanks. This weapon is the M-72.

Mr. BREWIN: Thank you very much.

Mr. MCMILLAN: General Walsh, I should like to deal with the strength of the army. You have stated that there are 50,000 personnel at the present time in the army and approximately 50,000 personnel in the militia, is that correct?

Mr. WALSH: That is so, Dr. McMillan.

Mr. MCMILLAN: What do you mean when you refer to associated corps? Do you have reference to the air force and navy?

Mr. WALSH: No, I am referring in this case to army cadets.

Mr. MCMILLAN: How many civilian employees do you have in the army?

Mr. WALSH: I cannot answer that question in respect of the exact strength of civilian employees. Perhaps I have that information with me. The total civilian strength paid by the army is in the order of 18,383.

Mr. MCMILLAN: At page 134 of your brief you stated that because of the restriction of man power to 50,000 for budgetary reasons there are certain restrictions in connection with some units. Can you enlarge on that statement?

Mr. WALSH: I think my brief covers what I have to say in this regard.

The first reinforcements for the brigade in Europe would have to be taken from the forces in being at the present time in Canada. Under our present arrangements these reinforcements would come from our reinforcement brigade which has also been given the task of handling small operations in respect of the defence of Canada. We call this brigade our fire brigade.

The brigade in training instead of carrying a full complement would have to go short while men were being enlisted and trained for these various units.

In certain respects our survival organization would have to operate with a shortage in certain areas. In this regard I had in mind the warning systems and Bridge sites and things of that order which originally were planned to be operated on a 24 hour basis. One cannot do very much with a shortage of man power.

In considering this situation one must keep in mind that any troops assigned to United Nations tasks must be taken from the strength or establishments of units now in Canada.

Mr. MCMILLAN: How many new personnel have been recruited, for instance, in the last year?

Mr. WALSH: We recruit on an average between 300 and 400 monthly. The recruiting of this number offsets our wastage such as over-age personnel and those who have enlisted for three year periods only.

Mr. LESSARD (*Lac-Saint-Jean*): General Walsh, can you tell the committee how long you feel our forces in Europe will be needed? In view of the increase in the strength of West Germany and France, do you feel that Canada will be in a position to decrease the number of personnel in Europe?

Mr. WALSH: I think I can say that, to the best of my information, and I have neither seen nor heard any other statement made by Germans, West Germans feel the defence of West Germany represents the cornerstone of NATO. They feel that NATO is responsible for their defence and look to NATO for their defence. Recently it was confirmed to me by a reliable source that West Germans look to NATO for the defence of West Germany rather than to any national organization.

Mr. LESSARD (*Lac-Saint-Jean*): An announcement was made on Saturday that there would be a reduction in the permanent personnel force overseas. What would be the extent of that reduction, and will that proposed reduction have a greater effect on the number of personnel in the army overseas than on the navy or air force?

Mr. HELLYER: Mr. Chairman, I think perhaps I should answer that question. That statement involved nothing more than newspaper speculation and I do not think you should expect the general to make any comment in this regard.

Mr. LESSARD (*Lac-Saint-Jean*): I have no further questions at the moment. Thank you.

Mr. TEMPLE: General, I should just like to ask you one or two questions. I am interested in the number of support personnel needed to keep three fighting infantry battalions in the field.

Mr. WALSH: I am afraid I cannot give you the exact figures in respect of three infantry battalions. Working on the basis of a 90 day wastage I would suggest 1,500 men would be required.

Mr. TEMPLE: Thank you.

Mr. WALSH: I must qualify that answer by stating that this depends on the intensity of the battle.

Mr. TEMPLE: Would the figure be roughly one in three?

Mr. WALSH: The figure would be closer to one and four.

Mr. TEMPLE: Thank you.

Mr. MCMILLAN: I should like to ask a supplementary question. Do you have reference to the personnel in Europe in support of the army there, or are you also counting the people here in Canada?

Mr. WALSH: What I had reference to is the number of men required once a battle has been joined. We must have an output of reinforcements to keep the unit up to strength. A greater number may be needed during a period of great attrition. The figure I have stated is based on our past experience.

Mr. TEMPLE: Mr. Chairman, perhaps I did not make my question as clear as I might have done. How many support personnel other than what might be considered as actual combat troops are necessary in order to keep a fighting man in the field?

Mr. WALSH: The number of men required depends upon the length of the lines of communication. I can give you a figure which I am sure would be quite startling. Right from the training position upwards 10 men are required to maintain seven on the front line.

Mr. SMITH: That ratio has not changed since the second war, has it? I refer to the 10 to 1 ratio.

Mr. WALSH: The ratio I have just given is ten to seven.

Mr. SMITH: The ratio is ten to seven, I am sorry.

Mr. WALSH: I have just recently gone over these figures.

The CHAIRMAN: Have you completed your questions, Mr. Temple?

Mr. TEMPLE: Yes, thank you.

Mr. WALSH: These figures must be related to prevailing conditions. One cannot assume hard and fast generalities.

Mr. WINCH: Mr. Chairman, I should like to ask General Walsh to comment on the suggestion made to this committee to the effect that the army in Europe should be on a one year rotation basis with dependants being left at home. I should also like to ask the general whether there are any definite plans for the evacuation of dependants of armed personnel in Europe in the event of an outbreak of hostilities. In the event of the outbreak of hostilities in Europe, what psychological effect has the knowledge of the existence of wives and children in the immediate area upon the Canadian armed forces personnel?

Mr. WALSH: From a purely theoretical military point of view in respect of the matter of dependants in Europe it would be ideal to send single units without dependants or baggage to serve overseas. There are, of course, a great many other conditions which affect this situation.

In the first instance, the army is not large enough to support that type of rotation unless we changed the system to one year overseas, two years at home and another year overseas. I do not think such an arrangement would lend itself to stability. Most of our officers and NCO'S are married.

As mentioned in my brief, personnel are not sent overseas any more often than once in five years. In other words, they are away for one year and home for five years. If one automatically adopted your suggested rotation plan, hardships would be imposed on families through over-separation, which I do not think would be acceptable, and would decrease the efficiency of the army because of the lack of stability. I do not think you could successfully carry out such a rotation plan unless sufficient troops could be trained in Canada at all times to enable rotation to be carried out under that proposed arrangement.

I do not think the resultant saving would be as great as contemplated. Under our present arrangement individuals who do not take their families overseas are allowed to send them to their permanent places of residence in Canada. If a soldier goes abroad his wife can elect to go home to Victoria from perhaps Halifax while he is abroad. When he comes home we move her back to join him. When a complete brigade is involved in such a plan a great deal of expense is incurred.

Furthermore, if one unit is occupying the facilities of the married quarters and they leave their families, and another unit is brought in to replace this unit, what does one do with the families which are in residence in the married quarters? Should one throw them out on the street to make room for the new replacements?

The lack of close housing accommodation creates a great difficulty in respect of many of our camps. To name a few, Shilo is a long way from Brandon; great difficulty is involved at Petawawa as well as Gagetown.

All in all such an arrangement as has been suggested is not as desirable as it may appear, and I think these other difficulties tend to mitigate that desirability.

Having regard to your question in respect of the evacuation of dependants from a hostility zone, I should like to state that last September the brigade commander adopted a plan by which he would take all the families to the permanent barracks for safe keeping. They refer to this exercise as "safe-keep".

As yet there is no actual policy regarding the withdrawal of dependants from Europe. Of course, everything available will be used to evacuate these people. One must keep in mind the fact that there are as many Canadians over in Europe as there are dependants of personnel in the brigade.

As to the psychological effect upon soldiers having their wives with them in Europe, I suggest that if they are good chaps they will fight that much harder to make sure that their wives and families are not affected by an outbreak of hostilities.

I think I have given you as complete an answer as I can at this time.

Mr. WINCH: Could the general indicate to us how many dependants of the army are actually in Europe?

Mr. WALSH: Yes, there are about 8,500 dependants in Europe.

Mr. WINCH: The general has just stated that there is no actual plan for the evacuation of these 8,500 dependants. I should like to know why there is no plan in existence for the evacuation of these people.

Mr. WALSH: I do not think I stated there was no plan at all. I did state that there was a safe-keep plan.

Mr. WINCH: That plan involves the transferring of dependants to the permanent barracks but does not involve the evacuation of these individuals from the area of hostilities.

Mr. WALSH: There is no policy as to the evacuation of these dependants as at this time. This policy is under study.

Mr. WINCH: This policy has been under study for approximately 15 years, has it?

Mr. WALSH: I am afraid this problem is very much beyond solution by the army.

Mr. WINCH: With whom would you have to consult to solve this problem?

Mr. HELLYER: Who would you suggest, Mr. Winch?

Mr. WINCH: I am not General Walsh, Mr. Hellyer.

Mr. HELLYER: I am sure you appreciate, Mr. Winch, that when General Walsh refers to the problem as being strictly a matter of policy it is the responsibility of the government of the day.

Mr. WINCH: The general has told us that there was no policy in existence in respect of the evacuation of approximately 8,500 dependants of the armed forces, except perhaps to put them into a barracks. Surely it is logical to ask what is the policy in respect of the evacuation of these 8,500 dependants in Europe in the event of hostilities?

The CHAIRMAN: Mr. Winch, I think that the witness has answered your question clearly. He has stated that there is no policy. The minister has intervened and said this is a responsibility of the government of the day, if I understood him correctly.

Mr. WINCH: Mr. Chairman, I should like to ask the minister whether this question, which has been neglected over the years, is now being considered by himself in order that some policy may be decided upon?

Mr. HELLYER: This is certainly a matter to be considered. There is one other point which may be raised, and that is in regard to the deployment of our forces in Europe, which would be considerably forward of the area in which dependants would be located under wartime conditions. This is relevant to the problem which you posed, although it may not influence your judgement in respect of it.

Mr. MCMILLAN: Mr. Chairman, Mr. Lyndon B. Johnson spoke on this particular subject and said that the presence of the families of the armed forces personnel in Europe certainly added to the morale of those forces, but he doubted very much whether their presence would add to or increase the morale in the event of hostilities. I do not think at that time that the United States had any plan to evacuate their personnels' dependants from Europe.

Mr. HELLYER: I think your suggestion would be true as of the time Mr. Johnson spoke. I do not know whether the United States have a contingency plan at this time or not.

Mr. LAMBERT: Mr. Chairman, I should like to ask a supplementary question. Mr. Chairman, having regard to our contribution to groups in forward strategic positions and having regard to the concept of NATO, is there not a calculated risk which one must accept in allowing these dependants to accompany our troops overseas, and are our troops not in the same position as those troops of our allies in this regard? Is this not a calculated risk which we must accept because of the danger of a holocaust?

Mr. MATHESON: They might be much safer there than in a large city at home.

Mr. LAMBERT: It has often been suggested that one is safer if one does not get out of bed in the morning.

Mr. WALSH: May I add one point: this exercise of safe-keeping is by no means purely a Canadian plan. This is an army group plan which applies, to all for their dependants; in other words, we are conforming with others.

Mr. WINCH: I would like to ask if the major concentration of our Canadian army overseas is in what you call five belts around Soest?

Mr. WALSH: There are four, roughly in that area within 40 miles of Soest.

Mr. WINCH: There are four within a 40 mile area; the dependants are there in that same area?

Mr. WALSH: Some of the dependants live on the German economy in areas which could be up to another 40 miles out.

Mr. WINCH: Now, in the event of hostilities, would you not say it is a military target?

Mr. WALSH: No, I would not say so. I would not say it was a major military target compared to other targets which would have a far greater effect.

Mr. WINCH: But as far as Canada is concerned it is a military target?

Mr. WALSH: Speaking in a purely military sense, I would not say so, no more than a large city in Canada would be.

Mr. WINCH: I am talking about Europe where our men are.

Mr. WALSH: Because of dispersion in our force it is not a military target. I would not call it one as such.

Mr. SMITH: When you were speaking about reinforcing the brigade in Europe, of course the possibility of reinforcement would be based on the fact that the war being fought was either a conventional war or a limited nuclear war; in other words, the policy of reinforcement is based on the theory of forward strategy—perhaps I should have said a forward reinforcement plan rather.

Mr. WALSH: Yes, a reinforcement plan is based on first: to get immediate reinforcements behind the brigade. It has always been general policy that you take ten per cent of your overall strength with you when you go abroad to have it as your first reinforcements immediately available so that when you join battle you can keep up your strength until the pipe-line becomes organized. We do not keep these in Germany at this time. We have to rely on our soldier strength in Canada to provide this.

The number that you have there depends on your attrition, and it is a cushion between the actual training centres here in Canada and the front line troops. It really does not matter so much to forward strategy where they fight. You have to have these things if you are going to fight.

Mr. SMITH: Of course their fighting would depend largely—or their effective fighting would depend largely upon whether it was a conventional war or a limited nuclear war.

Mr. WALSH: I would say that your attrition could be related to that, but also—I know you are an ex-service man yourself, and as you know, in a

brigade one battalion can take all the casualties in the brigade, and in just the same way, one brigade can take all the casualties for a division. There are so many ifs in this case.

Mr. SMITH: May I have one if. If the war being fought is an all-out nuclear war, I know about getting your heavy units over, when things "hot up", but is there any likelihood of anything more than your first requirements being sent if there were a full scale nuclear war?

Mr. WALSH: I doubt it very much.

Mr. SMITH: So that in a sense, then, our plans are based on the possibility of either a non-conventional war, or a limited nuclear war?

Mr. WALSH: Our plans are based on the spectrum of increased tension all the way up to the end or war.

Mr. SMITH: In a full scale nuclear war, and with the forward strategy, would you not agree that there is in the forward strategy a political element? In other words, the forward strategy is based on the necessity for reassuring the West Germans that their lines would not be violated.

Mr. HELLYER: I think perhaps I should answer that question. I think that it is fair to say that there was some political element involved in the decision.

Mr. SMITH: As far as the theory is valid today, there is still some political element in it?

Mr. HELLYER: There was some political element in the decision to adopt it, and it has been adopted.

Mr. SMITH: Whether or not the element is valid today, I agree, but it is still there.

Mr. HELLYER: I think the considerations involved in the discussion and the decision would still apply.

Mr. SMITH: I have two or three questions to ask on the matter of shipping. Following the reinforcement idea, would it not be desirable—I am not asking you to speak from the ground of economics—from a purely military point of view, General Walsh, if Canada had a few fairly sophisticated ships designed as merchant ships of her own, which could be used for the merchant marine, but designed particularly with military needs in mind for the purpose of reinforcing the brigade, and for clean-up operation, assuming part of Canada were to survive a nuclear holocaust?

Mr. WALSH: I would not be a traditional military man if I did not say yes to that. We always claim that we never get enough of anything. I find it interesting that you should ask this question because in Europe the British are now designing specific ships for this purpose.

Mr. SMITH: And I think the Americans have some designs fairly well advanced too.

Mr. WALSH: Yes, I believe the Americans have something of a similar nature.

Mr. SMITH: My other question relates both to the matter of reinforcements and the matter of the evacuating of civilians. Additional air transport would be a substantial factor in reinforcing our brigade in Europe, and would also evacuate civilians, would it not?

Mr. WALSH: That essentially is the thought behind the reinforcing, but as I was asked the question, as you recall, it was about the policy of evacuation.

Mr. SMITH: I realize that, but one of the limiting factors in the evacuation of civilians is the fact that we lack air transport. Is that not so?

Mr. WALSH: We lack military transports but when one considers the vast resources of air travel of this country, I think this would have to be studied from that point of view.

Mr. SMITH: In other words the whole T.C.A. and C.P.A. and all the trans-atlantic planes would have to be brought into account?

Mr. LESSARD (*Lac-Saint-Jean*): As an army man you have two things to consider in France: having the brigade at a strategic point, and, if you are fighting, supplying your men with weapons. I am thinking of the Honest John for instance over which you have no authority to decide its use. What would be your feeling about that if you were facing destruction within a matter, maybe of minutes? What would be your feeling if you had to telephone to headquarters, and then to Canada, and then to the United States before you got back authority to pull the trigger? Do you think it might be a useless weapon.

Mr. WALSH: As a battalion commander one would not have authority to pull the trigger of the Honest John anyway. This is controlled by those at a higher level.

Mr. LESSARD (*Lac-Saint-Jean*): That is why I raised the question. Who will give the order? You might as well not have the Honest John weapon because you cannot use it. You will have to carry the weapon with you and you will have to have a stockpile of nuclear armaments which you will not have the authority to use until you receive that authority from Washington and Canada together. But suppose you have to submit to a critical situation where 4,000 or 5,000 of your men may be destroyed. What would be your feelings?

Mr. WALSH: That is a very difficult question to answer. We are working out now technical arrangements with the commanders in Europe. As soon as we have a draft agreement of the technical arrangements, we will have to submit it to the government. We have received authority from Washington to work directly with the United States army on this.

Mr. LESSARD (*Lac-Saint-Jean*): Do you not think agreement should have been obtained before we got the armaments?

Mr. WALSH: They have an arrangement within NATO for this, from the supreme allied commander down to the commander of the army groups and corps, and we will fit into their system. But until we get this draft agreement—I know of these various things but I have not got the details, because this is new to us and we have not been able to talk about it until recently.

Mr. LESSARD (*Lac-Saint-Jean*): Very well. I have two other points. What about the Bobcat. You referred briefly to that item in your brief, and it seems to have been under questioning for a long time. We understand that some other countries are ahead of us. Are we going to do away with the Bobcat as we do with the frigate business in order to save money with which to buy something else from other countries?

Mr. WALSH: From the army point of view, we need an armoured personnel carrier. This was well proven in the last war, when we were the first ones to use it. We just completed last week further studies in its operational use, and we propose to carry out trials ourselves so that we will have an actual detailed organization. I have submitted to the government comparisons of the characteristics of various armoured personnel carriers. The unfortunate part—on the particular Bobcat 1 that was on trial when I gave you my brief last summer—was that weaknesses developed before it completed its 2,000 mile run. So until these weaknesses are corrected we cannot say that it is acceptable as a piece of field equipment. The delay occasioned by this puts back the whole Army program the further one continues with a Bobcat program.

Mr. LESSARD (*Lac-Saint-Jean*): May I ask this question of the minister: What is the position of the minister in that regard? Does the minister intend to abandon that thing?

Mr. HELLYER: The position of the minister is that he now has the comparative technical and financial facts before him, and he will give the matter very careful consideration and make a recommendation to the government in due course.

Mr. LESSARD (*Lac-Saint-Jean*): One last question, which is most important to me: you refer to national survival in your brief. What do you have in mind, exactly, in the way of a project which will make some kind of survival possible in Canada if a nuclear war should start, and we had a wide-open one let us say, between the United States and Russia? What do you plan or propose? What is your idea? Is it only to cut off the fire of Russia, as a bush fire, or to have some kind of facility provided on the ground directed towards influencing the people so that they will be able to go into these places if they are going to survive.

Mr. WALSH: The tasks given to the army by the government consist of the warning system, communications, and re-entry; in other words, they are of a lifesaving nature. Let us suppose something happens. The balance of the things you mentioned, fallout and extra hospitals, are all associated tasks that go with it, and they are the responsibility of the emergency measures organization which comes, I believe, under Mr. Drury.

The re-entry and warning system I think I have clearly covered in my brief. It is on a 24 hour per day basis; communications are being completed for the Bridge sites as part of the Canadian army signal system; they are in protective shelters in some places, but the circuits will have to be protected. So there will be a radio backup the C.B.C., which operates the broadcasting system, has gone back to a 24-hour basis which they had cut back for economy reasons a year ago but which they have now resumed. The re-entry plans will use all forces, regular and militia. The planning for this has been done, and exercises are being carried out with these troops.

Mr. LESSARD (*Lac-Saint-Jean*): But most of them would be destroyed during the attack. What do you propose.

Mr. WALSH: One does not visualize that they will all be destroyed. One visualizes that at least they will be in part at least outside of target areas, and that if those in a target area are destroyed, you will bring in those from outside to replace them. One does not visualize a complete holocaust. The analysis that we carried out has shown that many can be saved, if one has a plan beforehand and uses all one's resources to follow it.

Mr. LESSARD (*Lac-Saint-Jean*): I am referring particularly to hospitalization facilities which would be protected because this is something which we would highly need I suggest, after an attack; and I also refer to the medical corps. Are we going to be sure that we have these specialists at hand, if we do not make provision to protect them?

Mr. WALSH: I think we would use everybody. The whole country would be mobilized to look after the places that have been attacked. This means that standards would necessarily fall in hospitals because you might have to put three where you would only put one person now. In this, one gets beyond army responsibility and into the provincial emergency measures organization.

Mr. LESSARD (*Lac-Saint-Jean*): What about food resources?

Mr. WALSH: Food resources must be controlled by E.M.O. and by the provinces.

Mr. LESSARD (*Lac-Saint-Jean*): Do you carry on a program in connection with food resources right now?

Mr. WALSH: I am not aware of one.

Mr. LESSARD (*Lac-Saint-Jean*): If it should happen tomorrow, we are not prepared at all. Is that it?

The CHAIRMAN: I do think that is not the conclusion you can infer from what the witness has said. He said it was the responsibility of another group, namely, E.M.O.

Mr. LAMBERT: I am primarily concerned about the role of the brigade in Europe, and relative to that, the air division there. I am thinking of the forward strategy. Some of the testimony we have had in the last two or three weeks has been rather critical of the fact and the responsibilities we have assumed in this role; and primarily I refer to the strength expansion that is required by the brigade in order to assume this. I am thinking of its equipment requirements as well as the difficulties of supply. I believe, General Walsh, you have been cognizant of the remarks made by the former chairman of the chiefs of staffs in this regard. Have any steps been taken to overcome some of the difficulties which he envisaged particularly in supply?

Mr. WALSH: There has been no undertaking as far as I am aware. We have had no reason to increase the strength of the brigade because of the forward strategy.

Mr. LAMBERT: In so far as it is a pipe line to get up supplies?

Mr. WALSH: We have had no reason for that. And as regards the supply situation itself, I am rather familiar with that one because I recall when I took the first brigade overseas the depots at that time were scattered all over Germany. In fact, some of them were right on the border. And when NATO was formed they were going through the process of getting the supplies in proper position in the depots. The supply system has always lagged behind the actual tactical planning that was based on the Rhine. With the entry of West Germany into the NATO alliance, NATO adopted the more forward strategy at the Weser, and it required re-deployment of their forward stocks. We have done a lot of work on this in the last few years in that area. I was familiar with this when I was Q.M.G.

Now they have this further re-deployment which requires a further re-deployment of your logistic depots. In this particular instance the Germans are leaning backwards as host nation to provide far more than what they were doing before. But again, from what I have been told it will be another year or so before the re-deployment of stocks of various goods will be done on a more permanent basis. However, they are doing it now on a temporary basis. The situation is much better than it has been for some years.

Mr. LAMBERT: It is a fact that the supply line is really a British line is it not at the moment, in so far as the brigade group is concerned?

Mr. WALSH: The supply line is—

Mr. LAMBERT: From British sources?

Mr. WALSH: And depots.

Mr. LAMBERT: With the increasing use by the brigade group of non-British equipment and items, does this not provide a greater strain on that supply line?

Mr. WALSH: I would not say it makes a greater strain, because the British are starting to change to more of what we have. Now there are three critical items: petrol, or gasoline, which is common; ammunition, which is becoming more common, because the British have gone to the 105 gun and that is the big weapon which one has to consider. There are some small arms, and in this particular area the rocket launcher, which is being used by the British, is very similar. We are right on the edge closest to the Americans as an army group, and for certain things we have an arrangement for automatic resupply from

American depots, because it does not really have to cross lines of communication, which is a complicating factor. Our main problems are spare parts. We have, in turn, a back up, and so have the British.

Mr. LAMBERT: Are you satisfied with these supply lines?

Mr. WALSH: I am satisfied with what is being done. One is never completely satisfied.

Mr. LAMBERT: I am assuming of course that you are not satisfied with the role of the brigade in forward strategy. Is that correct?

Mr. WALSH: Yes, I am. They have not moved as far forward as the forward strategy would indicate. In fact the deployment time, I think, has only increased by an hour as opposed to what was originally 16 to 17 hours. So their new position is very close to the old one.

Mr. LAMBERT: Does this include acceptance of the possibility of short-range tactical use of nuclear weapons in a more limited nuclear conflict?

Mr. WALSH: I do not think I am qualified to answer that, I am afraid.

Mr. LAMBERT: Because these are problems that go to the heart of forward strategy, as to the role of the brigade. If you feel that this is a matter of policy which goes over and beyond, and that it is something the minister could answer, that is quite all right. But I am concerned here, as the chief of staff of the army advises us in this regard, if in accepting this role, you are satisfied with it.

Mr. WALSH: I am satisfied with the role as it was explained to me.

Mr. LAMBERT: Do you feel you can carry it out?

Mr. WALSH: I feel that it can be carried out.

Mr. LAMBERT: All right.

Mr. DEACHMAN: General Walsh, at page 152 of the minutes, dealing with the question of the Alaska Highway—since this falls in my own province I am quite interested in it—I shall read this sentence from your brief:

> The army operates the Canadian portion of the Alaska Highway, through a military organization known as the Northwest Highway System. In it there are some 57 officers and 352 men, plus a force of 655 civilians, all in year round employment. The annual direct cost to the army is some $11,900,000.

I understand that some portions of this are being phased out of national defence operation and over to public works, and that there will be some withdrawal of military personnel.

When this question was raised in the house I am not sure I got the whole message. I wonder if you could tell me about the current plans for the Alaska highway?

Mr. WALSH: I understand from the decision of the government that we are to hand it over to public works effective from April 1.

Mr. DEACHMAN: The whole of the Alaska highway from Dawson Creek right up?

Mr. WALSH: The paved portion of the highway has already been handed over to the British Columbia government.

Mr. DEACHMAN: Between Dawson Creek and Fort St. John?

Mr. WALSH: A little beyond that, I believe, somewhere around miles 82 or 83, but the gravel portion of the road is still maintained by the army.

Mr. HELLYER: There is just one thing I would like to add. It is that there has been a suggestion that it would be more convenient for the dependants of the army personnel and for others if the handover took place, say, in June

rather than in April. This will be discussed by the Department of Public Works and the Department of National Defence in order to get the best arrangement for the personnel involved.

Mr. DEACHMAN: But we can take it that the highway, by June or by the beginning of the summer, will be under the operation of the Department of Public Works and that the army will be out of it?

Mr. WALSH: That is correct.

Mr. DEACHMAN: What arrangements, if any, have been made in respect of the paving program of the Alaska highway in the course of that changeover? Can anything be said as to what the forward program for the paving of the Alaska highway will be as the changeover takes place?

Mr. WALSH: We have no plans for further paving of the highway at this time.

Mr. DEACHMAN: Is it true that the Department of Public Works takes over the highway with no plan or no estimate in mind for forward paving?

Mr. HELLYER: There has been, as you know, a resolution sent to the government supporting the idea of paving sections of the highway. This has not been studied by the government. A considerable expenditure is involved which, as you know, has to be considered in priority together with other expenditures in other parts of the country. I am sure the Department of Public Works will look at this; as it will be their responsibility in the future.

Mr. DEACHMAN: When the switchover was made, were there any consultations with the provincial government in respect of the improvement or maintenance of this road, or any kind of sharing arrangements made or suggested to them?

Mr. WALSH: Not to my knowledge.

Mr. DEACHMAN: This is purely a switchover from one department of the federal government to another?

Mr. WALSH: That is correct.

Mr. LAMBERT: I have a supplementary question.

Mr. BALDWIN: I also have a supplementary question.

Mr. DEACHMAN: I would like to get as much out of this as I can. I would like to go on with the questioning.

Mr. BALDWIN: At this particular time the supplementary question is one which General Walsh is well qualified to answer. In his view would the continental—I use the word advisedly—defence effort materially benefit from improvements to the Alaska highway system?

Mr. WALSH: I think the improvements to the present route of the Alaska highway have just about reached their cost effectiveness. Nearly all the wooden bridges have been replaced by steel, so that the reliability of the road in its present location is about as good as you are going to get. There are two or three things about the Alaska highway which do not apply to a more temperate climate. The first is that it goes through mountains, and last year they had a series of floods in areas where there is no history of floods. These are things that do occur in mountains. These occurred when I was there and there has never been any trouble in that particular area since. There were 24 washouts in a matter of hours. To my knowledge those bridges and drains have never taken any water since, except for snow runoffs.

The other problem is one with the paving of the road in that area. The black top just melts enough and gathers up enough heat to melt the snow which forms a slick. This will occur for seven and eight months of the year.

It does not clear itself such as a road further south does. Once frost gets into the ground, you have a hard road equivalent to a concrete road on which it is safer to travel than it is on a slippery pavement. The other problem about paving is a very bad area directly south of Fort Nelson near a muskeg area. I doubt whether they will be able to keep the pavement there. It heaves every year and there are many slides. It is a natural phenomenon because the soil is gradually levelling off. Premier Bennett asked me this particular question, and I felt that we would have to go over closer to the mountains in this area to get a firm base on which to put a road before it can actually be paved. We have never had the money to carry out a comprehensive survey of the routing.

Mr. BALDWIN: If I might pursue that question, assuming those difficulties could be overcome—which of course means the ability to find the money to do it—would the improvement to the highway have a noticeable material effect on our general continental defence effort?

Mr. WALSH: I would hesitate to say so because I think the road itself, in its present form, provides about as good a link along that way as anything. The other point also is that a gravel road can be repaired far more quickly than a paved road. It is well worth remembering.

Mr. LAMBERT: In this handover from the Department of National Defence to the Department of Public Works, has there been any negotiation with the United States? I understand this was turned over to Canada on the basis that it would be kept up as a military highway, and this has been done. This has been the standard applied to it. Has there been any variation in this?

Mr. WALSH: I would have to look up the terms of the agreement, but as I understand it, the road would be maintained to certain standards and this would be accomplished in the future by the Department of Public Works, as it has in the past by the army.

Mr. LAMBERT: In other words, the Department of National Defence is maybe here relinquishing a military commitment to the country?

Mr. HELLYER: It is relinquishing a commitment which is not, in our opinion, any longer a military commitment.

Mr. WALSH: Can I put a rider on that? As I recall, at the time when we took it over, the job was to maintain the highway in a state comparable to the one in which the Americans handed it over to us. This we have done, and not only that, we have also improved it so as to reduce the maintenance cost. I can honestly say that today it is a far better road than the one we took over.

The CHAIRMAN: Do you want to pursue your other questions, Mr. Deachman?

Mr. DEACHMAN: Yes, if this subject of the Alaskan highway is exhausted.

General Walsh, the gravel road up there is breaking 90 per cent of the windshields that go up and down. I hope something will be done about it.

Mr. PATTERSON: I have one supplementary question on this. Has a certain section already been turned over to the provincial administration?

Mr. WALSH: That is correct; the first 82 or 83 miles of the paved portion.

Mr. PATTERSON: Was there an agreement with the province to maintain the road at a certain standard in conformity with the agreement when we took over from the United States?

Mr. WALSH: I am afraid I had nothing to do with that at that particular time, and I am a little hazy as to exactly what did happen in the way of an agreement between the federal government and the province of British Columbia. As I understand it, the British Columbia government agreed to take it over provided it was paved to trans-Canada standards; and this is what was done.

Mr. DEACHMAN: I want to come back to the question of the Bobcat and to your remarks appearing on page 140 of the report in which you say:

> The army originated this project as far back as January 1954 before any other country had such a concept.

I would like to ask a couple of questions. First of all, what is the concept of the Bobcat exactly, and does it still continue to be a useful concept as it was thought of then and as it has evolved since?

Mr. WALSH: The concept is to move the unprotected infantrymen quickly across the battlefields so that they can fight at the end of it. It has been more or less historically proven that you take your casualties in your approach, and if you are slow on foot, this is where you get your casualties. We have two or three members of the board who were involved in this. They used a deterrent attack in front of Falaise with great success and they continued to use it throughout world war II where suitable. It was this concept which was involved. To my mind it is more important than ever today because of the wide areas, which I think I showed you on a slide, in which a unit is dispersed for protection. Because you cannot move fast enough in these areas to meet the threat, you need something with cross country performance to fight the enemy; otherwise he just goes around you and gets to your rear and then you are finished.

Mr. DEACHMAN: Then you say that this was originated by the army in 1954. Does that mean that at that time they began a design on it?

Mr. WALSH: We got approval of the first mild steel prototype that year.

Mr. DEACHMAN: You mean that a mild steel prototype was in your hands in 1954?

Mr. WALSH: No, we began its design and putting it together at that time.

Mr. DEACHMAN: How much time would have elapsed and how much money would have been spent on the Bobcat between 1944 and the time you produced the first prototype?

Mr. WALSH: I cannot give you that information offhand, but I can get it for you.

Mr. DEACHMAN: Can you give us the year in which the first prototype appeared, ready for driving with an engine in it and able to operate?

Mr. WALSH: I would have to check that. I am guessing, but it seemed to me it was about 1955.

Mr. DEACHMAN: About a year or so later you had a prototype knocked together?

Mr. WALSH: I am guessing at my dates. I am only trying to remember. It is about 1955 or 1956.

Mr. DEACHMAN: So by 1956 the project was well advanced in terms of design and trial?

Mr. WALSH: And feasibility studies.

Mr. DEACHMAN: Seven years ago it had undergone some trials in the prototype stage and some feasibility tests. Now, over the next seven years what happened to it? Why had it bogged down for the next seven years? Are there political considerations in here? Was the program put in mothballs? Did hideous doubt arise? What happened to it in the seven years? It seemed to me you had something there in 1957.

Mr. WALSH: I have not got detailed knowledge of what happened, but I can assure you of one thing, no doubt arose about the army wanting it.

Mr. DEACHMAN: There was no doubt? Doubts crept in in other places in regard to it. Is that it?

Mr. WALSH: I do not know, sir.

Mr. SMITH: I have one supplementary question on the Bobcat.

Mr. DEACHMAN: I am not through.

Mr. SMITH: I understand that one of the difficulties and delays with the Bobcat is that attempts were made to modify the basic structure so that it would be something of an all purpose vehicle. For example, was it not suggested at some stage of the development that the basic frame be modified so that they could carry an artillery weapon? Was there any such modification or suggestion made?

Mr. WALSH: That in itself did not hold up the development of the Bobcat at all.

Mr. SMITH: But such a decision has been made?

Mr. WALSH: When we got the original, the feasibility studies were carried out on one model to see whether the 105 could be mounted on it, and it was found it could quite easily be done but it did not hold up the over-all program.

Mr. HAHN: May I ask a question related to the Bobcat? Do I understand your testimony correctly, General Walsh, when you say that at the time we started the Bobcat no other allied nation had a vehicle that would do the specific job we were seeking to have done by the Bobcat?

Mr. WALSH: To the best of my knowledge that is correct.

Mr. HAHN: You state that the United States, British and German armies have developed their own personnel carriers. Do they now have vehicles that will perform this role and that are now operational?

Mr. WALSH: The Americans have had the M-113 for two or three years and they built 3,000 of them. I believe the Italians are going to make them in Italy under licence. The British have a new vehicle coming out which is slightly different and a lot more expensive, and they will be re-arming with this carrier this forthcoming year. The Germans definitely have one, and their panzer grenadiers have a carrier. The Russians have two or three different types of armoured personnel carriers as well.

Mr. HAHN: How do these vehicles compare with the Bobcat, assuming the Bobcat was able to beat them in technical details?

Mr. WALSH: There is little difference between the Bobcat and the M-113. The concept and the load carrying capacity is just about the same. The M-113 is slightly heavier, with higher track pressure, but it carries an extra man and it has a slightly narrower and lower silhouette. However, to all intents and purposes, to the layman's eye, they look exactly the same and would be used in exactly the same way.

Mr. HAHN: What would its cost be in comparison to a Bobcat?

Mr. WALSH: This is a difficult one. The price of an M-113, to the best of my knowledge, runs about $23,000. The Bobcat would be higher than that because of the limited production and, of course, because of the limited production one has got to buy at the same time lifetime spare parts to keep it going; whereas if one went to the other vehicle, one would not be required to buy the same number of spares because you have a continuing source.

Mr. DEACHMAN: I have a couple of questions to ask now. Is it true that although we had the concept first, other nations all around us, including Italy and nations of that size, have developed carriers and now have carriers in service? Is that right?

Mr. WALSH: Italy has not developed a carrier. All they are doing is getting a licence to build the 113.

Mr. DEACHMAN: After having originated the project, we find other carriers are in production but we still have not got one into service.

Mr. WALSH: That is correct.

Mr. DEACHMAN: And are we now considering other carriers as well as the prototype of the Bobcat at this time?

Mr. HELLYER: That question was asked earlier.

Mr. DEACHMAN: I understand that is correct. The only other thing I can say is to ask again what happened to a program that got under way so quickly?

The CHAIRMAN: The witness answered that what happened after was beyond his authority. At a certain time they seemed to have accomplished what they felt was to be accomplished, and then he had no authority to proceed further.

Mr. SMITH: May I ask one more supplementary question on the Bobcat? The fact that the trials now have been less than satisfactory indicates that there was some structural design defect in them. Is that correct?

Mr. WALSH: Not necessarily. You can compare it to a new car coming out. There are two or three little things which have not yet been corrected, and I believe that the contractor has run out of money and has put more money into the business. We cannot very well accept the vehicle until they have corrected these small design changes such as strengthening the knuckles and that sort of thing. These are very minor indeed, and the company assures us that there is no trick to solving them. They just need more time. However, this puts the whole program behind again.

Mr. DEACHMAN: I have a question for the minister. What steps are being taken to develop a system of study, research and evaluation which will prevent programs of this kind disappearing after considerable work and effort and money have been put into them?

Mr. HELLYER: I do not think there is any study that would ever solve that problem. I do think we have a considerable experience now on which to base our judgments, and there are certain lessons open to us. One of them is that first of all you have no guarantee that anyone else is going to buy a finished product. Secondly, if you have a good idea and you are going to develop it, develop it with speed and go all out to make sure it is the first and the best. You then have the best chance of getting markets in other countries. What we must not do, and what has been done in this country once or twice, is to extend the design and development time so much that you lag behind the efforts of others who come in later and because of their accelerated efforts overtake you and pass you.

Mr. SMITH: I have a further supplementary question on the Bobcat. Is it not a fact that even though a small country may develop the first and the best idea, that very often it is almost impossible to get other countries to adopt it because of national prestige and the economics of that country?

Mr. HELLYER: This is quite true, and I do not think anyone underestimates the difficulties involved in this field. In the Bobcat in particular I do not think there is any profit in trying to determine why we are so late in getting an approved vehicle, but there are a number of factors which are related. One of the factors, for example, was that the ownership of the companies involved in this development has changed two or three times. I do not have the details before me, but this was one of the considerations.

Mr. SMITH: It is now owned by Avro, or what was Avro.

Mr. HELLYER: Yes. This has been relevant, and perhaps the enthusiasm with which it was pursued by governmental authorities was not as energetic as it might have been. This is history now and it does have lessons for us which we have to take into account in the future.

Mr. MATHESON: I have a supplementary question on that.

The CHAIRMAN: It is the first problem which has been so much discussed on supplementary questions.

Mr. MATHESON: In the course of evidence that we have already heard here we had discussions with respect to the Arrow and with respect to the Bobcat and we had even certain prognostications with respect to nuclear submarines. I am wondering if the minister could tell us whether the government has any thought of the possibility of Canada in some military area selecting a particular skill and pushing it through so effectively that in effect it becomes a model for the alliance? In other words, could we gain the advantages of design in scale to the economy of large scale productions?

Mr. MACINNIS: We are wandering all over the place. If this is going to be permitted, Mr. Chairman, as a supplementary question, then what is a supplementary question?

The CHAIRMAN: Mr. Matheson is the second speaker on my list, so I will recognize him not as one asking a supplementary question but as one appearing second on my list.

Mr. HELLYER: The answer to your question is yes, we are attempting to find areas where we can engage in research and development and where we are the first and the best. These opportunities are limited by the consideration that we were talking about a moment ago, first of all, our limited resources for research and development, and secondly the extreme difficulties in selling major equipments in other countries owing to considerations of national prestige and economics.

Mr. MATHESON: Is there any example that the minister can give us of any weapon that we have ever developed and really been able to commercialize to full advantage in peacetime?

Mr. HELLYER: There are numerous examples. I cannot think of too many offhand. We were first with the variable depth sonar. This was a Canadian invention which is now being used by other countries. We have played a leading part in navigational guidance systems for aircraft which have been adopted by other countries. We have flight simulators which are advanced in design which we can produce and market in competition with anyone in the world. There are other examples but they are of this order of magnitude as against the really large major equipment.

Mr. WALSH: And also some land mines.

Mr. MATHESON: May I now direct a question to General Walsh? I am familiar with the statement of the general appearing on page 151 of his evidence which was given on July 11 and which related to the militia and to army cadets.

Mr. HELLYER: Excuse me for interrupting, Mr. Matheson. There is one other major example which I failed to mention. This was the Caribou family of aircraft, the Otter, the Beaver and the Caribou which were very successful and which have produced large foreign orders.

Mr. MATHESON: Thank you.

General, you gave us something of the current role of the militia and army cadets on page 151 in your evidence of July 11. Since that time, as you know, we have heard from two distinguished colleagues of yours—General Simonds and General Foulkes. If I read their evidence correctly, it seems to point to the advisability of a shift in emphasis to perhaps a tri-service or a composite force which would be highly mobile. This is likely to be used in its essential NATO role but, subject to easy withdrawal, is to be used under United Nations command for brush fire operations. It seems that both the generals are thinking in terms of the likelihood of means for conventional forces, and perhaps the

balance between the strong nuclear powers leaves a special role for us to fill if we can develop skills in this direction. I am wondering, sir, in the light of the emphasis that these generals place on the possibility of a new shift, whether you are completely satisfied with the current role of the militia? Since your evidence in July I have had a number of communications from serving officers in the militia who tell me that from their point of view our Canadian militia at the moment lacks policy in any clear direction, that it particularly lacks funds to do the job which it is assigned to do, namely the E.M.O. task, and most particularly that it lacks vehicles. I understand that the present regulations restricting the militia people to 40 days a year, including summer camps, leaves only 33 days for training. A good many of them say they are disheartened about the prospects for the militia, particularly as we are coming up to the one hundredth birthday of the country. They are concerned about the pride of their regiments, and the part they will play in the future.

At page 444 of the Minutes of Proceedings and Evidence of October 17, 1963, General Simonds said he saw an important continuing role for the militia which he thought was the historic role of being able to build up quickly the force necessary to supplement the permanent force troops. He thought you could do a job of national survival, emphasizing the military and basic military task essentially, without going into the possibility of being a home guard for Canada. I wonder if it is possible for the army to give us in some greater depth the possibilities for the future of our militia. I think this is of a great deal of concern to those persons who spend many hundreds of hours of their lives doing what they think is in the interest of the country.

Mr. WALSH: Mr. Matheson, a few years ago the concept of forces in being was more or less adopted after the communists got the nuclear bomb. There was some doubt as to what role the militia would play, because the concept then was that there would not be time to mobilize or do anything else. Since that time there has been an evolution. The first thing one is faced with if one is going to have a nuclear war is the security of the country. This led to the survival role; in other words, the home base had to be protected, rehabilitated, and so on. The greatest strength of the army is that it can produce formed bodies of disciplined men, usually with their own transport and communications systems, which are quite flexible. For that reason the militia was given this primary task. Because it was new, emphasis was placed on it.

Now, so far as our present policy is concerned, the militia man in order to do his survival task or any other task must be a trained soldier. This never changed; the concept is there. He is required as part of his training to be trained so that the survival role can be carried out by the militia unit. This does not mean continuous training only in survival; it does not mean that. The deployment for survival is very, very similar to the deployment for any other task which might have to be done. The marching order in moving off to go to survival is exactly the same as the marching order when they are going off into battle. The staff work and special training is exactly the same. I believe that people have made too much of a fetish of it instead of looking at the tremendous similarities. First aid is something we, in the regular army, no matter what we are doing, encourage. We have a very good record; three-quarters of our people have passed the St. John's Ambulance first aid course. You need this in battle just as you need it in national survival.

I think it was last year, or perhaps the year before, that we said in our training policy the militia unit should study or train in their corps as soldiers. We are trying to start royal schools again for people who can get away for longer periods so that they will be able to retain the corps know-how within the units since the people with active service experience are gradually disappearing. By this means the basic techniques which apply in certain corps

of the militia, such as gunnery, armour, and so on, will be kept alive and instructors will be trained.

We have also started for long-term training, what we call the student militia. They get some 40 days a year. These are high school youngsters, 17 or over, who usually put in all day on Saturday, and carry on during their winter months, and then go off for six weeks or so in summer. We give them nothing except basic military training.

This is where one hopes to find officers and NCOs for the future main structure of the militia, and the militia conducts this training themselves. Our actual handicap sometimes is to find enough militia men to be able to run this training, for men to get time off from their jobs. Forty days a year are 80 nights. A seven day camp still leaves 33 days or 66 nights. If you subtract your weekends—there are only 52 weeks to the year—a great many of the militia men find they have not got the time to do all these things. You are really pinned down by the time factor, and they will tell you they have not got the time. Their wives will not let their husbands go away that often. So one has to get proper plans of what can be done under these conditions.

Now, the character of the militia varies tremendously from coast to coast depending on the area. In some of the larger cities it is quite easy to get officers and so on. It may be more difficult to get the men. Yet in some of the smaller places, such as on the prairies, you will have first class small sub-units, but you will find it very difficult indeed to get officers. The militia is a great organization. I think it has never been in better shape than it is at the present time. And it is a young militia. But how can they find enough time to be paid more than for 40 days a year? We are stressing again corps training.

Mr. MATHESON: There is some actual intercourse between the militia and the permanent force in the sense of people moving from one area to another?

Mr. WALSH: Oh yes; and another thing: we have looked to the militia for young officers as a source of officers for the regular army, and they are given a short service commission. They can go in for three years, and at the end of the three years they can go back to the militia unit. We are trying to tie in the regulars with the militia; and the militia definitely forms part of our emergency defence plan. So it is in our own interest that we keep the militia efficient and in a corps stage.

Mr. MATHESON: Thank you very much.

Mr. CHURCHILL: May I refer again to the Bobcat which happens to be my favorite topic? I do not want to put the general in the position of General Foulkes. When General Foulkes gave his evidence the other day, at page 530, he suggested:

> Mr. FOULKES: ... I realize that there is a great deal of debate regarding the protection of the infantry. I may be an old-fashioned infantry soldier who still believes that the best infantry moves on its feet. I do not think I am alone in this impression ...

And at the end of the paragraph he said:

> This whole subject involves, of course, a matter of opinion.

It is inconceivable that there should be another debate in regard to the use of armoured personnel carriers as far as Canadians are concerned, but I would like to ask General Walsh if there is a great deal of debate within army circles as to whether the armed personnel carrier is effective or ineffective?

Mr. WALSH: Mr. Churchill, there is no debate at all. The debate going on in the army is concerning how many we need, and how we should organize them to get the best use of them, or the best use of the numbers that we will be able to buy.

Mr. CHURCHILL: I am very glad to hear that. Although the best infantry moves on its feet, that is in actual contact with the enemy, and not, as you pointed out, either on approaching or moving from the start line to the objective where the heavy casualties occur.

I was wondering if the delay in the production of the Bobcat perhaps had occurred through some difference of opinion over the years as to its suitability? I am not sure whether that is a fair question to put to the general or not. But I want to say this: The battle of Falaise is used as an example of the operation of the armoured personnel carrier, because it was the first time it was used. But it was not a skilled use of the armoured personnel carrier in that battle because it was just the beginning, and the drivers were selected from the base camps of armoured regiments and they were brought together in the greatest of haste. There was no effective control, and some of those drivers were never found afterwards, as I happen to know, since I had some responsibility therefor.

However I feel very much reassured from the general's statement, because the armoured personnel carrier if effectively used puts the infantry right on top of the enemy and saves all these casualties.

I do hope that the army would press forward with this program. The general mentioned the need for certain modifications in the present carrier. I think he indicated that the first time that they placed the English Centurion tank in the possession of the Canadian forces it had to be modified; and the 104 Starfighter shipped to Europe last winter was immediately subjected to 13 modifications. So I say, could we not get on with the carrier and if we have to go through a Mark 1, 2, 3, and 4, all very well, but let us get the carrier in the hands of our troops so that they may become familiar with its use.

Mr. WALSH: I am afraid I gave you the wrong impression when I spoke of modifications. Those are not fundamental modifications to which I referred, but rather the result of engineering reliability trials dealing with actual parts of the machinery such as wheels, and suspension; they were found to develop weaknesses when the 2,000 mile tests were carried out. But this is something for the designers to correct inside the factory. It is not something to do with the frame of the tractor, or in any changes to the machine.

Mr. CHURCHILL: Thank you very much. I note we are running out of time, but may I ask one more question?

The CHAIRMAN: Oh, yes.

Mr. CHURCHILL: I would like to ask the general about the question of support by air for the brigade. General Simonds pointed out the other day in some respects the rocket battery is as effective a close support as you want in action. I am familiar with it. But does the army consider that it still would need close support by air, such as we have from the Typhoon, for example, or does the army require that type of close support.

Mr. WALSH: I can answer that in two ways: If we look at the big picture we cannot expect that type of close support until the air battle is won. On the strictly narrow military tactical sense of course, the more firepower you can get, the better are your chances of victory and of winning the battle. You eliminate more of the unknowns. It is curious. I have heard a rumour that the Germans have actually gone back to something of this type. But it has not been confirmed.

Mr. CHURCHILL: From the standpoint of reconnaissance I know that the armoured battalion in Europe is using helicopters in this role but is there need for some other type of plane for reconnaissance purposes for the brigade, or for a division that it is operating?

Mr. WALSH: I think, Mr. Churchill, there is a development underway to fulfil this particular thing in order to afford support to reconnaissance; it is a joint development between the British and ourselves, and it is the CL-89.

Mr. CHURCHILL: I have a final question, and it is in regard to page 133 of the minutes having to do with "the forward strategy". I will skip over some of this, but you mentioned that if you could put changes into effect you would require the additional equipment you mentioned, such as signal equipment and bridge transport. Are you referring to a brigade? Why would a brigade require these additional features?

Mr. WALSH: I was not referring specifically to the brigade. I was referring to the picture as a whole.

Mr. CHURCHILL: Well, that is all.

The CHAIRMAN: It is now 12.35 and the committee stands adjourned until 4.00 p.m.

AFTERNOON SITTING

The CHAIRMAN: Gentlemen, we now have a quorum and the committee will come to order.

General Walsh would like to clarify an answer he gave this morning.

Mr. WALSH: I was asked this morning what the Caribou would carry. I have had a confirmation in this regard. It has a 7,200 pound payload; that means it will not carry an armoured personnel carrier. The Hercules 130 has a 37,000 pound payload and can lift two armoured personnel carriers, but its range would be only 1,700 miles. Lifting one armoured personnel carrier it would have a range of 3,800 miles.

The CHAIRMAN: Mr. Baldwin is the first member on my list of questioners this afternoon.

Mr. BALDWIN: The question I was going to ask this morning is probably just as good this afternoon.

Several people have given to this committee their views on the distinction, if any, between tactical nuclear weapons and strategic nuclear weapons. I would like General Walsh to comment on this and also on the further question, which probably flows from it, as to whether or not hostilities which are accompanied by limited tactical nuclear weapons, would be bound to escalate or would be likely to escalate into an all-out nuclear war.

Mr. WALSH: Mr. Baldwin, as I understand the tactical nuclear weapon, it is in direct support of the army in the field, or it could be the tactical nuclear weapon the navy or the air force would use in support of a definite operation.

A strategic nuclear weapon, as I see it, is the type of weapon the American strategic air command would use or the long range intercontinental ballistic missile that you would interdict on the enemy's targets. That is a strategic nuclear weapon as I understand it.

With regard to the question as to whether use of tactical nuclear weapons would escalate into an all-out, complete nuclear war, that has been the subject of a great many debates and by people far more qualified than I. I do not pretend to be a chef like some of those you have had before you; I am just a cook!

I think there is a very good chance that it could, and on the other hand I think the seriousness of even the use of tactical weapons might stop things before everything went up; but I think it is a matter of personal opinion.

Mr. BALDWIN: I would take it, then, that your answer to the first part of my question is that you think there is a definite distinction between tactical nuclear weapons and strategic nuclear weapons. I say that because suggestions have been made here, as I understand it, that there is no real distinction.

Mr. WALSH: As we understand it from a service point of view, we do think so. In other words, we do not see ourselves using a strategic nuclear weapon.

Mr. BALDWIN: That is all I wish to ask.

The CHAIRMAN: Mr. Winch.

Mr. WINCH: Two of my questions have already been asked so I do not have to repeat those.

I would like to ask General Walsh, without going into policy and in view of his lengthy experience of military service and his experience as commander in chief of the army, if he could give us the benefit of that experience by stating whether he can give any reasons for, or against, a difference in set-up as between a tri-service in Canada and a unified service in Canada, which is a matter of the utmost interest to this committee.

I am not asking you to go into policy, but you must have views and your experience must have brought you to some conclusions.

Mr. WALSH: The great difficulty in the integration of the services as I see it is that they do not have the same tasks. This is the difficult point. If we had a common task, then I could see room for much more integration.

There is a degree of integration where one has a common task already existing, and I think the two maritime commands, where the air force and navy work together, are an example of this. The air force and the army work together on certain exercises in connection with the defence of Canada. We are integrated. We have a procedure for an integrated headquarters where one is commander and the other is deputy commander; the headquarters are brought together and there is a definite procedure. This is an area where the task is common. But it is difficult as I see it, as long as we in the army are operating in a different theatre from the air force in Europe, to see how we can be integrated because they have an entirely different task, just as the navy has a different task from either the army or the air force in that they operate under SACLANT. This is the difficulty as I see it at the moment. The task has to be brought together, and integrated too, in order that one can integrate the services themselves.

Mr. WINCH: Do you say, as a result of changes in recent years, there is a greater need now for advanced mobility in so far as the army is concerned, and therefore the movement from Canada outside should be done by air instead of by sea?

Mr. WALSH: Yes, I would say that, but I would also like to point out that every air operation, even that of airborne troops, has usually a ground support element which comes in at a later stage and which usually goes by ship. However, with very heavy-lift aircraft, the need for ships could ultimately disappear. It depends what you are asking this force to do. If you are putting them up against a first class power such as the Soviets in Europe, who have heavy equipment, one needs heavy equipment to be able to fight properly against them. If on the other hand it is a police action, then lightly armoured troops with a certain amount of mobility would reduce the numbers needed and would be the answer.

Mr. WINCH: How do you integrate now between army and air force in the transport of troops? What I am trying to get at is the requirements of speedy transport, which means aircraft and I am drawing from a great deal of the evidence we have had which has stressed the need for a highly trained,

highly mechanized mobile force. If you hold that view, how do you approach or how have you approached the separate service of the Royal Canadian Air Force in order to coordinate your views and needs.

Mr. WALSH: We sit down together and actually work out a plan on what we want to do; in other words, the army man says he wants certain elements on the ground first, followed up by other elements, and the air force then will work out what they can do to meet the army requirements. There may be a bit of give and take in it but, generally, it works out. Where the tactical situation demands, the air force accedes to the army in the first instance; whereas the army will accede to the air force in connection with later follow-up to make a more efficient operation.

Mr. WINCH: Do you think that can be more efficiently done in a tri-service set-up than under a united service organization?

Mr. WALSH: I think it can be done both ways. The only other thing is that at other times the army component has a different task from the air force component; for instance, the G.O.C., Western Command, is primarily responsible for the western half of Canada. Our liaison with the air force is through air transport command which is in Trenton, but we exercise together at least once a year, if not more frequently, in order to prove out our procedures and methods of doing things so that we can lay them on quickly.

Mr. WINCH: Have you any comment to make on evidence given before this committee to the effect that we have more men in service now doing less work than at a time when we were at war?

Mr. WALSH: I can quote you some figures, I think, to the effect that this is not exactly the case. For instance, at the end of the Korean war we had 15 battalions, and a brigade was disbanded immediately after in 1954. We retained one extra battalion, a French speaking battalion, in Quebec. We have done away with the heavy anti-aircraft and the light anti-aircraft units entirely, and as the personnel we had in them were not required they were converted over to other duties, as well as forming the base for finding the personnel for the Honest John batteries. But, essentially, we are less than we were in the Korean war, and, in addition, we have assumed additional duties abroad for the United Nations since Korea.

Mr. WINCH: There have been some indications there might be a top heavy set-up; could you comment on the relationship between, shall we say, administrative staff at headquarters at the end of the Korean war and the administrative headquarters set-up now? Perhaps that is not a nice way to put it. Is there anything to support the contention that at the present time we have too many foremen and not enough workers?

Mr. SMITH: More foremen.

Mr. WALSH: In connection with this particular subject I was reviewing our personnel set-up last summer as to how army headquarters was evolved from 1946 and although bits and pieces of it have been reviewed from time to time in connection with reorganization and cutback there has been no over-all look at army headquarters since the end of world war II. Since that time we have been involved not only in the Korean war but in the tri-partite standardization program, the work with the other NATO countries, and the various United Nations tasks we are doing. It seemed to me the time was appropriate when two things ought to be found out, (a) have we the best organization for what we are doing, or, if we have not, where can we get it. Now, based on that we have written terms of reference. I cleared these with Mr. Hellyer, and one of the duties that General Allard will be taking up when he returns this weekend from his European tour is to head up a

working party to examine this whole matter. So, until I get his report I cannot be fully confident that, (a) I have the best set-up, or (b) that I should change it.

Mr. WINCH: Are you saying, sir, that you, the general in charge of the army, do not know, of your own knowledge whether you have a proper set-up?

Mr. WALSH: I know I have a set-up that is working but I am not sure I have the best set-up.

Mr. WINCH: Could you give us any idea as to the approximate relationship in numbers between your headquarters staff now and the headquarters staff at the time when we were engaged in the war?

Mr. WALSH: I cannot give you those figures off the cuff but I can get them for you.

Mr. WINCH: Is there a close relationship?

Mr. WALSH: No. I would say we had a much bigger headquarters during the period of war than we have now. We have been cutting back consistently.

Mr. WINCH: Would you get those figures?

Mr. WALSH: Yes, I will.

Mr. WINCH: May I ask this question. Are you satisfied that it was a good move to have the unification of the chaplain and medical services? Do you think it wiped out any duplication?

Mr. WALSH: I think it did. In fact, I am sure it did in certain areas, especially in the static areas across the country.

Mr. WINCH: Can you think of any other basis now whereby we might have a duplication and, therefore, money and inefficiency by unifying? How about ordnance?

Mr. WALSH: There are a few areas in the ordnance and supply field where that might be done. But, under the present system one service is often given the responsibility for procurement for the other two services. For example, in the case of the rifle—the three services use the FN rifle—the army was given the responsibility for the procurement for the other two services, including the ammunition, and this is a continuing demand. For instance, when we require light aircraft for artillery operations or require reconnaissance helicopters, the air force actually do the procuring for us. I do not think this cuts out the duplication in those areas. And, I do not think it would make any difference whether you unified or not, as we are still doing it.

Now, in connection with the other areas of ordnance such as field equipment that is peculiar to the army, the procurement of all the different types of electronics and materiel required in the navy for their ships and the materiel required by the air force for their aircraft, there is very little that is common. The air force supplies the spare parts for army aircraft, which is miniscule compared to what they require. The only boats we have left in the army now are bridging boats—that is, pontoons—which the navy are not interested in. In connection with the procurement of food, the army provides all the food for the three services. The postal corps is a common service to all three services. The dental corps is common to all three services; the dentists wear an army uniform but serve with the army and air force, and I do not think there is any duplication in that area.

Mr. WINCH: Do each of the three services operate their own supply line?

Mr. WALSH: They do with materiel peculiar to themselves. At the ports we hand over the supplies to the navy.

Mr. WINCH: Can you not therefore see advantage, efficiency, and no duplication if there were one supply service and one supply line?

Mr. WALSH: I am afraid that I do not understand your question. Do you mean one supply line for everything?

Mr. WINCH: Yes.

Mr. WALSH: As I take it, it depends on exactly what supplies are required; if it is the basic day to day living, then this is being done in rations. The navy have their own peculiar supplies which they need, and they are in different locations from where we are.

Mr. WINCH: You have said that you obtain your requirements of a specific nature, and that you turn them over to the navy at Halifax for your supply line?

Mr. WALSH: We buy it in bulk for the air force, the navy and ourselves, through D.D.P., and we run the supply depots from which the navy, army, and air force draw.

Mr. WINCH: Would you say that you were getting fairly close to a unified service in a supply line?

Mr. WALSH: It is a common service of supply although it is not a unified service because we all wear different uniforms.

Mr. WINCH: That is all.

Mr. DEACHMAN: Can you draw some comparisons between what Mr. Winch has been asking and between the Canadian armed forces and the British and the Americans on this question of unification of services and supply?

Mr. WALSH: In unification of supply and this overhead I think that we are probably further ahead of either army; the American forces are so big in this particular field that their bigness justifies single service operation. The British, on the other hand, are just beginning to move into this field. They have started on this with their recent white paper which was explained to us by their chief of staff last September. In many areas we are further ahead than they are. The fact that our scientific advisor and the deputy minister who controls the financial administration of the department always sit in when the chiefs of staff are considering a problem is something that they do not do. But we do it, and we have done it for years.

The CHAIRMAN: Now, Mr. McMillan on a supplementary.

Mr. MCMILLAN: In connection with the services I was wondering what the civilian employees did for the most part. Are they employed in office work?

Mr. WALSH: The range of civilian employees which we have runs everywhere from chars to quite senior superintendents in big depots, and in cataloguing and positions in which you require continuity.

Mr. MCMILLAN: I was rather interested in the integration of medical services and I wondered if that integration did not require a lot more book work, and bookkeeping. I have talked with medical men and with some dentists and they told me that they had to make out—I may be wrong—anywhere from six to eight copies of reports, dental reports and medical reports. Would that be true? Would there be quite a large number of copies required? I was just wondering about the paper work which had accumulated from it.

Mr. WALSH: I suspect that it is true, but I am afraid I am not familiar enough with the detailed working of the medical services. All I know is that you have to be extremely careful of the medical side of the business because of the Pension implications. Complete records must be kept, because of that, out of fairness not only to the patient but also to the government.

Mr. MCMILLAN: Then this integration would cut down on the number of personnel, dentists and medical men. Is that not right?

Mr. WALSH: I hesitate to say whether this makes very much difference. It has made a lot of difference in this respect—that the work has been spread over a larger number of doctors. They have been able to close down and to stop duplication. For example, here in Ottawa the air force runs one hospital for all three services. On the other hand in Kingston the army runs such a hospital, while on the coast the navy runs it for all three services. Of course in former days we all had our little hospitals. And in the case of medical inspection we have only one where the distance will allow for it.

Mr. MCMILLAN: How about hospitalization in Europe where you have the brigade with air services.

Mr. WALSH: We are integrated there in one hospital with the British for which we supply, I think, about 40 to 45 per cent of the staff, while the British supply the other half. I am thinking of the hospital near Iserholm. This is all mostly Canadian and British. The air force is too far away to take advantage of it. They are at the south end of Germany, and in eastern France.

Mr. MCMILLAN: How about supplies for our troops in France? I remember seeing Catchup from Massachusetts and so on when I was over there on a trip. Are any supplies from Canada going to our troops there?

Mr. WALSH: It is a straight matter of economics. We pay the British to supply the food that we require. Since my day we have managed to avoid such an embarrassing thing as having a visiting minister pick up a can of salmon only to find it was from Russia.

Mr. WINCH: Two years ago when I was there I picked up a can of salmon only to find that it was from the United States, 36 miles away from Vancouver.

Mr. GROOS: The doctor was asking a question if amalgamation or integration was relevant to reduction of personnel. Is it not quite true that the reverse of the case applies, namely, that integration has resulted in an increase in the higher ranks. I say this based on the fact that when you amalgamated the chiefs of staff, we put in a chairman of the chiefs of staff; that when we amalgamated the medical services, each service maintained its own head of medical service, and we put in a medical director general; and in the case of the chaplains, each service kept its own chaplain, and we put in a chaplain general. So this resulted in an increase at the top echelon.

Mr. WALSH: I think you are correct.

Mr. MACLEAN: Mr. Chairman, I would like to ask General Walsh a question for clarification with regard to the brigade in Europe. You said in your brief that the brigade is equipped with a regiment of artillery, a surface-to-surface missile battery with four launchers for Honest John rockets, a regiment of armour and three battalions of infantry. I take it these launchers are solely for the purpose of firing nuclear rockets. Is that correct?

Mr. WALSH: That is so. The weapon is so designed that it is a most inefficient weapon for firing high explosive warheads. I am not even aware that there is such a warhead available.

Mr. MACLEAN: I just wanted to confirm that. I would like your opinion as to whether or not the capabilities of the brigade are diminished by the fact that they have these launchers when waging a conventional war or in a conventional role? In other words, if there were a situation where only conventional weapons were used, would the brigade be just as effective now as it was before it had the rocket launchers?

Mr. WALSH: It would.

Mr. MACLEAN: In other words, these launchers have not displaced any other conventional equipment?

Mr. WALSH: No, they have not. The only thing which is required to balance out the artillery pattern is the medium artillery which we have not placed overseas. We only have it in Canada. That is the 155 howitzer.

Mr. MACLEAN: In your brief you made a short statement about the Russian equipment.

> In addition, the Russians have surface-to-surface nuclear missiles and tactical aircraft for support of their ground forces.

Is it meant to imply, or is it known, that these tactical aircraft that the Russians have are nuclear-armed exclusively or have they both nuclear and conventional armed aircraft?

Mr. WALSH: I am not sure. I am a little out of my field on the detail concerning the air force, but I suspect that they are. I would not say all of them necessarily are because they have some older types.

Mr. MACLEAN: Then, you also state that they have nine airborne divisions with their supporting fleet. I want to ask you the following question. What equivalent to this is there in the NATO forces as a whole in the way of airborne troops?

Mr. WALSH: I know there are airborne troops within NATO. In fact, the Americans have some, and I believe the British have at least a brigade, but I cannot be specific about it.

Mr. MACLEAN: If, as has been suggested by one of the previous witnesses, it would be a more feasible arrangement to have our brigade converted to an airborne brigade and held in reserve further back, would this cut down the problems of supply in your opinion?

Mr. WALSH: We would still require the same supply. We would have to make different arrangements for it, but if the supply line had a direct airfield from Canada it would simplify our present set-up. The heavy stores would not be numerous but they still might have to be sent by ship.

Mr. MACLEAN: I apologize for skipping all over the place but most of my questions have already been asked and answered.

In the air force, after the war, there was a reorganization of the supply system and a material command was set up. What is the equivalent system in the army as far as general supply of material is concerned? What I want to get clear is whether the air force have gone on to a different system and is this the case with the army or are the two situations not at all comparable?

Mr. WALSH: At one period, right after the war, we had our stocks fairly well distributed across the country. We concentrated them, just after Korea, into national supply depots and regional supply depots. We started to put in some automatic equipment to handle them from there on. Then we looked further into the business and found that there was over insurance, and with the increasing use of aircraft or air freight one could concentrate one's stock more, and if something was vitally needed one could have it sent out by air freight.

Now, this meant that one was able to reduce our overall stocks and make economies in them. We have carried this on further. There is a study going on now within the department for a further reorganization of ordnance services to make greater use of automatic processing equipment down to a lower level, so that at any time we should be able to produce items and if necessary fly them to the right place. This study has just been commenced and will bring our practices right up to date.

Mr. MACLEAN: There has been quite a bit said about the unification of the services to simplify supply, organization and so on. I wanted to ask a question which comes to my mind on this. In your opinion, would any advantage be gained in efficiency by cutting out the traditional units of the army, the identity of the various regiments and their historic value, or would you agree that perhaps more would be lost in the way of morale in these various units if the entire army wore the same uniform, for example, as is the case with the navy and with the armies in other countries?

Mr. WALSH: I think the regimental spirit and the corps morale do more to weld a unit together and make it into a smooth team than anything else. It is an intangible thing but it is real and it is very effective. As you may recall, in 1951 the 27th brigade was formed and each battalion had a company from a different regiment. They never really became clear cut, cohesive units. You still had this tug of war with five different regiments all represented in the one unit, and it was not until we reorganized the units and gave them a common regimental affiliation that they started to raise their efficiency and really started to get a professional attitude and esprit de corps. I know because I suffered through that particular period. One worked hard at it but one did not achieve it. I might add too, Mr. MacLean, that Hanson Baldwin, the writer from the New York *Times*, wrote an article which was quite forthright and envious of our system. In other words, there is more of personal contact in a regimental system.

Mr. MACLEAN: Thank you very much. I agree with that.

Something has been said during the evidence by various witnesses about the awkward position in which the chiefs of staff may find themselves in filling what are perhaps two different roles which are sometimes in conflict. One is that they are the heads of their particular services and the other is that they are jointly the advisers to the Department of National Defence and to the government as a whole. In your opinion is this correct; are there occasions when a chief of staff's loyalty to his own service may put him in the position where he has to fight for its maintenance and for its fair share of the pie, so to speak, when from an over-all point of view it might be logical that one of the three services should be reduced relative to the other? In other words, is it fair to put the chiefs of staff in this position?

Mr. WALSH: I agree it is not fair to put the chiefs of staff in this position, but I have not had the experience in the last two years where my loyalty to the country was tugged away by loyalty to the service. I think one has to express one's convictions and give one's advice. If the decision then is given against you, you have to do the best you can with what the decision is.

Mr. DEACHMAN: I believe this is a division bell, Mr. Chairman.

The CHAIRMAN: If it is a division, we will have to suspend the meeting.

Mr. MACLEAN: I have a couple of more brief questions. It has been suggested that it may be beneficial if the chiefs of staff, after they have completed their term in the position which is a fairly brief one, I think usually four years be retained as sort of chiefs of staff emeritus, as advisers in an over-all sense, perhaps not on full pay, to the government directly rather than having any responsibility for their particular service. Now, this may not be a fair question under the circumstances, and if you prefer not to answer, I will not press it.

Mr. WALSH: I think it is a matter of philosophy. How good is advice without any responsibility for it? I get lots of it, I can assure you.

Mr. MACLEAN: My final question is this: the royal commission on government administration, the Glassco commission, made several recommendations

with regard to the Department of National Defence. As I do not have the report before me I am not sure, but some of it may apply to the army exclusively. Is a study going on at the present time as to the validity of these recommendations?

Mr. WALSH: That is so. It is actually co-ordinated by the deputy ministers.

Mr. MACLEAN: Thank you very much.

The CHAIRMAN: I still have four members on my list. I understand there is a division. Before we adjourn, do you feel that we should ask the General to return? If not, then the meeting stands adjourned until Thursday morning at 10.30.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 18

THURSDAY, OCTOBER 31, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and Air Marshal C. R. Dunlap, Chief of the Air Staff.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29563-4—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Nielsen,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

ORDER OF REFERENCE

WEDNESDAY, October 30, 1963

Ordered,—That the name of Mr. Nielsen be substituted for that of Mr. Baldwin on the Special Committee on Defence.

Attest.

LÉON-J. RAYMOND,
The Clerk of the House.

29563-4—1½

MINUTES OF PROCEEDINGS

THURSDAY, October 31, 1963.
(26)

The Special Committee on Defence met at 10:45 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Béchard, Churchill, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), MacInnis, MacLean, MacRae, Matheson, McMillan, Nielsen, Patterson, Sauvé, Smith, Temple and Winch—(18).

In attendance: Honourable Paul Hellyer, Minister of National Defence; and Air Marshal C. R. Dunlap, Chief of the Air Staff. *And also* Parliamentary Interpreters and interpreting.

The Chief of the Air Staff was recalled and examined, respecting his statement to the Committee on July 16, and on related matters. The Minister of National Defence answered questions respecting policy.

The examination of the witness continuing, at 12:30 p.m. the Committee adjourned until 4:00 p.m. this day.

AFTERNOON SITTING
(27)

The Special Committee on Defence resumed at 4:15 p.m. this day, the Chairman, Mr. Maurice Sauvé presiding.

Members present: Messrs. Béchard, Churchill, Deachman, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), MacLean, MacRae, Matheson, McMillan, Nielsen, Patterson, Sauvé, Smith, Temple and Winch—(18).

In attendance: Air Marshal C. R. Dunlap, Chief of Air Staff. *And also* Parliamentary Interpreters and interpreting.

Air Marshal Dunlap supplied answers to certain questions asked during the morning meeting.

The witness was further examined, respecting the role of the Air Force and related defence matters.

The examination of the witness being concluded, at 5:50 p.m. the Committee adjourned until 10:30 a.m. Tuesday, November 5, 1963.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

THURSDAY, October 31, 1963

The CHAIRMAN: Gentlemen, this morning we have with us Air Marshal Dunlap, who appeared before this Committee on July 16. He again appears as a witness to answer questions related to the brief he presented to us on that date.

Mr. TEMPLE: Air Marshal Dunlap, how many Hercules aircraft or Yukon aircraft would be required for the transporting of a brigade firstly within, let us say, the confines of North and South America and secondly across the ocean?

Air Marshall C. R. DUNLAP, C.B.E., C.D. (*Chief of Air Staff*): Let me answer your question in respect of transportation of a brigade across the ocean. If you have reference to a transatlantic transport, I think that would be fairly representative of an internal movement on the land mass of North and South America. To move a brigade with light equipment and to do it with C-130 aircraft, which is the Hercules, it would require approximately 40 or 50. One must also consider the time element involved. If it is intended to carry out such a transportation movement in a matter of 24 or 48 hours one must naturally have more aircraft. The figures I have given you are based on the movement of such a force in a period of three to four weeks.

Mr. TEMPLE: To carry out such an operation in three to four weeks, would each aircraft have to make perhaps five trips?

Mr. DUNLAP: Each aircraft would be used as often as possible, and I would suggest there would be perhaps more flights than five, but it would be something of that order.

Mr. TEMPLE: Is the Hercules more suitable for moving men and equipment across the Atlantic than the Yukon?

Mr. DUNLAP: The Hercules is what is described as a tactical transport. It is an aircraft which is very suitable for moving both troops and materiel in that it has an easy loading arrangement with swing doors which permit the rapid handling of heavy equipment including vehicles. Therefore, one must recognize it as the more suitable for a tactical role. It is more suitable in front line areas because it can land and take off from small and shorter runways and, in fact, with relatively unprepared landing strips.

The Yukon is a larger carrier and can handle a larger load. On the other hand it does require longer runways. It could perhaps be referred to more in terms of a strategic transport operating up into the rearward positions of an operational theatre where there are large airdromes and longer runways available. From these points one might have to use the tactical transport in order to get into the front lines.

Mr. TEMPLE: I take it then your view is that the Hercules is the over-all and more suitable aircraft?

Mr. DUNLAP: That is correct.

Mr. TEMPLE: I realize that the Yukon is manufactured in Canada, but is the Hercules in fact manufactured in Canada as well?

Mr. DUNLAP: The Hercules is not manufactured in Canada at the present time. It is manufactured by the Lockheed Company at their various plants in the United States.

Mr. TEMPLE: How many Hercules aircraft do we now have, air marshal?

Mr. DUNLAP: We have a total of four Hercules aircraft.

Mr. TEMPLE: What is the approximate cost of the Hercules?

Mr. DUNLAP: I regret to say I have not that information at my finger tips.

Mr. TEMPLE: How many R.C.A.F. stations in Canada are equipped to handle both the Hercules and Yukon aircraft?

Mr. DUNLAP: The majority of our R.C.A.F. stations in Canada, apart from a few of the training stations, can handle both the Yukon and Hercules aircraft.

Mr. TEMPLE: Thank you, sir.

Mr. DUNLAP: The Hercules can operate from almost all of them.

Mr. LESSARD (*Lac-Saint-Jean*): How many Yukons do we have?

Mr. DUNLAP: There are 12 Yukons in our air force.

Mr. HAHN: Mr. Chairman, I should like to ask a supplementary question. Would the Caribou-2 that is now under development be comparable in its load carrying size to the Hercules?

Mr. DUNLAP: No, the Caribou-2 has a much smaller capacity than the Hercules. Its great virtue is that it can land and take off from even shorter runways than can the Hercules. It can also land and take off on airfields that are even less prepared than are required for the Hercules. It is a smaller carrier than the Hercules by quite a large margin.

Mr. HAHN: Air marshal at our last few sessions we have heard witnesses state in effect that the threat to this continent through manned bombers is now such that we do not really need to attempt to defend ourselves against that threat. I should like to hear your comments in this regard, if I may.

Mr. DUNLAP: I spoke to you in this regard when I appeared here last July. I have not changed my opinion in the interval. I think it is quite right that the emphasis in threat to this continent is shifting from one that has been predominately a bomber threat to one which will be in the future predominately a missile threat.

I think I mentioned to you in my previous evidence, and I quoted from Mr. McNamara, that while this threat is shifting it is still in favour of the bomber aircraft. In other words, whereas at one time we did feel and estimate that the I.C.B.M. capability of the Soviet union was building up rapidly, in fact it did not materialize as rapidly as was forecast in these estimates. At the present time the bomber is still the predominate threat. Both threats are important at this time, but as long as we have a bomber threat we must be prepared to do something about it, and as long as it is of significance, and it is still significant, we just cannot ignore it. The Soviet union would not retain the manned bomber as part of the over-all threat if it is unlikely to make use of it.

Mr. HAHN: Can you put a limit on the length of time that this situation might hold true?

Mr. DUNLAP: I do not think it is possible to do that, really, because one would be just guessing what the Soviet union planners have in their minds. I do not think it is possible to put a time limit on this situation.

Mr. MACINNIS: Mr. Chairman, how often at this time do you receive intelligent reports in respect of the potential bomber or I.C.B.M. threat?

Mr. DUNLAP: I can assure you that our reports are right up-to-date, and that there are intelligence reports received daily regarding these situations.

Mr. LESSARD (*Lac-Saint-Jean*): Mr. Chairman, perhaps the air marshal would put on his earphone so that I can direct my questions in French.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): Air marshal, I would be interested in information relative to Canadian submarine detection aircraft. How many of this type of aircraft does Canada now possess.

Mr. DUNLAP: We have two types of antisubmarine aircraft, the Argus and the Neptune. The total number of Argus we have now is 33 and the total number of Neptunes we have I believe is 25. Perhaps someone would correct me in that regard, but it is my belief that we now have 25 Neptunes.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): What is the approximate cost of those aircraft?

Mr. DUNLAP: You are stretching my memory in this regard because both types have been in service now for quite a number of years. I would say that the cost of the Argus probably ran to $3,500,000, while the cost of the Neptune would be about two thirds of that cost. Those are rough figures.

Hon. PAUL HELLYER (*Minister of National Defence*): I think the figure you gave in respect of the Argus is slightly low.

Mr. DUNLAP: You are perhaps right in that suggestion. I think the Argus perhaps cost as much as 4½ million or something of that order.

The CHAIRMAN: Perhaps you could supply this committee with further information in that regard at some later date.

Mr. DUNLAP: I would be glad to do that, Mr. Chairman.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): The reason I am asking this question, air marshal, is that we have been told that one of the greatest threats with which we are faced arises from the fact that some enemy could launch guided missiles from the depths of the ocean. Considering the length of Canada's coastline, in order to protect ourselves, we must as far as possible provide a warning system which would indicate the presence of these submarines off Canada's coast. Could you tell us the area of the ocean to be covered by aircraft for detection purposes? Is detection possible to one mile or three miles in the direction an aircraft is travelling, or a vertical direction involved?

Mr. DUNLAP: We have detection devices both from the air and from the subsurface. In respect of detection from the air, it depends on the area you undertake to keep under surveillance.

We have a large section of the Atlantic to keep under surveillance by our aircraft, and we have the capability with aircraft such as the Argus to fly right across the Atlantic and back again without refueling. There is therefore, a large area that is capable of being covered.

However, detection is a very difficult problem because you may be very close to a submarine in the Atlantic and yet not detect it. A submarine is a difficult thing to detect, as you know. A submarine that is equipped with ballistic missiles can stand a long way off; it can stand in close or it can stand a long way out. Therefore, the area in which you have to seek and detect is a very vast one.

We know the ranges of the Polaris-equipped submarines, as operated by the United States. They have a quite considerable range. The Soviets have, I think, not progressed quite that far in the development of long-range ballistic missiles in the use of submarines, but if they have not gone that far at the present time they probably will in a matter of a few years. Therefore one is up against a really difficult problem in this matter of surveillance and detection.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): There is one point you did not catch in my question. I should like to know what is the width of the surface that detection can cover in flight. In flight, can it cover 100 miles, 500 miles, 50 miles? What is the width of detection?

Mr. DUNLAP: I am sorry, yes, I did miss that point in your question. The aircraft has to rely on devices called sonobuoys. The sonobuoy is a sounding device similar to the devices which are used by the navy in their various destroyers and other craft, such as frigates. Because they are themselves in silent water and not surrounded by the noise of engines such as those which emanate from ships, they have a fairly considerable range of detection. I think I am right in saying it is about a 25 to 30 mile radius, but again I would stand corrected because I am not certain of that figure. Is anybody present here able to validate that figure? It seem there is no one who can do so, so I will undertake to validate that later. However, that device has the means of transmitting to the aircraft in flight, information which it collects, and the aircraft is either getting information from a single buoy or a series of buoys dropped in pattern or in a line which it can interrogate.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): You have made experiments with submarines with these aircraft in flight. What was the efficiency you experienced? Did the aircraft always succeed in detecting the submarine? Within a certain area, did it always succeed?

Mr. DUNLAP: It would be wrong to say it always succeeds. It is a very difficult operation. We have had a very great measure of success in our exercises against submarines but I could not put a figure on it. It would be quite impossible for me to indicate how frequently one succeeds and what is the probability of success, but the equipment which we have in the Argus and in the Neptune is a very advanced type of equipment for detection and analysis and computation of attack. We have therefore very considerable success in our antisubmarine operations.

Mr. LESSARD (*Lac-Saint-Jean*): Thank you.

Mr. MCMILLAN: May I ask a supplementary question?

The CHAIRMAN: Mr. McMillan.

Mr. MCMILLAN: What is the greatest distance at which messages can be received from the sonobuoy?

Mr. DUNLAP: I think again that depends on the height of the aircraft, but it is a distance far in excess of the detection distance of the sonobuoy itself, so it gives good flexibility in operation.

Mr. MCMILLAN: It can be received by the ships in that area too, can it? Are they equipped to receive those messages or are only the aircraft so equipped?

Mr. DUNLAP: I think if they were equipped to receive, they no doubt could do so; but having their own installed sounding devices there is little necessity for them to be so equipped.

Mr. LANIEL: May I ask a supplementary question?

How many of these buoys do you find in an Argus generally, and how much do they cost? I imagine they would become expendable if you dropped them in the water.

Mr. DUNLAP: That is an item of detail which is not at my disposal here at the moment. I will make that information available.

The CHAIRMAN: Mr. Winch.

Mr. WINCH: Mr. Chairman, I would like to ask the air marshal what is the advantage of having Canadian squadrons in France equipped with strike or recce planes if they cannot be armed on account of French policy.

Mr. DUNLAP: Naturally it would be much preferable if we were permitted to store the nuclear weapons and operated the aircraft involved from the French bases. We are denied that opportunity at the present time because

of restrictions which France has imposed. Those restrictions were really imposed against the United States some years ago and they have rubbed off on us. How long that restriction is going to continue it is quite impossible to say, but in the meantime the alert aircraft of those squadrons based in France can only function in a strike role by rotating forwards and standing at alert on other bases in other countries where this is permissible, and of course Germany is an example of that. We can move the alert aircraft. Those that stand by are on alert throughout the day. We can move them forward on to German bases. That is one of the solutions.

However, we could if we made certain provisions operate those aircraft from our dispersal operating bases in Belgium, of which we have two. We have two dispersal bases in Belgium.

Mr. WINCH: I am assuming that in the event of an attack a potential enemy is not going to give a warning. In this event, is not his first target going to be the airfields? Is it reasonable to assume that the first target is going to be the airfield?

Mr. DUNLAP: You are assuming, of course, a nuclear war from the outset?

Mr. WINCH: I am assuming any kind of war. Is not one of the first targets going to be the airfield?

Mr. DUNLAP: Yes, I presume that is a fair statement. It is one of the most likely targets. We operated during world war II on the continent and in the United Kingdom without being subjected to attack as the No. 1 first priority target. I think the situation perhaps is a little different in the present day and it is likely that there would be fair emphasis given to attack against the airfield.

Mr. WINCH: That being a fair assumption, as you put it, what do you think of the feasibility of getting Canadian planes off the airfields in France and being able to land in Germany and Belgium to pick up their armaments?

Mr. DUNLAP: Again, it is a matter of the degree of warning that one has. It does not take more than a matter of minutes to get aircraft of this type off the ground.

Mr. WINCH: That was my next question. How far is it from where our squadrons are based in France to the points at which they can pick up their armaments in other countries?

Mr. DUNLAP: As I indicated in a previous answer, in peacetime some of them will be standing on alert in these other places. Therefore, your question relates to the remaining aircraft on the French bases.

Mr. WINCH: Could I ask what is the maximum range of our new strike/recce plane? How far can they go on a full fuel load?

Mr. DUNLAP: I will give you that figure roughly; it is an item that is normally a classified item so I will not give it precisely.

Mr. SMITH: Rawhide had it on his program.

Mr. DUNLAP: That makes it very official! It is approximately 400 miles radius of action.

Mr. WINCH: Because it logically ties in here, I think, I will ask the minister whether the matter of the sense of having Canadian planes in a country where they cannot be armed is under review.

Mr. HELLYER: Yes, Mr. Winch, as I announced in my opening statement to this committee, it is.

Mr. SMITH: May I ask a supplementary question?

The CHAIRMAN: Yes.

Mr. SMITH: Aside from the very few minutes it takes to fly a plane from the French airfield to the German airfield, how long does it take to arm it with the nuclear arms that are required to make it effective?

Mr. DUNLAP: That is not a long operation.

Mr. SMITH: Minutes or hours?

Mr. DUNLAP: Let us say it is less than hours; it is a comparatively brief operation.

Mr. MACINNIS: May I ask a supplementary question?

The CHAIRMAN: Yes.

Mr. MACINNIS: I wonder if there is any possibility of testing the ability of the air force to leave the base at Marville, or wherever they are based in France, to go into either Belgium or Germany by demonstrating to the committee while they are overseas the ability to transfer these planes and pick up the necessary armaments and refuel, in order that we will have a better idea of their capabilities and abilities to get into the air within a very short period of time. This moving from the permanent base to the standby base must be part of the routine training of the air force overseas at all times, and it must necessarily have been worked out that this can be done within a certain time. Therefore, I was wondering if it would be possible for this committee to see that operation while overseas.

Mr. DUNLAP: If I might speak to that, Mr. Chairman, I would say we are not really at a stage at the present time when we could say it would be feasible. These squadrons are presently in the build-up stage, and I doubt if that is a very feasible operation at this moment. It would be feasible in a matter of months from now.

Mr. MACINNIS: How then do the authorities arrive at the opinion that this can be done in a very short period of time? How do they arrive at that opinion if it has not been tried and actually worked out to show it can be done within a given time?

Mr. DUNLAP: We know the capability of the aircraft and the aircrew. It is a relatively simple operation.

Mr. MACINNIS: There is always a margin of error that must be worked out in any problem, and I cannot see how any definite opinion can be given on such an operation unless it had been worked out in fact to prove to the authorities that this is quite feasible and that it definitely can be brought about.

Mr. DUNLAP: On a matter like this we base our judgment on experience and as the time becomes opportune we run exercises to prove it. What I am suggesting here is that the time is not yet opportune to do this, but we have had enough experience to know the capabilities and possibilities.

Mr. MACINNIS: So it would be more accurate to say it is the opinion that this can be done rather than to put it down definitely and say this can be done?

Mr. DUNLAP: If you wish to put it that way, yes.

Mr. LAMBERT: My question has to do with the air division. Initially the 104's were sent over, presumably with a conventional role or conventional capability. Modifications were made to convert it to its present capabilities of nuclear arm-carrying capacity. What was the extent of the modification? Has that modification been completed with all the aircraft you have?

Mr. DUNLAP: It is the other way around, Mr. Lambert. We were given and assigned a strike reconnaissance role. That is what NATO authorities asked us to assume and that is what the Canadian authorities undertook to assume. When we manufactured this aircraft in Canada we manufactured it to meet the requirements of that role, so as it came from the factory it was a CF-104 configured and

instrumented for a strike reconnaissance role. Therefore it would be quite wrong to say it went over as a conventional weapons carrier and was modified to a strike reconnaissance aircraft.

Mr. LAMBERT: It was reported that modifications were made to the aircraft overseas. Is that not correct?

Mr. DUNLAP: That is absolutely correct.

Mr. LAMBERT: To what extent were these modifications to fit it to the strike reconnaissance role?

Mr. DUNLAP: These were not modifications at all to fit it to the strike reconnaissance role. These were modifications of a type and nature that are coincident with the introduction of any new type of aircraft into service. In the course of the life of the CF-100, for example, there were several hundreds of modifications. These are modifications that come about as a result of test flying and evaluation of the aircraft. Where one finds that improvements can be made here or there to give greater performance from some item of equipment or, in some cases, a better safety device than may already be installed on the aircraft, these modifications are made. These evaluations and tests give rise to modifications which we find it necessary and desirable to introduce. It is that class of modification that has taken place in the squadrons that have already gone overseas. We are doing the same type of modification on the CF-104's at the operational training unit at Cold Lake. In fact, the whole fleet is in the process of continuous modification throughout its life. It is a product improvement modification.

Mr. LAMBERT: In other words, modifications of limited degree? They are rather minor and what you might perhaps call shake-down modifications?

Mr. DUNLAP: That is right.

Mr. LAMBERT: I have seen reports that there is now contemplated a modification in the aircraft to fit it for the dual role of carrying conventional weapons as well as nuclear weapons. Is there any substance to this?

Mr. DUNLAP: I think in answer to that I should say the F-104 as produced by the United States Air Force, and which was the progenitor of this series, was an aircraft which basically could undertake a variety of roles. Its normal role as used by the United States Air Force was in the fighter field, but it had incorporated within its design and its structure the ability to carry not only the weapons that are used in an air defence role but weapons that might be used in an attack role. Those design features are present in the CF-104 as we produce it in Canada. In other words, the wiring is in the aircraft which would permit you to use bomb racks which would be peculiar to conventional weapons. The wiring is in the aircraft which would permit you to use rockets which you might carry in pods on the aircraft; and the wiring is in the aircraft that would permit you to use air-to-surface missiles. The structure of the aircraft is such that it can support these weapons at various points. It is all part of the design. The thing that is not in the aircraft is the instrumentation which would be peculiar to some of these other roles. This aircraft has been instrumented in the direction of the strike reconnaissance role.

Mr. LAMBERT: Are some of the present modifications to make the aircraft completely operational on the basis of dual capacity?

Mr. DUNLAP: Are there modifications to make it dual capable? At the present time, no. We are completely concerned with the one role at the moment.

Mr. LAMBERT: Then is this report that we have heard erroneous? Is it wrong that the aircraft is to be equipped in part with conventional weapons?

Mr. HELLYER: I think I should answer this question. It is really a variation of the question asked by Mr. Winch earlier. It is a question of future roles. I indicated in my opening statement that the question of potential use of these

aircraft was under study. The air marshall is quite right; no decision has been taken and the report in the newspaper to which you refer was merely speculative.

Mr. SMITH: Or premature?

Mr. HELLYER: This committee is studying future roles and is quite jealous of long-range decisions being made in the meantime. The government also is studying future roles. Therefore I do not think we should accept as a *fait accompli* all the suggestions that we read.

Mr. LAMBERT: Is it then in contemplation that the strike reconnaissance role can encompass the use of conventional weapons in combination, if need be, with nuclear weapons?

Mr. DUNLAP: What you are really asking is if the squadron can undertake a dual capability? Is that correct?

Mr. LAMBERT: Yes. Does the strike reconnaissance role as envisaged contemplate the use of conventional weapons as well as nuclear weapons?

Mr. DUNLAP: No. The strike role is a role in itself. It is a very demanding one in point of training, both before the crews go to the squadrons and in the period after the crews reach the squadrons in order to become sufficiently capable to be assessed and rated as competent in this role. It is possible also to train crews for an additional role. However, it is a difficult operation to have crews at the proper level of experience and training in the strike role and also in what is described, for example, as the attack role.

It is difficult because the strike role is complex and complicated to a degree that it takes the full training time, not only of the air crew themselves but of the available hours obtainable from the aircraft, to bring the air crew up to the requisite level and standard. There comes a time when he has reached that level when it would be possible to think in terms of another capability, but that is away down the path of the training of the air crew on this particular aircraft.

Mr. LAMBERT: In other words, the question of diversification of role is a very long term one?

Mr. DUNLAP: That is right.

Mr. LAMBERT: At the present time, as the strike reconnaissance role is conceived is it exclusively nuclear? I believe I have asked this question before.

Mr. DUNLAP: It is. That is what is meant by the strike role. It is a role in which you are concerned with the dropping of nuclear weapons.

Mr. LAMBERT: Exclusively?

Mr. DUNLAP: Let us say exclusively in any early stages of a war which involves nuclear weapons.

Mr. LAMBERT: Therefore the role of the air division as it now stands would be only for use in either a limited nuclear war or an all-out nuclear war? It is of no application in a conventional weapons war?

Mr. DUNLAP: At the present time that is so.

Mr. LAMBERT: And is it your view that there is such a thing possible as a limited nuclear war in western Europe?

Mr. DUNLAP: That is a difficult question and a very controversial one.

Mr. LAMBERT: It is a problem with which we are faced.

Mr. DUNLAP: It is a very real problem. Let me say that I can visualize and foresee situations in which nuclear weapons can be used in a limited fashion.

Mr. LAMBERT: With control over the degree of development or escalation?

Mr. DUNLAP: Control over the degree of escalation is exercised by fear on the part of the two major powers of allowing the war to reach a point

whereby it becomes an all out exchange of nuclear weapons ultimately involving the United States and the U.S.S.R. I think that is a controlling factor in itself. Therefore to a degree it seems possible that nuclear weapons could be used against purely military targets in a battlefield area.

Mr. LAMBERT: In the concept of a strike reconnaissance role, is there such a thing as a non-military target? Everything is a military target.

Mr. DUNLAP: Well, certainly to the commander concerned in allied command Europe there are purely military targets, and those are targets which relate to the fighting force.

Mr. SMITH: Such as airfields?

Mr. DUNLAP: An airfield is a good example.

Mr. LAMBERT: Is it not also a truism that a military target is wherever the enemy happens to be, even if he happens to be in the centre of a town where there are civilian installations. The restriction which is placed on the role, that it should not be used against a civilian population, just would not exist.

Mr. DUNLAP: I would not agree with that. There is the matter of imposed constraints, and the constraints imposed by SACEUR are such that that type of target is not regarded as a tactical military target against which he would plan to use these weapons.

Mr. MACINNIS: What about a supply area or something like that?

Mr. DUNLAP: Depots, again, are targets which might be the subject of attack by nuclear weapons, provided they are not close to built-up areas.

Mr. LAMBERT: I have one last question in respect of which the air marshal may wish to restrict his answer. Have you any idea of how long it would take you to get into this diversificational role so that you feel you are competent in the dual or extended role?

Mr. DUNLAP: I am not sure I can give you too precise an answer to that, although we have had this under study. Let us take the case of the squadron deployed overseas. From the time it becomes assessed as fit, ready and suitable to undertake the strike reconnaissance role, then I think there would be a work-up period to get all the crews up to a high standard. This might take perhaps another six or seven months, or something of that order. By that time one could think of turning to the training of the crews in an additional role.

Mr. LAMBERT: I am interested in knowing just how long it might take before it would be considered that the air division is available with its present equipment for some conventional role in Europe. According to the definition given, I think at the present time it is not considered to be a weapon or an armament suitable for conventional war.

Mr. DUNLAP: I should say—and I think you are aware of the fact—that there is limited reconnaissance capability in the air division; again that is a secondary role. The prime role is strike. Not all aircraft have been provided with reconnaissance pods, but there is that limited capability. So, it is not quite correct to say that there is not any capability other than the strike.

Mr. SMITH: The Starfighter is no longer in production in the United States. Is that right?

Mr. DUNLAP: It is in production.

Mr. SMITH: It is in production?

Mr. DUNLAP: Yes.

Mr. SMITH: Have they made commitments or plans for a replacement plane?

Mr. DUNLAP: The process of replacing aircraft goes on constantly, as you know. It takes about seven, eight or nine years from the time you design an

aircraft until you get it into squadron use. The life of an aircraft of this particular class, a fighter aircraft, generally is about ten years. Inasmuch as they have been producing Starfighters in the United States for several years now, they naturally are in the process of considering other follow-on aircraft.

Mr. SMITH: Some of the other NATO countries have Starfighters?

Mr. DUNLAP: Yes. They call them the F-104G.

Mr. SMITH: There is no difference in the plane?

Mr. DUNLAP: If you are referring to the basic structure, the basic design is similar.

Mr. SMITH: The G is the designation in Germany.

Mr. DUNLAP: G designates the aircraft as used and manufactured by the consortorium of nations, of which Germany is one.

Mr. SMITH: I believe there is a F-104J which is manufactured in Japan.

Mr. DUNLAP: Yes.

Mr. SMITH: It is not proposed that the Starfighter be included in the 1964 United States military budget.

Mr. DUNLAP: For procurement?

Mr. SMITH: Yes.

Mr. DUNLAP: No.

Mr. SMITH: Do the other countries which have the Starfighter have the same roles as Canada?

Mr. DUNLAP: No; they have a variety of roles. Germany, for example, uses the aircraft in the strike role, the reconnaissance role, the air defence role, and also in the attack role.

Mr. SMITH: Are their pilots trained in dual roles?

Mr. DUNLAP: No, they are not. They take the basic aircraft, turn it out in different versions, with different instrumentation, to suit each role, and then they train their aircrew personnel for a specific role.

Mr. SMITH: Are the pilots of any of the NATO countries, to your knowledge, trained in dual roles?

Mr. DUNLAP: Yes; some of them are so trained. I think the United States is a good example of that.

Mr. SMITH: How about the British?

Mr. DUNLAP: I am not certain about the British.

Mr. SMITH: Do you know of any others, except the Americans, which might have the dual training?

Mr. DUNLAP: I would think there are some others. For example, some of the smaller nations in Europe have been in the strike role now for a number of years, and I am sure they have reached the point where they have crews also trained in some other role such as the attack role.

Mr. SMITH: Is the Starfighter a plane which, in the American plan of things, it is proposed ultimately will be replaced by the TFX?

Mr. DUNLAP: Not necessarily. The TFX, as I understand it, is an aircraft designed by the United States for rather universal employment on a global basis. It is a multi-purpose aircraft of long range and high performance; it is not a particularly suitable aircraft for use in Europe. It will be a very costly aircraft. You do not build all these features into one machine, plus range, without paying a lot of money for it. Whether or not it is an aircraft which will be used in Europe remains to be seen. In Europe the requirements are for shorter range, lighter weight, less costly aircraft.

Mr. SMITH: Outside of Europe, what use do the Starfighters have? Are they tied to the European situation completely?

Mr. DUNLAP: They are committed.

Mr. SMITH: I do not mean committed in the treaty sense; I mean are they tied by their utility, their usefulness, their purpose, to the European scene.

Mr. DUNLAP: They could be used elsewhere. You are really asking do they have the capability of moving and operating in another theatre.

Mr. SMITH: Yes.

Mr. DUNLAP: They could be. In my opinion it is rather unlikely that they would be, but they could be, and it is within the terms of the NATO treaty for them to be so used if Canada found it necessary to withdraw them temporarily.

Mr. SMITH: Would it be a complicated or difficult matter to use them in another theatre of war?

Mr. DUNLAP: Yes. I think it would be fairly complicated. It is a type or a class of aircraft which requires a great deal of support equipment, test equipment. The instrumentation on that aircraft is extremely involved, and when you move to another theatre you have to move all of that support equipment. Therefore, it would be wrong to suggest it is a simple operation, but it is not an impossible one.

Mr. SMITH: In the R.C.A.F. do we have a plane which might be useful or might be used in a limited conventional or limited nuclear war elsewhere than in Europe?

Mr. DUNLAP: We are now lacking in that respect. That is one of the things that in the future I feel we should make provision for.

Mr. SMITH: That would lead to my next question. What plane do we have to provide tactical air support to our land forces?

Mr. DUNLAP: Do not forget that the 104 is providing tactical air support to the land forces in Europe.

Mr. SMITH: In a fixed theatre.

Mr. DUNLAP: Yes.

Mr. SMITH: But in a non-fixed theatre, if I may use some poor English.

Mr. DUNLAP: We do not have any that are particularly suitable. If we were compelled to undertake an operation of that type, we would have to use Sabres or CF-100s which are obsolete. If this is to be a role or task of the R.C.A.F., one needs something more modern and suitable.

Mr. SMITH: Do reconnaissance aircraft have a use with the army?

Mr. DUNLAP: For use at home or for use abroad? Let me pick it up: first of all, at home, for training purposes we do undertake training exercises with the army on a regular basis. For that purpose we use the T-33. We also use for strategic reconnaissance, in exercises involving operations in the north country, aircraft like the Lancaster which has been a photographic aircraft.

The T-33 is very useful and suitable for purposes of training, but it is not a suitable aircraft for operations. As you know, it was the F-80 fighter aircraft in the United States, and later was used by us as a training aircraft, but it no longer is suitable for operations on a global basis.

Mr. SMITH: Suppose we have a battalion or a brigade involved in peacekeeping operations such as the Congo, and suppose that our role in the Congo had been different then it was? What have we got? We have no suitable plane for tactical support? What have we got to use for army reconnaissance there?

Mr. DUNLAP: Most of these operations, you know, have been peacekeeping operations, policing operations rather than fighting operations.

Mr. SMITH: Except that the Irish and some other people got into the fighting part.

Mr. DUNLAP: Well, the Irish always do. In that type of operation, reconnaissance can be done by any one of a variety of aircraft. We are doing our reconnaissance from day to day on peacekeeping operations in the Congo, and in the Gaza strip area, and the Yemen. But by the nature of the operation it is not fighting aircraft that one needs. The aircraft used are the Otter, and the Caribou, that sort of thing, for transport and reconnaissance.

Mr. SMITH: How many Caribou aircraft do we have in the Canadian armed forces Do you see a use or not for Caribou in the armed services?

Mr. DUNLAP: We have a very limited number of Caribou. The total is four only; and we have found that in our operations for the United Nations we could have used considerably more. We are really pressed at the present time in the Yemen operation, where we have two Caribou in operation in addition to those in the Gaza strip area. We are over-extended in the matter of the Caribou. I think that in any further program we will find that we must have more of this class of this aircraft.

Mr. MACRAE: I wish to ask a question in connection with the area of responsibility in the defence against submarines. The air marshal suggested that we had an area of responsibility, I take it, in both the North Atlantic as well as the North Pacific. Our potential enemy is the U.S.S.R. at this moment. They have, so it is reported, massive strength in submarines. Does the air marshal believe that in an all-out nuclear war in which nuclear-powered, nuclear-armed submarines would be used that we have at this moment any defence against that type of threat. It is something like asking if we have

Mr. DUNLAP: You are referring to the nuclear submarines equipped with ballistic missiles?

Mr. MACRAE: Yes.

Mr. DUNLAP: Let me say that it is very, very difficult to have satisfactory defence against that type of threat. It is something like asking if we have satisfactory defence against the I.C.B.M. threat, which would be launched from some other continent against us. They are both difficult indeed to defend against. And the submarines, by virtue of the fact that they are mobile launching platforms, are still more difficult. And I would not pretend to suggest that we have a satisfactory defence against them.

Mr. MACRAE: My question was motivated by the fact that even though we do have 33 very fine aircraft, we really do have no defence against this type of thing. My second question is: what is the normal tenure of service in the R.C.A.F. in your present time?

Mr. DUNLAP: Our personnel normally spend four years on tour in Europe, that is four years for married personnel and three years for single personnel.

Mr. MACRAE: What is the total strength of the air force in Europe at this particular time, or is that classified knowledge.

Mr. DUNLAP: No, I can give you the approximate figures. We have approximately 6,000.

Mr. MACRAE: What is the total number of dependants for those 6,000, such as wives and children?

Mr. DUNLAP: You may just multiply it by about three.

Mr. MACRAE: Very roughly it is about 18,000 then?

Mr. DUNLAP: Yes, but I think I have given you a slightly high multiplying factor. I can tell you how many dependants for both the army and the air force. The army have approximately 6,000 service men in Europe, and we have approximately 6,000; and the number of dependants there were 25,000 at the last count.

Mr. MACRAE: For both services?

Mr. DUNLAP: Yes. It would be 25,000 for both services.

Mr. MACRAE: Do you feel that we could have, in the R.C.A.F. service a man for one year, or 15 or 16 months overseas for our pilots and other members in the R.C.A.F without loss of efficiency in our air force? My question is motivated by the fact that we transport 25,000 women and children overseas where we house them and do all these other things. I am concerned with the fact that we get dollar value out of every dollar we spend on defence. Perhaps you can see what I am driving at. I have it in me that if we could have our airmen over there for a year or 16 months and rotate them without loss of efficiency that it would be advisable. How do you feel about it, if they should not have their dependents with them.

Mr. DUNLAP: Well, I do not think you can do that without great loss of efficiency in the case of the air force. The training that these crews do in Europe is very extensive. You must train them in relation to specifically assigned targets. I do not think you would become very efficient in less than a year. Generally speaking, it is more than a year. But let us assume you could get up to a point of R.C.A.F. efficiency in one year. You would just get to that state by the end of the year when you would have to take these people out and start another training session.

Mr. MACRAE: This training could not be done in Canada that you refer to?

Mr. DUNLAP: The type of training I am talking about is peculiar to the environment and the target system.

Mr. SMITH: Is that because the planes are tied to their ground control system? Is that one of the factors?

Mr. DUNLAP: Well, the system of control in Europe is complex and complicated; it is different from the one used here. But I was thinking not only of that, but of weather conditions and training conditions and of the environmental ground conditions, and the target missions that the boys have to fly and to train on.

Mr. CHURCHILL: First of all I would like to refer to the bomber threat which we talked about when we met about three months ago. On page 187 I mentioned this, and the air marshal said at the bottom of that page, referring to Mr. McNamara's

> . . . he has indicated there that there is a shift in emphasis. Whether he has intended to say that one is greater than the other at the present moment I cannot say but one has to read rather carefully to interpret it.

On that occasion I did have in front of me the record which I now have, and referring back to page 113 on July 9, where I quoted directly from Mr. McNamara I read these words:

> Our attention during the last several years has been directed toward air attack on the American continent. We are now realizing that a missile attack is the most dangerous. We have realized that a submarine missile launch attack is second in importance, and the importance of an attack by bomber has dropped into third place.

I suggest that you would have to read that very carefully in order to interpret it, if Mr. McNamara dropped the bomber threat down into third place. But I understood the air marshal this morning still considers the bomber threat to this continent to be in first place.

Mr. DUNLAP: We have all sorts of statements before us. Mr. McNamara is one who makes statements with great frequency. He has within the past year stated that the bomber is the threat which can bring the greatest weight of nuclear weapons against this continent.

Mr. CHURCHILL: That may be well and true, that it could carry a greater threat. But the evidence that this committee has been getting has reduced the bomber threat to smaller proportions. Granted that a greater weight of bombs can be carried by an enemy air force, yet a missile attack seems to take first place, and the submarine missile attack is a growing threat. What is the committee to do under these circumstances? I suggest that the weight of evidence we have covered here so far fits in with Mr. McNamara's statement that the bomber is decreasing and has dropped into third place.

Mr. DUNLAP: Well, Mr. Churchill, I am speaking from knowledge which I have from intelligence sources as to the size and weight of these threats. I am sorry but I am not in a position to give that information, but that is the basis that I have when I make the statement that I did this morning.

Mr. CHURCHILL: I am not disputing your statement. I am just saying that if this committee is to reach a conclusion at the present moment, the weight he gave varies from yours. That is the point.

Mr. DUNLAP: In that connection if Mr. McNamara felt very strongly that there has been a marked change of emphasis, I would think he would have effected a far greater change in the radar ground environment and in the defences that have been seen in the United States forces. I would think that if the Soviets felt there was a great decline in the bomber threat one might have seen a far more substantial reduction in their air defence forces. These things are not evident as yet.

Mr. CHURCHILL: I should like to change to another topic, Mr. Chairman; perhaps some other member has a supplementary question.

Mr. MACINNIS: Would the air marshal agree that the defence as set up against the bomber threat has been established because it is the only positive step which can be taken in defence of this kind rather than attempting to set up a defence against the I.C.B.M. which is recognized now as impossible rather than difficult as the air marshal suggested?

Mr. DUNLAP: I would say that the air defence as we see it on this continent is set up because there is a bomber threat to this continent. I am not suggesting that the bomber threat has not declined because we all know that it has; but we have seen changes in the magnitude of the effort which has been put into air defence on this continent. The R.C.A.F. has decreased the fighter squadrons from nine to five and has decreased the total aircraft number from 162 to 60. That is an example of a fairly substantial reduction.

One noted last year the reduction in NORAD of the number of radar squadrons and control headquarters. The changes have been made in relation to the change of the threat and there will and must be continued changes.

Mr. MACINNIS: At the present time you are set up against the bomber threat because it is the only positive defence you can maintain at this present time?

Mr. DUNLAP: I would not say that is the reason we are set up against this threat. We are set up against this bomber threat because we can do something about this.

Mr. MACINNIS: What I am trying to say, and if you will excuse me I will just make this last remark, is that you are not set up against the I.C.B.M. threat at the present time because it is not possible to set up a defence against the I.C.B.M.; is that correct?

Mr. DUNLAP: That is absolutely correct.

Mr. MACINNIS: Your original remark that it would be difficult to set up a defence against the I.C.B.M. is not accurate, and you should have said that it is impossible; is that right?

Mr. DUNLAP: I do not think one could go so far as to say that such a defence is an impossibility, but I certainly would agree that it is very difficult.

Mr. LAMBERT: I think perhaps we are using different terminology. It is true that the greatest weight of nuclear bombs that can be brought to this continent would be brought by aircraft at the present time. It is still possible to rationalize this with secretary McNamara's statement that it is only the third most important threat because, as Mr. McNamara indicated you have a highly operational defence against the bomber and therefore, its degree of threat is less than the other two since our defence against those are partial only and are in the field of a deterrent; is that correct?

Mr. DUNLAP: It is possible that Mr. McNamara had that aspect of the situation in mind when he made that statement, yes.

Mr. HAHN: Following the line of Mr. Lambert's statement, there are three methods of delivering nuclear weapons to this continent namely missile-firing submarines, I.C.B.M.'s and manned bombers. Surely the length of time that we will keep our bomber defence depends on the size of the potential bomber threat; is that right? Is it possible now for the Soviet union to strike a conclusive blow at this continent without the use of bombers? I think that is the critical question to be answered.

Mr. DUNLAP: That is the critical question and I would say that it is definitely not possible for them to do so, and it is on that basis that I made my earlier statement.

Mr. LANIEL: In regard to the reduction in the number of squadrons, has the size of the force maintained to defend Canada against an attack also resulted from increased efficiency in our squadrons and equipment?

Mr. DUNLAP: All of those factors come into the picture, but I do not think that the increase in efficiency in this particular case was the major factor.

Mr. LANIEL: Would not the increase in efficiency of equipment be a major factor in this regard?

Mr. DUNLAP: Perhaps you are correct in this statement.

Mr. GRANGER: Mr. Chairman, I should like to ask the air marshal a question. I have read from time to time about the development of new bombers by Russia, the United States and Britain. As a matter of fact, quite recently there was an announcement regarding a supersonic bomber being developed for the Royal Air Force. Would this indicate that each of these nations believes that bombers could be used? Would that also indicate that these nations will manufacture these extremely fast bombers and rely upon them to some extent?

Mr. DUNLAP: I will attempt to answer your question in respect of the Soviet union and its development in this regard. There are indications that the Soviet union is working on a supersonic bomber, but there is not sufficient evidence to indicate where they are going or to indicate how far the Soviet union intends to go in this development. This is the sort of development you might expect as a follow-up to the equipment they now have developed, yet the fact that they are developing and working on such a bomber does not necessarily indicate they are going to introduce it.

You referred to the United Kingdom. There was a photograph of this rather futuristic aircraft in the press a few days ago. It was referred to as the TSR-2. That aircraft is not in the strategic bomber class, to which we have been referring for the last few minutes, but is a tactical bomber which would replace tactical bombers such as the Canberra which the British forces have used for the last 10 or 12 years.

The United States is developing a TFX which has been in some prominence within the last few months. The TFX again is a tactical aircraft and again it is

in a separate class and category from the strategic aircraft. The United States, of course, also has new strategic bombers which they have been endeavouring to program. They do have supersonic bombers in their inventory but they have another design which they have not as yet put into production.

Mr. GRANGER: Would the development of supersonic bombers increase proportionally the bomber threat?

Mr. DUNLAP: I would not necessarily say that that is true. I believe that the main threat in the future is a missile threat. The only situation that would bring back the bomber threat would be the development of a foolproof defensive system against the missile.

Mr. GRANGER: I think you mentioned a few moments ago that you did not believe that missiles alone could be used to deliver a knockout blow. Evidence given before this committee would tend to indicate that I.C.B.M.'s do have a great deal of accuracy at this time. I think Mr. Gellner stated that the United States I.C.B.M. bases were hardened to the point where they could survive such an attack. Would you care to make any comment in this regard?

Mr. DUNLAP: We have discussed this matter of accuracy before. Considering the distance over which an I.C.B.M. travels it is a very accurate device. It is not a pinpoint weapon by any means. When you are firing something 6,000 miles you cannot expect it to drop in the pork barrel from that distance. It is not as accurate as a bomb delivered by an aircraft and, therefore, against a target such as a hardened I.C.B.M. in a silo underground one would have to use a great many I.C.B.M.'s. This situation has been worked out on the theory of probability and in order to be sure of destroying a hardened underground I.C.B.M. missile one would certainly have only a slim chance when using one weapon. If one wanted to be sure of knocking out such a hardened I.C.B.M., one would have to effect a multiple attack. The total number one would have to use to destroy a hardened site would depend entirely upon the accuracy of the weapon used.

Mr. GRANGER: I gained the impression from previous evidence that if Russia aimed an I.C.B.M. at Ottawa it would be sufficiently accurate if it missed Ottawa and hit Hull, for instance, and, considering the destructive capacity of such a weapon, it would be just as destructive as if it had hit Ottawa. It might miss the pork barrel but it would still destroy the pork.

Mr. SMITH: We flatter ourselves with the thought that Russia might waste an I.C.B.M. on us.

The CHAIRMAN: Have you a supplementary question to ask, Mr. Smith?

Mr. SMITH: Yes, Mr. Chairman, in respect of the bomber threat question, air marshal, there is no question that our defences are such that we could keep out all Russian bombers in an all-out attack?

Mr. DUNLAP: I think it would be impossible to do so.

Mr. SMITH: Do you think that the rate of attrition would be much higher or lower or relatively lower or higher than it was during the second world war during our bomber raids?

Mr. DUNLAP: The rate of attrition at the present time would be very much higher, yes.

Mr. SMITH: There would be more bombers lost at this time?

Mr. DUNLAP: That is correct.

Mr. CHURCHILL: Mr. Chairman, I should like to ask one or two questions in respect of the air bases in Europe. We know that the air division bases in Germany may be equipped in time with nuclear bombs, but that that portion of our air division stationed in France will never be equipped with these nuclear bombs. This seems to necessitate the flying of these nuclear bombs

forward upon the outbreak of hostilities to those bases in West Germany or to alternate bases in Belgium. Is that a militarily unsound program? Considering the number of aircraft involved in such a move, what length of time would be required to arm these bases? What would happen to the first two squadrons on their return flight if they survived? Would there not be such a crowded situation in actual war that it would be impossible of success?

Mr. DUNLAP: I do not think this is a very desirable situation, and it is a situation that we hope we will not have to face. We had hoped that the French government would find it possible to change this situation regarding the denial of the use of nuclear weapons at these bases. This is a situation which still may be changed.

When I discussed this problem previously, I had in mind the moving of these alert aircraft to forward positions in one day's time. We must spend 24 hours day in and day out with a small proportion of a squadron on the alert. You had reference to the situation which might pertain in time of war. There are a number of possibilities that might exist in this regard none of which is as satisfactory as one might hope. The possibility does exist that as tensions increase, and when it has been recognized by NATO that the tension has increased to the point that there must be a change in the conditions of the alert from the normal to a "reinforced alert" the French government might permit weapons to be moved into these bases at that particular point of time. That is a possibility. That would have to be done under conditions involving the use of barbed wire and improvised compounds for the safeguarding of the weapons and for the prevention of the aircraft being used in any unauthorized way. But, it is a condition of deployment that certainly has been considered by the commander of the Fourth Allied Tactical Air Force as a wartime situation. It is the same sort of thing that might be possible at the dispersal bases in Belgium. I admit this does require a situation in which there is some gradual build-up of tensions and gradual change of states of alert, but it is a possibility, although certainly not as satisfactory as having your aircraft and weapons on the same base in peacetime from which they are likely to operate in time of war.

Mr. CHURCHILL: I would not think the air force would be happy about this. Even if you used dispersal bases in Belgium the time lag to get the bombs there would be very considerable.

Mr. DUNLAP: Well, to get the bombs there would be a matter of flying them in in a transport, and to get the aircraft there is a matter of, I suppose, five minutes flying time from the base in France. It is a very short distance, and you are dealing with very high speed aircraft.

Mr. CHURCHILL: But my concern is the loading and flying up. The same situation would prevail there, as a critic said, which would prevail in Canada if nuclear weapons were brought in here at a certain stage of alert. So, you cannot have it both ways; if it was a bad thing for Canada obviously it is a bad thing for the air force over in Europe.

I have another question along these lines. The short range missile now is accepted as being in use by both sides and is considered to be an effective weapon. There is no protection whatsoever now for our airfields in Europe; they are sitting ducks. The air force is not underground; they are not hardened sites and, as a result, the air force has become more vulnerable than at any time in its history.

Mr. DUNLAP: These airfields are extremely vulnerable and so are many other military installations in allied command, Europe, be they army or navy. In the case of the navy, you have your ports and your repair facilities which are extremely vulnerable, and your cities are as well. We, sitting right here in

Ottawa, are about as vulnerable as the fighter aircraft on those fields in Europe. We can be attacked as readily as they can.

Mr. CHURCHILL: We have to accept the fact that cities and so on are vulnerable but a military force must be placed in a position so it can take effective action against the enemy, and I think our situation in Europe now is thoroughly unsound from a military point of view. If this is a proper question, are negotiations under way to get additional airfields in Germany where nuclear weapons would be available, which would allow the shifting from France up to other bases in Germany.

Mr. DUNLAP: Well, that is not a simple matter. It would be a logical line of approach towards a solution. But, airfields in Germany are extremely difficult to come by. The amount of real estate that is available in Western Germany—that is, which is level and flat—is not great; it is under heavy cultivation and the Germans are loath to commit much more of their real estate to military purposes, so the German air force itself is short of airfields, as a result of which there would be some difficulty experienced in finding a solution in this direction. It is not impossible but it is difficult.

Mr. CHURCHILL: With our vast expenditure of money in equipping the air division in Europe we are not getting full results because it is not in a position at the present time, or when it is fully equipped, to perform the task that is now allotted to it.

Mr. DUNLAP: I think I did say we are not without dispersal fields in Europe, and I have been referring here to certain dispersal fields which are specifically allocated to the R.C.A.F. in Belgium and so on. There are many other fields in Europe which will be used for dispersal purposes in time of an emergency. So, there is an opportunity to disperse.

Mr. CHURCHILL: But when your plane is restricted to a nuclear bomb you could have a dozen dispersal fields and yet not have the equipment to arm them effectively. This is something the committee has to weigh when it is assisting the minister in his decisions.

Mr. DUNLAP: That is correct. I think you are aware of a development which is known under the terminology of PAL, which is permissive action link. This is intended to provide for this sort of condition, where you can disperse your weapons and have them secured and in a condition which cannot be utilized without authority from senior headquarters. I will admit that is not available to us at the present time but that is a feature that will be available, and that will help in this situation.

Mr. CHURCHILL: Time is running out, Mr. Chairman, but I would like to ask a question on another subject and perhaps the members who wish to ask supplementaries on the questions I have asked could bring them up later on today. I would like to ask a question about limited nuclear war, which has been the subject of considerable discussion in the committee over the last few weeks. Again, the consensus of opinion is that it is wrong to consider a limitation in a nuclear war. Now, if I heard the air marshal correctly earlier, he said something to this effect; I can visualize a situation in which a limited nuclear war might be undertaken. Could you be more specific in that connection?

Mr. DUNLAP: Well, first of all, let me say the presence of the tactical nuclear force, be they army, navy or air force, in allied command, Europe, once again is primarily for the deterrence of war. I think we should never forget that fact, whereas the forces of the United States as based here on the North American continent together with the strategic forces of the United Kingdom represent the principal and main deterrent to war on a global scale. The tactical nuclear forces in Europe are an important deterrent

to the outbreak of war in that theatre, be it conventional or nuclear. Yes, I think one of the very important values of that force there is in the deterrence of conventional action, limited or otherwise, because there is nothing that can escalate more rapidly or suddenly than conventional war. We have had many historical examples of this. First of all, therefore, the presence of these tactical nuclear forces represent a valuable deterrent to the outbreak of this type of limited engagement which we have all recognized might be the situation that ultimately could lead to the development of something which would compel us to use tactical nuclear weapons in Europe to sizable scale. If one is to deter an aggression, conventional or otherwise on the fringes or borders of the allied command in Europe, and I am thinking of a period when one is in tension and there is a critical action some place on the border regions, one may very well have to try to block that action from expanding by threatening the use of nuclear weapons. You may be compelled to demonstrate that you are not bluffing by employing on a designated level, and perhaps to a limited level, a certain number of nuclear weapons to indicate that you mean business. That may or may not bring the actions to a halt, but that is one example of an area in which weapons could be used on a limited basis.

Mr. CHURCHILL: One of the most serious considerations we have before us in this committee has regard to the possibility of a limited nuclear war. I doubt very much this possibility, but if there could be a limited nuclear war it would have to commence only on the order of the President of the United States. It is difficult for me to realize that he would suggest that we drop six of perhaps 100 nuclear bombs to see what would happen. In order to determine the role of Canada's forces this committee must decide whether or not a limited nuclear war is possible. I accept your statements with regard to the deterrent value of the air division in Europe and I accept your statement with regard to the threat that it poses if some trouble breaks out, but I find it difficult to visualize a limited nuclear war. This is basic to our considerations here and as to what conclusions we reach. If a war can be limited in the nuclear field, then we may say that the role of our armed services should be such and so; but if a war cannot be limited in the nuclear field, then perhaps our role would be different. We are trying to get the over-all military opinion from all sides in this regard.

Mr. DUNLAP: I would agree with you, Mr. Churchill, that this is a most difficult subject. It is very difficult to decide whether a nuclear war could be limited. I think it is very important to go further with that line of thought you have just expressed, and in this light I should like to refer to a remark I made earlier to the effect that if the presence of these strike reconnaissance forces of Canada in Allied Command of Europe succeeds in preventing the outbreak of a war of any kind in Europe I personally believe that our contribution and efforts there are worth while.

The CHAIRMAN: Gentlemen, it is now half past twelve. What is the wish of the committee? I still have four members who wish to ask questions of the witness.

Mr. SMITH: Five, Mr. Chairman.

The CHAIRMAN: This committee stands adjourned until four o'clock this afternoon. I would like the members to arrive punctually so we have a quorum of 13 to start the meeting at 4 o'clock.

Mr. HAHN: Before we adjourn, just a brief point of order. Now we have opened the topic of limited nuclear warfare and non-limited nuclear warfare, may we continue with this before we open up another topic when we reassemble this afternoon?

The CHAIRMAN: This committee stands adjourned until four o'clock this afternoon.

AFTERNOON SESSION

THURSDAY, October 31, 1963.
4.15 p.m.

The CHAIRMAN: We now have a quorum. Air Marshal Dunlap has some answers to questions raised this morning.

Mr. DUNLAP: I mentioned this morning that I would provide you with a more complete estimate of certain costs, and these are as follows. An Argus aircraft used in maritime operations costs approximately $4.2 million; a Neptune costs approximately $1.2 million. The Sonabuoy as used by these aircraft costs about $350 apiece, and the R.C.A.F. is authorized to drop up to 15,000 per year to maintain proficiency on exercises and in the regular course of crew training.

While we are on this subject of maritime operations, in relation to comments made by members of the committee this morning to the effect that we seem to be spending a great deal of money on an antisubmarine program that cannot provide a defence against submarine-launched missiles, I would like to mention that Defense Secretary McNamara on August 13 this year before the Senate foreign relations committee, stated that the Soviet submarine-launched ballistic missiles are short range and require surface-launching.

Against such types of surfaced submarines we have a fairly effective maritime antisubmarine force in operation.

The CHAIRMAN: Mr. MacLean, you were the first member on my list this morning.

Mr. MACLEAN: Mr. Chairman, in connection with maritime air command, there were some questions asked by members this morning which lead me to wonder if the air marshal could give us, in layman's terms, some idea of the capabilities of the maritime air command in reconnaissance for surface ships of the area of the Atlantic for which we are responsible.

Mr. DUNLAP: Reconnaissance is really the business of the maritime force. They are recconoitreing for submarines. By the same token, they have a capability of recconoitreing surface forces. They have of course an easier task in this area than with submarines because all maritime aircraft are equipped with effective radar for search purposes and the surfaced ship, against the background of the sea, is a very visible object. Therefore in answer to your question I would say that within the limits of the numbers of maritime aircraft we have, they have a good search capability for surface ships.

Mr. MACLEAN: Perhaps my terms are not quite accurate. I did not mean capacity or capability in that sense; I meant capacity for search, thinking mostly of numbers of aircraft available as compared to the job that should be done. For instance, if the R.C.A.F. were required to determine whether or not there was a surface ship in the area how long would it take before it could be determined with certainty that no ship was there.

Mr. DUNLAP: That is a function of the suspected location of the ship. The ocean is a large area. You are dealing with aircraft which fly at a good speed, and they can cover the area allocated to our maritime air command in a short period of time. It could however be a matter of hours. You have to run a search pattern. If you have one aircraft only on the job it could take a fair length of time. If it is important enough, you can put on a multiple search. Each aircraft with its radar can sweep a very wide area, so it could be run down in a fairly short space of time.

Mr. MACLEAN: Could you give the committee some idea of the number of times maritime command is called upon for special duties by other departments? I am thinking of search and rescue, spotting and photographing of fishing vessels, and things of this sort.

Mr. DUNLAP: The role of search and rescue is not one in which maritime command has had to take part in the normal course of events. We have another force for search and rescue and we normally attempt to keep maritime command clear of this undertaking. That is not to say that under special circumstances we would not call upon them for this task, but normally they are free and clear of that activity.

The matter of photographing ships is a normal part of the duty and function of maritime command, but I would say that does not happen very often. When that is a requirement, it would certainly be one of the things they would undertake, and they could undertake it.

Mr. MACLEAN: I want to ask a general question with regard to air transport command. Could you give us some idea of the increased capacity of air transport command with the Yukon and Hercules aircraft, as compared to the older types of aircraft? I am thinking of special duties such as a requirement to transfer certain troops to the Congo or some sudden demand of this type, taking into account the increased range and load capacity, and other factors such as speed.

Mr. DUNLAP: The Yukon is able to carry approximately 50,000 pounds on a trans-Atlantic flight; that is four or five times greater a lift than its predecessors in the service, travelling perhaps almost twice as fast as its predecessors. You can see from those figures what it is able to accomplish. The Hercules is also a high speed, highload carrier able to operate transatlantic non-stop from our Canadian bases to our European bases. It is substantial load carrier. It has been able to carry things that no other previous aircraft we had in inventory could handle in the way of large bulk loads. As you know, we have been flying the CF-104 across the Atlantic in the Hercules, so there is a significant increase in our lift capacity.

You must really compare the Hercules with the C-119 which is a tactical transport which we have been using for work primarily in support of the Canadian army as well as for other bulk lifts.

The Hercules has roughly three times the lift capacity of the C-119, which is the tactical aircraft we have in service at the present time in some considerable numbers, but it is now getting quite obsolescent.

Mr. MACLEAN: I am asking these questions so that there might perhaps be some clarification of the understanding of the costs of the air transport command aircraft which is going up out of proportion to what aircraft cost in the past. I think to make a proper comparison one must always remember the tremendous increase in the capacity of these aircraft, as well as the savings which are made by the increased speed and range which eliminate the necessity of having relief crews at stop-over points and things of that nature. I often feel that an unfair comparison is made in this connection, and I was attempting to clear up the situation so as to make the comparison more accurate.

Mr. DUNLAP: Yes, that is a very good point and I appreciate your mentioning it.

M. MACLEAN: The other questions which I intended to ask have been partially answered and I do not wish to take any more time of the committee at this stage, provided I am afforded the privilege of directing supplementary questions.

The CHAIRMAN: This morning when we adjourned you mentioned, Mr. Hahn that you wanted to carry on the discussion in respect of nuclear war

in Europe. Do you wish to ask a question in this regard now, or do you wish to wait your turn?

Mr. HAHN: If other individuals desire to continue asking questions on this topic I should like to ask a question, otherwise I will await my turn.

Mr. MCMILLAN: Air marshal, I was wondering whether any tests have been made by the United States Navy as to the comparative effectiveness of nuclear and conventional arms against submarines. I have in mind particularly the size of nuclear arms which would be used against submarines.

Mr. DUNLAP: Yes, the United States Navy has made tests in this area.

Mr. MCMILLAN: Are the nuclear arms much more effective against submarines?

Mr. DUNLAP: Yes, they are.

Mr. PATTERSON: Mr. Chairman, we cannot hear the questions.

The CHAIRMAN: Would you speak louder, Mr. McMillan, please?

Mr. MCMILLAN: Do you wish me to repeat the question?

The CHAIRMAN: Yes.

Mr. MCMILLAN: I asked a question regarding the comparative effectiveness of nuclear and conventional arms against submarines.

Mr. DUNLAP: My answer to that question was that the United States Navy has conducted experiments. The nuclear depth charge by virtue of its great explosive capacity naturally is very effective against submarines which are at great depth as well as submarines which are some considerable distance away from the point of explosion.

The CHAIRMAN: Have you completed your questions, Dr. McMillan?

Mr. MCMILLAN: Have you any idea as to the distance from the point of a nuclear depth charge at which a submarine would be put out of commission?

Mr. DUNLAP: I am sorry I do not have that information and I suspect that it would be rather classified.

Mr. MCMILLAN: In respect of the Argus and Neptune, are parts freely available?

Mr. DUNLAP: Parts are available.

Mr. MCMILLAN: The CF-104 is not being manufactured in the United States, but are parts available for the CF-104?

Mr. DUNLAP: The CF-104 is being manufactured in quite a number of different countries. It is being manufactured in Canada, in Europe and in Japan. It is still being manufactured as well in the United States although it is not currently under further procurement for the United States air force. They are making it in the United States and selling it abroad so that the spares situation in respect of the CF-104 is very good, providing one has the money to purchase the parts.

Mr. MATHESON: Air Marshal, Mr. Gellner in his evidence set out two reasons why we need a miiltary force. He said we are paying our membership dues through this force in the alliances which are important to us and, secondly, that we are buying influence through providing military forces.

Mr. DUNLAP: Excuse me, I did not catch the second point.

Mr. MATHESON: He said that we were buying influence through providing military forces. I am asking my questions on the assumption that we do care about our alliances and are anxious to preserve them and keep them strong and I have particular reference to NATO and NORAD. I should like to ask you whether you can tell me when NATO determined the usefulness of the

strike role and I do not necessarily mean for our force but for their own force? Can you give us the appropriate year when this was determined?

Mr. DUNLAP: It was approximately in the middle 1950s when this was first evident in NATO. It was later than that when the NATO council at a heads of government meeting—I think this meeting took place in December 1957—that there was a general agreement to stockpile weapons for the various nations in the event that they decided to participate in nuclear activities within Allied Command Europe. Whereas 1957 was an important date, it was earlier than that, of course, that the United States forces concerned became nuclear equipped.

Mr. MATHESON: I should like to ask you approximately when Canada became committed to the CF-104 strike reconnaissance role, and when should our commitment with respect to this strike reconnaissance role be completed?

Mr. DUNLAP: I believe this was decided in the spring of 1959 when General Norstad, who was then SACEUR, came to Ottawa and outlined the need for a strike role and suggested that perhaps Canada participate. It was also during that year that Canada undertook to get into the strike role. This was again followed up by the publication of a military committee document which is published periodically, every three years, to spell out the force goals and to ask the various nations to make contributions.

I was sometime shortly thereafter that Canada was asked to contribute these eight squadrons of 18 aircraft each in the strike role. Those goals are commonly referred to as the end 1966 force goals. They actually came into being several years ago and are effective up until the end of 1966. In the course of preparation at the present time and for publication either this year or sometime next year will be the 1969 force goals.

Mr. MATHESON: Does that mean the NATO agreement from the standpoint of Canada's participation therein can be renegotiated in 1969?

Mr. DUNLAP: Well, every time there is a new set of force goals presented I presume it is reasonable to suppose each nation has an opportunity at that time to decide whether they wish to continue with their present level of commitment or whether they wish to propose some other commitment.

Mr. MATHESON: Then, specifically, suppose it was the wish of Canada to fulfil NATO responsibilities but to seek some other role than the strike reconnaissance role, would we be free to think, in terms of the year 1966 or 1967 as the changeover period or could it be done gradually? How does one phase out of a particular task into what may be another useful air role?

Mr. DUNLAP: End 1966 is a milestone and sometimes between now and that date, and sometime within the next year, will be published the end 1969 force goals, so, from the time that NATO document is made available it certainly would be possible to enter into whatever negotiations Canada wished.

Mr. MATHESON: In your evidence this morning you spoke of the fact that Canada was exclusively adapted at the moment to the strike reconnaissance role and apparently equipped for no other; would it be possible in this intervening period to perhaps assume some secondary conventional role which would not detract from our usefulness in the strike reconnaissance role but nevertheless enable our air force in Europe to move perhaps in some other direction, or is this happening with other countries?

Mr. DUNLAP: I would say yes, in answer to your question. You are referring really to the period from now and end 1967. In that span of time if that were the decision it would be possible to make some progress in that direction.

Mr. MATHESON: With respect to our NORAD obligations, would you be kind enough to indicate—

Mr. SMITH: If I may interrupt, would it be possible to have a couple of supplementary questions on the European situation. Would not the phasing out of our strike reconnaissance operation depend on the strategic concept of what the forces in Europe are and whether or not you can get someone else to take over that role, if it is still important?

Mr. DUNLAP: That certainly would be an important factor in this. These force goals are set up in reference to the strategic concept. They are established against the background of the guide lines determined by the NATO council and the Standing Group and, therefore, if the concept is still valid and the force levels are still valid and we wish to make some adjustment or change in our undertakings then it is a reasonable assumption that someone else must assume the undertakings that we no longer propose to carry on.

Mr. SMITH: What was your position in 1959?

Mr. DUNLAP: In 1959 I was at SHAPE.

Mr. SMITH: I seem to recollect General Norstad's visit to Ottawa and the meeting he had in the railway committee room which was attended by all members of parliament. When you say he suggested this role for Canada it seems to me—and my recollection may be hazy—that the word "suggested" is a very mild term.

Mr. DUNLAP: Maybe it is, but not being present I cannot say.

Mr. SMITH: Was it possible at that time that the Canadian forces suggested alternative roles that might have been more attractive to the nature of our services and the size of our country?

Mr. DUNLAP: I do not think so. I think that here was a requirement in which the Supreme Commander felt Canada could make a real contribution. He was conscious of the fact we could produce the necessary aircraft, train the necessary crews, and, I am sure, he felt that Canada could make a good effort in contributing in this direction.

Mr. SMITH: In other words, it was a real request from NATO for us to take this role?

Mr. DUNLAP: I would assume it was, yes.

Mr. LAMBERT: A supplementary question. Are you in a position to say now or were you in a position to know at the time whether hard alternative proposals were put by Canada to SACEUR with respect to the role of the air division in 1959?

Mr. DUNLAP: I am not aware of any being put at that time.

Mr. LAMBERT: It was possible this could be put without your knowledge though?

Mr. DUNLAP: It is possible but unlikely.

Mr. MATHESON: Am I correct in saying that our NORAD commitments are ready to be renegotiated in 1967?

Mr. DUNLAP: 1967 or 1968. It was toward the end of 1957 or early 1958 that the NORAD agreement was formally signed and it was for a ten year term, so you are certainly in the right area.

Mr. MATHESON: So, if Canada should be able to come to the conclusion that we should change the emphasis, weight, and direction of our contribution to NORAD would 1968 be the approximate year of change, or how does this take place? Let us assume that we are getting out of the Bomarc defence into something else with our allies.

Mr. DUNLAP: Well, once again, when you come to renegotiate an agreement that is generally a good time to consider whether the things you are

doing under the terms of that agreement are right, whether they suit the parties concerned, and it would not be illogical to say that that is a date of some significance in the matter of making changes.

Mr. MATHESON: May I touch on something else at this time? We have heard from the navy and the army in respect of our defence in the north. My conclusion is that we are doing virtually nothing in this large sector of our boundary. Everything seems to be oriented either on land in Europe or on the east or the west. However, the north seems to be a neglected area. Can you tell me what we use for reconnaissance over our land mass in the Arctic? Perhaps when you are answering you would also express any views you might have with regard to the recommendation which came to us from General Simonds earlier when he suggested he would like to see an emphasis by the navy which would be, say, in the area of nuclear submarines to patrol our northerly boundary.

Mr. DUNLAP: In respect of the first question having to do with the matter of reconnaissance in the north, we are responsible for reconnoitring the Arctic reaches of this country and the arctic Archipelago. We are doing this now, and have been for several years, with the Lancasters. The Lancaster is a venerable aircraft.

Mr. MATHESON: You mean ancient?

Mr. DUNLAP: Yes, ancient; ordinarily described as obsolescent. We have the hope of replacing that with more suitable aircraft for this purpose in the not too distant future.

Mr. MATHESON: Are you satisfied with what the army, the navy and the air force are doing collectively in respect of the north?

Mr. DUNLAP: Let me say that the direct threat to our north country in my opinion is not a very great one. There is the remote possibility that in time of war there might be some enemy lodgement in some northern region which would call for action on the part of the army and the air force, but that does not seem to be very likely. There does not seem to be much occasion for the Soviet to engage in that type of operation. Should it take place, the army and air force in an airborne operation would undertake to deal with it.

Before I leave that, I should say we engage in exercises with the army at periodic intervals to train our personnel in dealing with that sort of undertaking.

So far as the activities of the Soviet submarines in Arctic waters are concerned, I find it difficult to get too excited about that possibility. In the first place, the Soviet has not demonstrated any capability as yet in the matter of long range missiles from a submarine fleet. While she has short range missiles, there is no particular merit in her going up underneath the ice of the Arctic or on the Arctic waters even when there is no ice, because she is too far removed from possible target areas. I have no doubt that in some years hence the Soviets will have long range ballistic missiles that can be fired from submarines. Even in that period I have difficulty in understanding the merit of operating in the Arctic waters. They can operate in the Pacific and Atlantic waters with greater ease; they would be within easier reach of target areas there, and it would seem the more likely line of activity for the Soviets to employ.

Mr. MATHESON: May I ask a final question? Assuming that we are deeply interested in Canada having a strong transport side to our air force and assuming further that it might be the decision of Canada to move out of a nuclear strike reconnaissance role, can you suggest the new air task which would tend to serve usefully the NATO alliance and perhaps the responsibilities to the UN which we could assume and which would tend to give high

morale to our air force, and which would be pleasing to our serving officers—it would tend to provide the fighter psychology as distinct from the bomber, and would give us a little more of the balanced view and at the same time tend to complement the other services, the navy and the army, and give us a flexible mobile striking force that can be used anywhere and everywhere.

Mr. DUNLAP: There are a fair number of assumptions in that question. It is a fairly hypothetical one. You have ruled out the continuance of the strike reconnaissance role as one of your assumptions. I, myself, personally feel that is a good role, a role in which Canada can make a worthwhile and continuing contribution. Even though at the present time we are considered vulnerable in respect of the fixation we have on runways, the day is not too far distant when that type of operation will be undertaken by vertical take-off aircraft.

Taking the assumption that we are not in that role and trying to visualize some activity where we could make a good Canadian contribution in the cause of maintaining the peace or a worthwhile contribution in war, you pretty well narrow things down to a contribution in the transport role so that we have mobility for our forces plus a contribution in the tactical support role either on a global basis or in connection with our NATO allies, if we are still participating there; and perhaps the simultaneous use of that type of aircraft in the policing of the skies in Canada, because you still need to have some control over the free use of aircraft over your own country for you do not want reconnaissance aircraft going freely over your territory, or any other type of aircraft, for that matter, that are on unfriendly missions. Futhermore I would foresee that the maritime activity would continue for some considerable period in the future. I cannot see any termination of that.

Mr. MATHESON: I take it that in respect of the maritime activities you have emphasized the rather considerable importance of some nuclear capacity. Is that correct?

Mr. DUNLAP: I really was not undertaking to emphasize that one way or the other. I have indicated that the nuclear depth charge is a weapon in the arsenals of some of the countries at the present time, and it is a fairly effective weapon.

Mr. GRANGER: I think this morning you mentioned there was no real effective way of discovering submarines. Might I ask if research is going on with the idea of making aerial reconnaissance more effective?

Mr. DUNLAP: Yes, there is. There has been very constant and active research in that field, particularly within Canada, the United States and the United Kingdom, and of course, other NATO nations. We have active research programs in Canada in which both the navy and air force are participating, and we are conducting a number of those in collaboration with the United States. I think it is a very important area for us in which to devote our research activities and funds.

Mr. GRANGER: Is research thus far encouraging?

Mr. DUNLAP: Yes, we have some interesting and promising areas of research in this field in which both the air force and the navy in Canada and the United States navy are extremely interested.

Mr. SMITH: On the question of training, are there any plans for co-ordination between the air force and civilian air carriers in Canada so that in the event of an emergency civilian air transport could be diverted?

Mr. DUNLAP: Yes, there are. There has been planning in that direction and field for some time and we are still in the process of planning the manner in which the air lift of the civilian fleet would be employed in a time of emergency.

Mr. SMITH: Has there ever been any consideration given to a plan whereby the government would acquire military transport and lease it—even lease it with its crews—to civilian carriers in Canada to operate in more or less unprofitable or undeveloped routes in northern Canada? Has that matter ever been projected?

Mr. DUNLAP: I do not think there has been any such proposition in reference to activities in Northern Canada, to my knowledge.

Mr. SMITH: I asked a question and I think I did not ask it clearly last July, concerning the effect of or the capacity of a Bomarc to hit a missile once the missile has been launched from its carrying platform or airplane. I think in respect to another witness there is a divergence of opinion, or perhaps I did not ask the question clearly, but we were informed that it was not possible and that once a missile was in flight, that a Bomarc could not get it.

Mr. DUNLAP: The evidence which I gave to you in July was to the effect that the Bomarc is able to deal with a missile launched from an attacking bomber.

Mr. SMITH: Yes. It was given at Colorado Springs. That was where we heard evidence to the contrary or a statement to the contrary.

Mr. DUNLAP: Let me put it this way: we must be careful of the sort of missile we are talking about. I am not making any claim that the Bomarc can deal with a ballistic missile. What I am saying is that the air to surface missile of the type that we would be concerned with is not necessarily but generally, a winged missile. I do not know of any Soviet missile of the Sky-bolt type, which was under development and cancelled out. A winged missile is a small aircraft, if you like, in itself; and once it is launched it flies like an aircraft and it has somewhat comparable speeds, and it can be dealt with by the Bomarc.

Mr. SMITH: So our misunderstanding was on the ground of terminology.

Mr. DUNLAP: It could be, yes.

Mr. SMITH: What damage would a missile or a bomb in the range of from one-half to one-third a kiloton do, for example, to a Bomarc station?

Mr. DUNLAP: That is an awfully small bomb you are talking about; do you not mean a megaton?

Mr. SMITH: Megaton, yes.

Mr. DUNLAP: That again would be a function of how close it came to its objective. You are talking of a fairly large weapon now, and if it were within reasonable hitting distance, it would do a lot of damage.

Mr. SMITH: There are missiles—atomic missiles in the size, I think, of that to which I referred, that is, one-half kiloton, which would be 500 tons, would it not, or the equivalent?

Mr. DUNLAP: It is a very, very small blast, and it would have to be awfully clase to the missile site; it would have to be right on top of it to damage the whole site. I am not sure it would even do this if it were right on top.

Mr. SMITH: May I turn for a moment to some matters that we have not discussed at all today. Perhaps it may be a little like turning from the sublime to the ridiculous, but one of the problems which the service chiefs and witnesses have mentioned to us is the high ratio of personnel cost related to the amount that is available for weaponry and equipment. Is there within the three services any co-ordinated training that is common to all the services, or between any two of the services?

Mr. DUNLAP: I would say in general that the services have their own training establishments. Apart from some of the units where there is collaboration in basic training or in higher learning, which have been mentioned here in

committee in recent days, I cannot really put my finger on a training course or training establishment of the type to which you are referring.

Mr. SMITH: I am thinking of basic training. For example, in my riding or close to it we have an air force and an army camp situated exactly together. On one day you will see a convoy of air force learner drivers going through the town and the next day you will see a convoy of army learner drivers. It occurred to me, from the point of efficiency and perhaps good relations between the services, that training on items such as that, being common to all arms, could be co-ordinated, making a better spirit and possibly for increased efficiency.

Mr. DUNLAP: Possibly, but there are really not many trades which have commonalty. You have pointed to one there which is probably a good example of commonalty, but there are not many others.

Mr. SMITH: What about radar?

Mr. DUNLAP: I would say that radar is one of the examples which would show lack of commonalty. There are so many different types of radar, each peculiar to the service concerned, therefore you really would have little if any gain at all in that area.

Mr. SMITH: At the time of the Congo situation we heard a great deal about the shortage of signallers and wireless operators. Is there any field of common training there?

Mr. DUNLAP: The equipment in the services differs in these areas. Whereas the basic elements leading to training in those fields would have similarity, most of the trade training would be on the specific equipments, and those are different. Again, I would think there would be no gain at all in common training.

Mr. SMITH: To turn to civilian personnel, each of the three services has its own civilian employment offices. That is so, is it not?

Mr. DUNLAP: That is right.

Mr. SMITH: I have been hearing of problems in this field for the last seven years. Is there any really substantial reason why they have to have separate offices and separate chains of communication to Ottawa?

Mr. DUNLAP: I presume you must be asking that in relation to a station or unit where there is air force, army and perhaps navy.

Mr. SMITH: Yes, I am thinking of Camp Borden.

Mr. DUNLAP: I do not see why there would have to be separate ones. I have never looked into this, but the work of the civilian personnel officer concerned must be common to all three.

Mr. SMITH: As a matter of fact, the matter is not only beyond my comprehension but it is beyond the comprehension of the civilian personnel officers concerned. They do not know why they are separate.

There is another point, which is perhaps so small that I should not even mention it. This is in regard to waste of manpower. When one visits Camp Borden one first goes through an army barricade and entrance and then through an air force barricade and entrance.

Mr. DUNLAP: That is interesting. Do not ask me to tell you why.

Mr. SMITH: I know these are small examples.

Mr. DUNLAP: I am sure the army trusts the air force and vice-versa.

Mr. SMITH: They are however not quite as small as they might seem because in civilian eyes such incidents multiply themselves into evidence of great waste and inefficiency on the part of the services. Actually I suppose the cost is very small, but that is not the point; it is the over-all effect of what it appears to be.

Mr. PATTERSON: May I ask a supplementary question?

The CHAIRMAN: Yes.

Mr. PATTERSON: On page 184 of the evidence you refer to training in business administration. Is that solely with respect to the air force or does it cover army and navy personnel as well?

Mr. DUNLAP: We have specialized in this in the air force as a purely air force undertaking, and the other services have also activity in this direction, but to what degree I cannot say.

Mr. PATTERSON: Would it not be possible to consider a unified training program in this connection?

Mr. DUNLAP: That seems to be an interestiong area to explore. There is no dissimilarity in approach in that field, surely.

The CHAIRMAN: Mr. Lambert.

Mr. LAMBERT: A supplementary question, Mr. Chairman.

Much of the service headquarters is on a tri-service basis. Is it not the experience that where something has been organized on a tri-service basis there are jobs for three men but with a unified service you find six men doing the same job? This has been endemic I think over the years and certainly has been the observation of people down in the field.

In the management studies you have both in the army and in the air force, and I am told in the navy, is any conscious effort being made to eliminate this sort of thing, or is it tri-service forever?

Mr. DUNLAP: What you are saying really, if I understand the question correctly, is that sometimes integration can be a costly matter.

Mr. LAMBERT: That is right.

Mr. DUNLAP: Yes, I think that is so. I think there have been quite a number of examples of integration running one to greater expenditure and manpower than has existed heretofore. That is evident in the new reorganization that has taken place in the United Kingdom where they have 200 or 300 extra staff officers now doing the jobs that were done prior to this organization brought about by the formation of the joint staff under the Chief of Defence.

In discussing this with Admiral Mountbatten, it was explained by him that in some few years time after the organization was able to shake down there should be a reduction in this manpower increase.

Mr. LAMBERT: Is it not possible at a higher level particularly, when you get above the rank of group captain for example, that an army officer of the rank of lieutenant-colonel or colonel and his opposite number in the air force on the staff should be qualified on a staff basis to cover both sides? In other words, is it not possible that they be interchangeable on the staff side?

Mr. DUNLAP: I think that does happen. What you and I were just discussing a moment ago is not the pattern in all cases by any means. I think there are many cases of a staff officer, regardless of his uniform, fulfilling a position in a normal way without having to be tripled. There are good examples in the headquarters overseas, for instance, and in allied headquarters where it does not matter what the nationality is or the uniform but rather it is the man who counts in a particular job.

Mr. LAMBERT: Let us bring it right down to the air force. Do your management studies lead you to drive out as much of the so-called "fat" as you can?

Mr. DUNLAP: Absolutely.

Mr. LAMBERT: Even in co-operation with the other services at national defence headquarters?

Mr. DUNLAP: At national defence headquarters, as you know, there is not a large joint staff. There are quite a number of joint committees, and on the joint committees it is normal to expect each service to be represented. However, in so far as a joint staff is concerned, there is a rather small element operating under the Chairman of the Chief of Staff, and it is small enough that I think there should be no great concern on the subject you raise.

Mr. LAMBERT: The tri-service equivalence board is a matter with which I have been concerned for many years, and I do not know how much has been done to rectify the situation in this regard.

It seems to me, and I am subject to correction here, that the quality of bricks and windows, and that sort of thing, if satisfactory to the air force sort of thing, if satisfactory to the air force engineering officer, should be satisfactory to an army or navy engineering officer, but each one seems to insist upon his own standards although being under one roof and although under one roof they may just as well be apart.

Mr. DUNLAP: I certainly agree that this is an area where there should be and could be economy.

Mr. LAMBERT: It may be that something has been done to clean up this type of situation where there obviously is some fat of man power.

Mr. DUNLAP: There are certainly some areas of that nature, particularly in the logistics field which are susceptible to common operation without the need for every service being represented.

Mr. LAMBERT: Your counterparts in the other services mentioned also that they were suffering to the extent of about 75-80 per cent in respect of housekeeping charges, pay allowances, maintenance, leaving you only with less than 25 per cent of your budget available for equipment. What conscious effort is being made to drive down this 75 per cent figure by the elimination of extra personnel within the framework of the numbers that you have and what you want to give them?

Mr. DUNLAP: Let me say that over a period of years we have been forced to make a great effort in that direction because the real reason and cause for this small amount of money being available for capital expenditure is, (a) the fact that the budget level has not been increasing but decreasing and (b) the cost of living has been going up, salaries have been increasing and the costs of things we consume in great quantities such as oil and gasoline have been increasing.

Mr. NIELSON: Did you say these costs have been increasing or decreasing?

Mr. DUNLAP: These costs have been increasing. All these things have been increasing in price and when you have a budget ceiling this means that the only way you can find moneys for capital expenditure within some reasonable bounds and limit is to squeeze out any excess manpower and make savings in every possible direction by good management.

Mr. LAMBERT: In addition to what you have listed, the cost of your hardware has been going up by leaps and bounds; is that right?

Mr. DUNLAP: Yes, that is another increasing cost.

Mr. MATHESON: Mr. Chairman, may I ask a supplementary question?

The CHAIRMAN: Yes.

Mr. MATHESON: A report from the Department of National Defence of the proportion of costs spent on overhead as against equipment since the Korean war as I recall, seems to indicate that the air force expenditure has declined with respect to the purchase of equipment to the extent of about 50 per cent. I think that the decrease was from approximately 48 per cent to something in the nature of 22 or 24 per cent; is that right?

Mr. DUNLAP: Yes. I think in that period, and certainly I can say from 1955 to the present day, we have gone from roughly 50 per cent of funds available for capital expenditure to something of the order of 25 per cent.

Mr. MATHESON: As a layman, one can assume that the airforce, army and navy have actually been living off their capital now for roughly ten years, if the standards in 1954 were reasonably normal, but are you in a position to tell us, looking at the air force generally, whether we should be thinking in terms of 50 per cent of the air force dollar going to equipment, or perhaps 40 per cent? Surely there must be some sort of standard or norm?

Mr. DUNLAP: Yes, I think I can speak in this regard. The period to which we have referred, the early 1950s, were abnormal. Those were periods of expansion where the force was being built up and large sums of money were being expended on new aircraft which were being brought into service. A period of expansion is one in which there are, naturally, large capital outlays. I think in normal times, and I base this statement on our own studies, in order to keep the plants modern, up-to-date and effective one should be spending between 25 and 30 per cent on capital expenditure. As far as the air force is concerned, this figure would run very close to 30 per cent.

We have examined a number of air forces to see how they run in respect of capital expenditures; we have determined that something between 25 and 30 per cent seems to be the normal pattern. Some of them are, of course, suffering, just as we have been suffering in the past years. It seems to be a requiremnt, a reasonable one, that close to 30 per cent capital expenditure is needed in order to keep the force modern.

Mr. MACLEAN: Do these figures which you are now quoting include as well as equipment the cost of capital in respect of establishments?

Mr. DUNLAP: Yes, capital costs of establishment as well as the cost of new equipments are included in those figures.

Mr. MACLEAN: That being the case, surely there must have been a period when the costs of providing permanent buildings, extending runways and matters of that type were much above the average or what one might expect to be the average, and these are expenditures in some cases which would not recur wholly within a reasonable period of time; is that right?

Mr. DUNLAP: You are quite right. The great bulk of that expenditure was made during the early and mid 1950s. There has been some since, but the 1950's were the time of the big surge.

Mr. HAHN: Perhaps I can return a moment to the subject of the bomber threat. On the basis of military usefulness, do you think that the bomber threat will be such that when our present equipment becomes obsolete, and I am think of Voodoos and Bomarcs, the air force role will be a valid one after that time, or do you think we will have passed the point of no return in respect of the I.C.B.M.'s?

Mr. DUNLAP: I find it difficult to answer your question. This involves one of those things that must be assessed from year to year in order to see whether the threat is developing or changing. The answer to this question will depend upon the emphasis which the Soviet union puts upon this area. This will also depend very largely on whether the Soviet union replaces their present type of aircraft as well as, to some extent, on whether there is a defence found against the I.C.B.M. which is effective and can be financed or funded. I do not think I can really answer or attempt to answer that question. This is one of those matters which must be kept under observation.

Mr. HAHN: Bearing in mind the useful life of the type aircraft we have and knowing the lead times required to replace this type of equipment, how

long will it be before we really have to face up to the situation and make a decision in this regard? Are we thinking in terms of one year, five years or what period of time?

Mr. DUNLAP: There would be several years involved in this respect.

Mr. HAHN: Mr. Chairman, I should like to ask one or two questions in respect of minor subjects. First of all in respect of the Cosmopolitan aircraft that the air force has in inventory; what is its use?

Mr. DUNLAP: The Cosmopolitan is used internally for the movement of passengers and freight throughout Canada.

Mr. HAHN: Is its use confined to Canada?

Mr. DUNLAP: Perhaps I should say that its uses are confined to the continent. From time to time it is used on trips to the United States, by and large it is for continental use.

Mr. HAHN: I have one other question in connection with the air force auxiliary; is the air force auxiliary's purpose now to provide a kind of civil defence force in the event of war?

Mr. DUNLAP: I think it is right to say that its use is in two different areas; it is equipped with small transport aircraft, the Otter and the Expediter, which can carry small passenger and freight loads. We use them in the course of training, in the making of runs and the carrying of passengers and freight within the limits of the capability of the aircraft. Their training in peace and their use in war primarily would be in the field you mentioned, in the support of the army in the survival role by moving personnel and freight, and carrying out surveillance, and so on, in damaged areas.

Mr. HAHN: Does it now play any part in search and rescue operations?

Mr. DUNLAP: From time to time, yes. I overlooked mentioning that. We have employed the auxiliary in that role and they have done very useful work in helping out in search and rescue work.

Mr. LESSARD (*Lac-Saint-John*) (*Interpretation*): The subject I am going to deal with is perhaps not in the brief you presented to us, but I am referring to certain statements that were made before this committee. I think it would be interesting for members in this committee, since they will soon have to make a statement on the miiltary policy of Canada, to have your opinion, as a military man, on this proposal which was made to us for integration of the three services. I would be pleased if you would set out the advantages you may see in it as well as the disadvantages. And, if the government decided to adopt this policy what, in your opinion, would be the best way to carry it out?

Mr. DUNLAP: Well, integration is something that has a great appeal and I certainly would not raise objection to integration within certain limits.

I think this is a question which has to be examined and considered extremely carefully. First of all, if you are thinking in terms of a joint staff under a commander in a headquarters such as the headquarters here in Ottawa, you have to stop and consider whether or not this is a requirement for Canada.

Now, this type of organization is a useful one and, perhaps, a necessary one for nations that have large joint operations as, for example, the United States, where there are world wide undertakings by joint commands in various parts of the globe, in the Far East, in Europe, in the Panama area, in Alaska and in other areas. These are what could be described as unified commands, in some cases under a naval officer and in other cases under an army or air force officer. Their staffs are unified staffs. CONAD, the American portion of NORAD, is another example of a joint command and they received their direction from a joint staff, as well they must. There is, therefore, good reason, when you

have extensive task force operations, to have a joint staff direction. The United Kingdom also has a number of activities of this nature and there is reason for them, I think, to turn in this direction.

Our operations in Canada are, I think, generally speaking, fairly different in that we have in the operational role the army brigade in Europe operating independently—that is, independent of other Canadian forces but as part of the Northern Army Group; you have the air division in Europe, an independent formation operating as part of the Fourth Allied Tactical Air Force; you have the air defence elements in Canada operating as part of NORAD and not linked directly to either of the two services, and you have the naval force on the east coast earmarked for operation with SACLANT during wartime.

Of course, there you do have an example of two Canadian services working together, in that the air force and the navy work together in that particular role both on the east and west coasts. The remainder of the efforts of the force in Canada are co-ordinated but are not really describable as joint task force activities. The air force and army have quite a number of co-ordinated activities but they are not comparable in scale with those to which I have referred in the other nations, namely the United States and the United Kingdom.

We have the Joint Air Training Centre at Rivers, Manitoba, where the army and air force train together and have for many many years. The army and air force have joint exercises in the east and the west and in the north country. But, it is not the type of activity that requires a joint staff organization and headquarters. It requires staffs to work together at the operational and command level in the field and, to the extent it is necessary, that takes place. Examples of that are in the navy and air force. We have joint headquarters in Halifax, called MARLANT, maritime Atlantic, and we have a joint headquarters in Esquimalt on the west coast, which is another maritime air headquarters, called MARPAC, and the various commands across Canada. There are the various army commands and we have liaison staff and arrangements whereby in time of emergency we would increase the staff levels there, to work side by side with the army in the co-ordination of the activities between the Canadian army and the air transport command. So, the need for a joint staff at the headquarters level here in Ottawa, in my opinion, is not as evident as it is in some of the countries which have large joint task force operations and joint commands.

Having said that, I think I should indicate I agree there are certain areas in which there can be further joint undertakings at the staff levels. There have been a number of these under study and review. Many of them, as I mentioned earlier, are in the logistics areas, in construction and communications, and supply; there can be further progress made, and I am sure there will be further progress made. The intelligence field, I think, is an example where one can bring staffs together. There is a commonality of purpose there in which I think it is quite useful and valuable to have common staffs.

I would hope that our efforts in this direction would be made with very careful study, and without rushing into integration for integration's sake. It does not necessarily follow that every nation has the same requirement for it as others.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): Has the air force recently been called upon to make recommendations in this regard to the minister?

Mr. DUNLAP: Yes; we all have been studying this question.

Mr. LESSARD (*Lac-Saint-Jean*) (*Interpretation*): A point has been raised by military personnel on the matter of uniforms. It is a detail; but apparently it is a very important one. Would integration be followed by adoption of an identical uniform for all three services?

Mr. DUNLAP: I would not think so. It depends upon how far you are going to go in this area. I think there still will be three different roles in which to operate. I think there is every reason to have three different services, even though there may be greater integration at certain command and staff levels. I think, in the interest of good esprit de corps and good competitive spirit, there is value in continuing to have the services identified as they are at the present time.

Mr. PATTERSON: I was speaking to a serviceman the other day and he referred to the fact that some time ago the air force was supplied with summer uniforms but up until the present they still do not have a hat.

Mr. MATHESON: The John B. Stetson Company, Brockville.

Mr. DUNLAP: Well, in the interests of economy we decided a long time ago that the hat worn in the winter time would have to be worn in the summer.

Mr. PATTERSON: There have been questions in respect of the submarine threat. I do not know just how far I should question the air marshal in respect of this. However, when Vice Admiral Rayner was here on July 9 he indicated that the Soviet fleet is estimated to include over 400 submarines. Has there been any determination made of how many of those submarines have a nuclear capability and how many are conventional?

Mr. DUNLAP: Yes, there has. I do not think I am at liberty to make that information available.

Mr. PATTERSON: I wonder if there has been any computation made, in the event of a conflict, of what percentage of the Soviet submarine fleet probably would be directed toward Canadian targets?

Mr. DUNLAP: Again I do not think I have an answer to that question. That is trying to guess what the Soviet's plans are and really I could not give an estimate even of that.

Mr. PATTERSON: Would not that be the basis of some of our planning; would it not be just a matter of estimating what the enemy probably would do?

Mr. DUNLAP: Yes. We know from experience, from Soviet operations, roughly what the division of their submarine fleet is between the Atlantic and the Pacific oceans. With that knowledge, one can make some assessments of the portion of the Atlantic fleet, for example, that might be used on this side of the Atlantic, and the portion which might be used on the other. You asked the question in relation to Canada. It would be very difficult to make any assessment of what proportion of the submarine fleet operating on this side of the Atlantic would be used against Canada. However, one does have to make assumptions of this nature; they form the basis, really, of a determination of the requirements by SACLANT when he is working out plans for forces to combat these submarines.

Mr. PATTERSON: Would you say then that so far as you can visualize it we have sufficient facilities to meet the challenge from submarine attack?

Mr. DUNLAP: Well, I do not know whether it is a question of quantity or quality or both involved here. I think I indicated this morning that the submarine threat is a very difficult one with which to deal, particularly the submarine which launches a ballistic missile—the nuclear powered submarine. If I might quote SACLANT, whose business it is to determine force goals, in this particular area he definitely is not satisfied that we have enough resources devoted to this effort.

Mr. MACLEAN: I have a supplementary question. Have we any firm commitment—and I am thinking now of the maritime air command—so far as SACLANT is concerned; or how is our requirement in this field arrived at?

Mr. DUNLAP: Yes, the Force Goals have a section which deals with naval and maritime forces. In these Force Goals we are called upon to provide—and we have undertaken to provide—40 maritime aircraft to SACLANT, and that we do at the present time. That is not to say that SACLANT is entirely satisfied, because every time he looks at the force goals, he feels that there should be some increase. However, that is the way it stands at the present moment.

Mr. MACLEAN: If we were called to make some extreme commitment under a threat, would we have other requirements for maritime use other than those committed to SACLANT on the east coast?

Mr. DUNLAP: No. On the east coast in time of war all our activities, I think it would be right to say, would be in the SACLANT area. I am not sure whether you are thinking of requirements in the north country.

Mr. MACLEAN: No.

Mr. DUNLAP: As to requirements in the coastal region such as inland waters, our force commitment of 40 aircraft would be used in wartime in the areas flanking our coast and the deep sea area.

Mr. PATTERSON: I would like to ask the air marshal now to turn to the first part of the evidence he gave when he stated that:

> The roles performed by the R.C.A.F. stem principally from Canada's international commitments, which are summarized in Canadian defence policy as follows:
>
> —to contribute to the defence of the Canada/United States region;
>
> —to contribute, as a member of NATO, to the defence of western Europe and the north Atlantic;
>
> —to assist the United Nations in emergency actions.

I do not know whether this is a proper question to ask the air marshal, but I shall pose it anyway. Are you of the opinion that the contribution we are making in this particular field is the one that Canada is best suited to fulfil?

Mr. DUNLAP: Let me say that we are well suited to this role, and that this is an area in which we have functioned very effectively over a long period of time. We can produce equipment—both radar equipment, fighter equipment and so on—and have done so in the past. I would say that by and large as far as the air defence side of it is concerned, it is a role to which we are well suited. As far as the other aspects of this role are concerned—and they involve army, navy and air activities in the Atlantic, the northern Atlantic areas, northern Pacific and other areas—I think again that we are well suited to that task. It is the normal task of providing protection on the home front.

Mr. PATTERSON: My next question is tied in with your evidence on budget and financing on page 183, and also it is related to some questions asked this afternoon. You referred to the fact that you are concerned about the ever-increasing squeeze, and the progressively smaller budgets, and so on. Now, are the facilities placed at the disposal of the R.C.A.F. at the present time fairly adequate to enable you to fulfil the role that has been assigned, or is it seriously affected by budget limitations?

Mr. DUNLAP: Well, we are affected by budget limitations. I think that is something that is ever present. But you can look at various areas within the R.C.A.F. where we continue to use obsolescent equipment, and where we have been unable to replace worn out plants, buildings, and so on. So I would not want to say that we are entirely satisfied with all the facilities that are at our disposal.

Mr. PATTERSON: Are the inadequacies and weaknesses serious as far as our contribution is concerned?

Mr. DUNLAP: Up to the present time they have not been serious in relation to our task. But each year, year by year, we are getting closer to the period when it will be serious.

Mr. PATTERSON: Thank you.

Mr. CHURCHILL: I think I shall save my questions until the minister is before us on Tuesday. They are valuable and will be helpful to him.

The CHAIRMAN: Are there any other members of the committee who wish to ask questions?

Mr. MATHESON: Some weeks ago we all had a very useful trip to NORAD. Personally, I thought it would be very helpful to myself and to other members of the house who had not been with us on that trip if there should be in our records some submission from Air Marshal Slemon or whoever it was felt would be helpful to produce it. It seems to me that our record is not complete without some statement concerning NORAD, and I would hope that on this trip to Europe which is contemplated there would be something in our minutes to which we could later refer and to which we could make reference if necessary in the commons.

The CHAIRMAN: If you refer to the minutes of the last meeting of the committee you will note that we will have reporters with us in Europe, and that Minutes of Proceedings will be published of our meetings in Europe, our meetings with the military authorities or personnel; we have made arrangements for that purpose. You will recall that when we went to NORAD it was agreed that it would be an *In Camera* meeting and for that purpose it was not possible to take any record of what was discussed there.

Mr. MATHESON: Could the Steering Committee consider whether we might ask for something from NORAD to become a party of our record which would be helpful, if we could have it to refer to? Surely there would be a good deal of material which was not necessarily classified.

The CHAIRMAN: We can ask national defence to provide us with some material for that purpose. The committee now stands adjourned until Tuesday next at 10.30 a.m. when the Minister will appear before us.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 19

TUESDAY, NOVEMBER 5, 1963

WITNESSES:

The Honourable Paul Hellyer, Minister of National Defence; and the Honourable Lucien Cardin, Associate Minister of National Defence.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29565-9—1

SPECIAL COMMITTEE
ON DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Hahn,	Martineau,
Béchard,	Laniel,	Matheson,
Brewin,	Lessard (*Lac-Saint-Jean*),	McMillan,
Churchill,	Lloyd,	Nielsen,
Deachman,	MacInnis,	Patterson,
Granger,	MacLean,	Smith,
Groos,	MacRae,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

MINUTES OF PROCEEDINGS

TUESDAY, November 5, 1963.
(28)

The Special Committee on Defence met at 10:40 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Nielsen, Patterson, Sauvé, Smith, Temple and Winch,—(23).

In attendance: Honourable Paul T. Hellyer, Minister of National Defence; and Honourable Lucien Cardin, Associate Minister of National Defence. *And also* Parliamentary Interpreters and interpreting.

Information requested of Lieutenant General Walsh, on October 31, by Mr. Winch, was tabled (*See Appendix "A" to this day's Evidence*).

The Minister of National Defence, Mr. Hellyer, read a prepared statement. He was questioned on that statement and on related matters.

The Chairman indicated that an attempt will be made to supply, for the use of Committee Members, information respecting certain weapons.

During the questioning, Mr. Martineau moved, seconded by Mr. Winch,—

That the bilateral agreement signed between Canada and the United States to provide for the storage in Canada and in Europe of special ammunition, mentioned at page 2 of the Minister's Brief, or such parts thereof to which the Minister referred be tabled before the Committee for the information of its Members.

Following discussion, the Chairman pointed out that this motion was irregular as a similar one was negatived in the House on October 2, 1963. He also mentioned that the adoption of this motion would require a report to the House seeking that the information be sought through an *Address to the Crown.*

Mr. Martineau's motion was negatived on the following division, YEAS; 5, NAYS: 12.

Examination of the witness was continued. The Associate Minister was also questioned.

And the examination continuing, at 12.35 p.m. the Committee adjourned to the Call of the Chair.

E. W. Innes,
Clerk of the Committee.

29565-9—1½

EVIDENCE

TUESDAY, November 5, 1963,
10.35 a.m.

The CHAIRMAN: Gentlemen, we now have a quorum. The minister will first read his brief and questions will follow.

Hon. P. T. HELLYER (*Minister of the Department of National Defence*): Mr. Chairman, gentlemen,

I am happy to have this opportunity to give honourable members of this committee a brief progress report in respect to the time period since my initial statement to you on June 27. A number of steps have been taken within the framework of the policy stated at that time. In order to remind the honourable gentlemen of the terms of reference which have guided our action, I would like to repeat a few paragraphs from the earlier statement, as follows:

> It is the policy of the government to make effective those weapons systems which have been acquired as part of the Canadian contribution, including making immediately available nuclear devices required to make our contribution credible. Furthermore, it is the policy of the government to undertake a thorough review of our defence policy and commitments in order to determine the best and most effective contribution we can make to the collective defence of the free world and to the maintenance of peace in the years ahead.
>
> In order to facilitate the review, certain action has been taken. All major procurement programs are being considered; and particularly, any program which would tend to limit any future policy or interfere with the exercise of future options is being carefully reviewed.

First of all, I would like to indicate those steps which have been taken to bring our present weapons systems to their full effectiveness. A bilateral agreement was signed between Canada and the United States to provide for the storage in Canada and in Europe of the special ammunition required for the Bomarc missile, the CF-101 Voodoo interceptor, the Honest John rocket-launcher, and the CF-104 strike-reconnaissance aircraft. The signing of this agreement was announced by the Prime Minister on August 16.

Subsequently, it was necessary to sign technical agreements in respect to each weapons system. The technical agreements for the Bomarc missile and the CF-101 Voodoo have been signed. The other two are still in the preparation stage. The Bomarc will be the first missile system to be armed, probably some time later this month; no additional special storage is required which is not already built into the missile silos. The U.S.A.F. custodial detachment is already on site at the North Bay Bomarc unit, and the La Macaza detachment is due in on November 10. Warheads will be delivered to North Bay during November and to La Macaza during December. Assuming that both units pass their initial capability inspection, the two squadrons should be operational with their warheads before the end of this year.

It is not expected that the Genie rocket will be available for Voodoo squadrons until the latter half of 1964 as the special storage has yet to be constructed.

We have decided to proceed with the acquisition of three Oberon submarines for the Royal Canadian Navy.

On April 11, 1962, the then Minister of National Defence announced that the government had approved the acquisition of three Oberon submarines subject to satisfactory completion of negotiations with the British Government.

The Oberon class is the latest type of conventional submarine to be built for the Royal Navy. The first of the class was commissioned in November 1960, and more of these ships are now under construction for the Royal Navy and the Royal Australian Navy. The requirement for submarines of this kind was set out by the Minister at that time:

> In the training of anti-submarine units constant practice with submarines is necessary to achieve and maintain a high degree of efficiency. The Navy at the present time has one submarine, H.M.C.S. *Grilse*, on the west coast, and in addition on the east coast there are three submarines on loan from the Royal Navy for training purposes. The three modern submarines to be procured will make a significant contribution to the training of anti-submarine forces both in the Royal Canadian Navy and the Royal Canadian Air Force. The effectiveness of the submarine itself in the anti-submarine role has been greatly enhanced in recent years by the development of new types of armament and detection equipment. The Oberon class submarine is equipped with modern armament and technical equipment for the anti-submarine role. In addition to the training role the submarines will be a valuable complement to the surface fleet and aircraft in undertaking their anti-submarine defensive tasks.

The conditions to be negotiated with the British government included production sharing arrangements which would involve British purchases in Canada and British participation in the development of the CL-89, reconnaissance drone, an unmanned reconnaissance vehicle being developed by Canadair in Montreal. This project, in which the British are sharing half the development cost, is designed to meet the requirements of the Canadian and British armies for a simple, lightweight, low-cost reconnaissance vehicle to gather intelligence in forward battle areas. As the implied conditions in respect to the Oberon purchases have now been met, the Canadian government has decided to proceed with the acquisition.

As indicated by the former Minister, these submarines will be used primarily for training purposes, but are also fully operational as anti-submarine weapons systems and they can be used in anti-submarine "barriers". These submarines will also be available for assignment to NATO in lieu of surface ships.

I would like to emphasize that this decision should not be represented as new policy. The primary requirement is to exercise our existing anti-submarine fleet both air and sea, to enable them to maintain maximum possible effectiveness. It is consistent, therefore, with the announced policy of the government as expressed in my statement to the special committee on defence on June 27, 1963, "to make effective those weapons systems which have been acquired as part of the Canadian contribution".

As I indicated in the House of Commons a few days ago, we are undertaking a thorough study of our future naval requirements. Once these have been determined, it will be the policy of the government to undertake production in Canadian yards.

The action in each of these cases has been designed to one end, namely, to bring to a higher state of readiness and usefulness those weapons systems which we have in our inventory.

The second major area in which action has been taken is in respect to major procurement programs outstanding at the time we took office of major

equipment programs already planned. Probably the most important decision in this respect was the decision not to proceed with the construction of eight general purpose frigates. The reasons for judgment in this matter have already been stated by me in the House of Commons. To have proceeded with this project would have had an important influence on future policy and would have severely restricted the options available to us. We concluded that this particular combination of weapons systems would not be the most effective solution in respect to any policy we might adopt.

We have also decided not to proceed with the follow-on purchase of additional CF-104 strike aircraft. After carefully reviewing the present role of the air division and the cost effectiveness of this aircraft in other roles, we concluded that further acquisition would be unjustified. It is fully appreciated that this decision will make it impossible for us to keep eight squadrons at their full unit establishment throughout the decade. We prefer, however, to take this opportunity to leave open a wider range of choice in respect to future plans. We have ordered sixteen two-place CF-104's which are required to check out the operational readiness of the crews. The primary requirement for these aircraft was safety, although they do have the additional advantage of being operational aircraft which can be used as back-up to unit establishments in a later period if required.

We have also decided not to proceed with the purchase of additional CF-101 Voodoo aircraft. There are so many uncertainties in respect to future air defence that we prefer to consider them carefully before committing additional resources to this extent. This decision may mean some re-arrangement in the number and size of the squadrons from the present.

As I stated at the outset, it is the policy of the government to undertake a thorough review of defence policy. This review is proceeding satisfactorily. A basic background study, including the spectrum of possible conflict and the likely range of potential technological development through the next twenty-five years is now complete. Other more specific studies have been undertaken, and some of these are complete while others are still in progress. One of the most important is the one I announced in the House of Commons in respect to anti-submarine warfare. In this field, the most exhaustive study has been undertaken by a small ad hoc group in the department. The members of this group are studying the relative cost and effectiveness of all known anti-submarine weapons systems, including anti-submarine submarines, both conventional and nuclear; surface ships ranging in size from motor torpedo boats to destroyer-escorts; carrier-based aircraft; carrier or escort-based helicopters; land-based fixed-wing aircraft, etc. They will also examine possible areas of scientific breakthrough in order to determine, insofar as is possible, what effect these may have on weapons systems in anti-submarine defence in the 1970s and 1980s. We do not expect this study will be complete in time to be fully reflected in the White Paper but we do not think this will unduly restrict our consideration of roles and tasks.

As indicated earlier, we are also considering possible areas of integration. The Glassco Commission has made a number of interesting suggestions in this field, and we are giving them further study together with some other areas where we believe cost might be reduced and efficiency increased. In summation, our studies are proceeding satisfactorily, and I am still hopeful that we will be able to meet our schedule of having a policy presented to the government for consideration by the year end.

In this regard, may I state again how helpful I found the deliberations of this Committee notwithstanding the criticism which no doubt is inevitable in respect to a new procedure. I believe that committee members, public and press have benefited greatly from the information made available and the exchange of views. You have been most diligent in your responsibilities and, I

think, have been successful in sensing some of the major problem areas and in turning your attention toward them. Certainly the public exposure of different opinions is thought-provoking and helps to test accepted positions and to indicate areas of potential reform. I am personally most grateful to you. I have followed your deliberations very carefully and the discussion has aided me considerably in my task.

Defence is a very serious question involving a large part of our nation's resources, and I know that if we continue to work together toward the common end, we will be able to reach a consensus based on a solid understanding of the opportunities available to us in this most difficult field.

Mr. WINCH: We are all grateful for the statement by the minister.

May I in my first question ask the minister a question with regard to the NATO parliamentary association? In view of the fact that the NATO parliamentary association is now meeting in Paris, and in view of the evidence given before this committee about our two squadrons in France not having the armed equipment, may I ask the minister whether or not there was any briefing by himself or members of his department of the Canadian NATO delegation before they left for Paris, or whether it is being done there.

Mr. HELLYER: Mr. Winch, I understand that the NATO parliamentary delegation was briefed. I must admit, however, that they were not briefed as fully nor as often as, in my opinion, they should have been. For this I take some responsibility. It was one of these things which escaped attention until the visit became imminent. I had hoped they would be more fully briefed and I would certainly think this would be desirable in the future. I regret they did not have more opportunity; I think they had just one briefing before they left.

Mr. WINCH: Could I ask the minister whether or not something has been done while they have been meeting in Paris? If the press reports are correct that the question of our position in respect to our two squadrons in France is raised by our Canadian delegation, are they being briefed while they are in Paris?

Mr. HELLYER: I do not understand the purport of your "what has been done".

Mr. WINCH: I am referring to the press reports which say that one of the major issues is to be the position of our two Canadian squadrons. Have you any further information to add to that?

Mr. HELLYER: I am sorry, I have not.

Mr. WINCH: May I then ask, Mr. Chairman, a question in regard to page 2 of the minister's brief where he mentions agreements which have been signed with the United States for storage of special ammunition in Canada.

Are you prepared, sir, to submit those agreements to this committee?

Mr. HELLYER: No, Mr. Winch. Unfortunately, these are classified agreements, as were the bilateral agreements between the two governments, and it will not be possible to produce them.

What I would attempt to do is answer relevant questions in respect of the matters that are contained in the agreements, but I do not think it would be advisable to attempt to produce an expurgated version.

Mr. WINCH: Then may I ask how this defence committee can do the job it is supposed to do if it does not know what the agreements are.

Mr. HELLYER: Actually, Mr. Winch, I do not really think that lack of information deters you in any way from doing your job effectively, which as I understand it is to consider matters of defence, including policy. Most of the matters contained in the agreements are technical, such as the nature of the storage to be provided, the matter of custodial personnel, the division of cost sharing, and this type of thing.

Mr. LAMBERT: I have a supplementary question.

The CHAIRMAN: Mr. Lambert.

Mr. LAMBERT: This is a suggestion. The minister has indicated that we might ask questions, but this is just like fishing in the dark. Could the minister not tell us what he can of the basic principles of the agreements with reference to what is involved in the matter of control by outside forces in Canada. These are the things that are bothering many people, including the minister, I am sure, and some of his colleagues.

Mr. BREWIN: I think my question is supplementary to those of Mr. Winch and Mr. Lambert.

The CHAIRMAN: Mr. Brewin.

Mr. BREWIN: Can the minister tell us how far these agreements limit any future policy or obligate us to maintain weapons systems in a manner that might inhibit us in adopting a totally new approach? I say that in the light of the fact that it is said that

> ...any program which would tend to limit any future policy or interfere with the exercise of future options is being carefully reviewed.

I think it is extremely relevant to the work of this committee to know how far these bilateral agreements obligate us to continue with weapons systems that we might otherwise be inclined to discontinue.

Mr. HELLYER: To the best of my knowledge Mr. Brewin, they do not include any commitments in that respect. They do not include any obligations to carry on weapons systems for any period of time. They do not in fact add anything new to those existing commitments.

Mr. SMITH: For what length of time are they extant?

Mr. HELLYER: This would relate more specifically to the task we have undertaken in NATO and the role we have assumed.

Mr. LESSARD (*Lac-Saint-Jean*): Do you know that there is no specific time for that agreement, that it will not end in, for example, three, ten or twelve years? It is open?

Mr. HELLYER: This agreement, as I think I described it once before, is a permissive agreement; it is to enable us to do certain things. This agreement is not an agreement which binds us to do certain things, except in a very limited technical sense in that if we have special ammunition storage there are certain things we have to do in respect of the care and safety involved in the storage.

Mr. LAMBERT: Is the minister prepared to accede to the suggestion I made to him, that he tell us what he can without our having to go fishing in the dark?

Mr. HELLYER: I have given a good indication of all that is involved. There is really not very much involved.

Mr. LAMBERT: Nothing.

Mr. HELLYER: There is very little involved other than those service-to-service arrangements which make it possible to do what we have said we are going to do, and this is providing special storage of ammunition for our weapons systems. These are special agreements, and that is the main body of the context.

Mr. MARTINEAU: Pursuant to this agreement, has storage actually been provided?

Mr. HELLYER: As I indicated in my statement, no additional storage is required for the Bomarc system. The storage for the Voodoo aircraft has not yet been built. This will be commenced very shortly and we hope it will be ready some time next year.

Mr. SMITH: What you have said, sir, indicates that rather than an agreement, the acceptance of these weapons by Canada is an extension of logic in the sense that to make the weapons fully useful you have to have certain types of ammunition.

Mr. HELLYER: You are putting a slightly different interpretation on what I said.

Mr. SMITH: Not very different.

Mr. HELLYER: This is a realm of controversy which I do not think there is much point in exploring.

Mr. SMITH: Extending from that, you also said there was no time limit on these agreements, that they were only in operation, therefore, for the life of the weapons.

Mr. HELLYER: There is no time limit on these agreements as I recall, but there is a time limit on the commitments. Our present commitments are effective until the end of 1966.

Mr. SMITH: I am talking about NORAD now.

Mr. HELLYER: In respect to NORAD the agreement itself comes up for review in 1968.

Mr. SMITH: What you say about the time limit is really an extension of what Mr. McNamara and others have said, that the Voodoo is phased out of production now and is only being kept in service until it wears out.

Mr. HELLYER: That is correct. It is a first class aircraft but it will not last forever.

Mr. SMITH: They are not being produced any more in the States; they are out of production?

Mr. HELLYER: Right.

Mr. SMITH: They are bought and paid for, as he says, and they are good for the morale of the aircrew.

Mr. HELLYER: They are good fighting ships but they will not last for ever any more than any other piece of equipment will last for ever.

The CHAIRMAN: Mr. Patterson, on the same subject.

Mr. PATTERSON: The minister uses the term "to the best of my knowledge" in indicating that there was nothing in the agreements that would inhibit changing the role in the future. I wonder if there is any real significance in that statement.

Mr. HELLYER: No significance. When I have not the document before me and have not read it in the last 24 hours I like to put in some little caveat but I am quite certain on this point.

Mr. HAHN: May I ask a supplementary question?

The CHAIRMAN: Mr. Hahn.

Mr. HAHN: Do these agreements cover the means by which we store and operate these weapons on Canadian soil? Is that correct?

Mr. HELLYER: Yes, Mr. Hahn, both in Canada and in Europe.

May I briefly review the situation? The general bilateral agreement was permissive in the sense that it enabled us to obtain from the United States, under certain terms and conditions, storage of special ammunition for our weapons systems. The technical agreements then are specifically directed toward those arrangements which apply in respect of each weapons system. Therefore, whereas there is one bilateral agreement, there will be four technical agreements—one covering the Bomarc, one covering the Voodoo, one covering the air division, and one covering the Honest John missile launching battery in Europe.

That is the purpose of them. As you state, they set down the conditions and the safety measures and other criteria in respect of the handling and storage of these weapons.

Mr. HAHN: Could you tell us, how the dual custody and control works, taking the Bomarc as an example? In other words, physically the warheads are presumably in some sort of compound under American control; how do we retrieve them from that compound? On whose authority do we get them and what is the chain of authority for allowing those systems to be actually used?

Mr. HELLYER: You will be going up there later in the week, Mr. Hahn. In the case of the Bomarc, the weapons are not stored in a compound; they are on the missile launches. You will see them. I think that would be a good place to see how it works.

Mr. HAHN: Will we receive information as to the authority?

Mr. HELLYER: Yes, I think it will be possible at that time. If there are any questions they cannot answer, then we can refer back to them later.

Mr. LANIEL: I have a supplementary question.

Do these agreements include the use of weapons or do they refer only to surveillance and control of the storage?

Mr. HELLYER: The agreements cover the terms and conditions under which they are made available and stored; and other more far reaching criteria are largely in the bilateral agreement.

Mr. SMITH: You have mentioned cost sharing agreements in relation to the technical agreements. Some people in the committee have disparaged our contribution to various defence agreements. Under the refund of these agreements is consideration given to the real estate and facilities we provide for the use and storage of these weapons, which are substantially under American control? Is that aspect considered in regard to cost sharing?

Mr. HELLYER: We have an equitable arrangement.

Mr. WINCH: I think it is quite obvious from the supplementary questions that members realize the importance of the minister's statement. I have many questions, but in order to be fair I will skip a number of them and come to one which I think is of vital concern to this committee.

We have heard often, Mr. Chairman, that our responsibility is future policy, based on our present examination. If we are to reach a conclusion on future policy we must have information. That leads me to my question with regard to page 10 of the statement by the minister.

On page 10 the minister says:

> A basic background study, including the spectrum of possible conflict and the likely range of potential technological development through the next 25 years is now complete. Other more specific studies have been undertaken, and some of these are complete while others are still in progress.

There, Mr. Chairman, to my thinking is the crux of what we have been told is our job. Therefore we should now know whether we are to do the job or whether we are to be blanked out. In other words, in view of the statement on page 10 and our responsibilities as outlined more than once by the minister, will the minister now make available to this committee the information on the "spectrum of possible conflict and the likely range of potential technological development through the next 25 years", and that which has been completed on other specific studies? I think that is really the crux of the work of this committee.

What will the minister do to allow us to function, or does he want to wipe us out?

Mr. HELLYER: Mr. Winch, I may assure you that we want to co-operate in every way possible. It would not be possible in my opinion to make these studies available, but what I do propose is this. We are dining together tomorrow night, and after dinner I propose to share with you in camera some of the information and problems that arise from the studies which will I think help you in looking at these problems and perhaps assist you as you consider and discuss the matters concerned with those who are interested in strategic studies on the other side of the water, the areas of problem about which you might like to ask questions when you are over there.

Mr. BREWIN: May I ask a supplementary question?

Mr. WINCH: One moment.

I appreciate very much your invitation to dinner tomorrow night. Do you say now that you will give certain in camera information? Will you please state, sir, what will be our position in arriving at our conclusions on that in camera information? It is a rather important technical point.

Mr. HELLYER: It will be in the nature of background information.

Mr. WINCH: Will it be based on the in camera information that enabled you to complete this study?

Mr. HELLYER: I will be glad to give you some of the information which is most relevant as a result of the studies, yes.

Mr. BREWIN: Supplementary to Mr. Winch's question, Mr. Chairman, I can appreciate that some of the matters contained in this background study are classified and confidential and cannot be revealed. But are there not matters included in that—for example "the spectrum of possible conflict" and so on—which ought to be available to the public who in the ultimate analysis have to approve and pay for the policies? Is there not need for public enlightenment and benefit to this committee from private discussion with the minister in regard to this matter, which Mr. Winch has quite rightly said is the crux of the task imposed upon us?

Mr. HELLYER: I think that is true, Mr. Brewin, and I hope in the white paper there will be considerable discussion of that particular problem, along with others. In preparing the white paper we could not prepublish some of the things we will make available to the committee in camera.

Mr. WINCH: May I then ask a supplementary question to my own question? Will the information we receive tomorrow night and the information we may receive while overseas be sufficient for this committee to make its interim report before the Christmas recess, which should have some influence on your thinking and policy before you bring out the white paper?

Mr. HELLYER: I think it would be sufficient, Mr. Winch, yes.

The CHAIRMAN: Mr. Churchill.

Mr. CHURCHILL: Mr. Chairman, I would like to ask one or two questions with regard to page two and the subject of agreement.

The minister says that a bilateral agreement was signed between Canada and the other states to provide for storage in Canada and in Europe of special ammunition. Did that bilateral agreement include both storage in Canada and in Europe, or were there two agreements?

Mr. HELLYER: There was one agreement which included storage in both Canada and Europe.

Mr. CHURCHILL: How can Canada sign an agreement with the United States for storage of nuclear weapons on soil that she does not possess, namely in Europe?

Mr. HELLYER: There is in the bilateral agreement a reference to the necessity of seeking the concurrence of any other countries whose territory would be involved in the storage arrangements.

Mr. CHURCHILL: Have we had the concurrence of Germany and of France?

Mr. HELLYER: We have not had the concurrence of France, as is well known. I am advised we have the concurrence of Germany.

Mr. WINCH: And of Belgium?

Mr. HELLYER: We do not at the moment contemplate storage in Belgium.

Mr. WINCH: We were told the other day when Mr. Churchill and I asked this type of question that the actual warhead would be available either in France or Belgium. May I ask about Belgium?

Mr. HELLYER: Without accepting the premise you give, because I do not think that is a direct quote—

Mr. WINCH: It is in the evidence.

Mr. HELLYER: But I would doubt if the evidence is in those precise terms. We have bases in Belgium which are available for the dispersal of Canadian aircraft. There has been no agreement nor indeed has there been any proposal at this moment to use Belgium for storage. It may have been that the chief of the air staff said that this is one possible solution to the problem that we face in Europe. As I have indicated, we have not yet reached our own conclusions in this respect and consequently there has been no proposal.

Mr. CHURCHILL: With regard to the concurrence of Germany may I ask if there was an exchange of agreements or of notes to the Department of External Affairs? How was it done?

Mr. HELLYER: I understand it was through NATO.

Mr. CHURCHILL: Then these agreements are just technical agreements, as you mentioned earlier? They were not agreements obligating Canada on the one hand and the United States on the other to make nuclear arms available? They were technical agreements as to storage, custodial arrangements and things of that nature?

Mr. HELLYER: That is correct. Technically the agreement naturally refers to the provision of warheads for our weapons systems by the United States.

Mr. MACLEAN: On page three you say:

> The technical agreements for the Bomarc missile and CF-101 Voodoo have been signed. The other two—

the Honest John—

> —are still in the preparation stage.

Could you indicate to the committee when it is expected that this technical agreement will be signed, and which has the higher priority, if there is any difference in priority?

Mr. HELLYER: I understand that in each case it will be a matter of some weeks, a month to eight weeks.

Mr. MARTINEAU: Mr. Chairman, on a point of order, the questioning in the last 10 to 15 minutes has been in reference to the agreement. The minister is playing a cat and mouse game. He says he cannot divulge anything that enters the realm of controversy. He did not table or produce the agreement and he says "as far as he remembers", which shows that he is not certain. This is a most unsatisfactory way to proceed. If we are going to discuss the agreement and freely question the various phases of the agreement, surely it is an elementary rule of procedure that we should table the agreement so that all

the members may have it, and can question the minister on all of its various aspects. Unless we do that we are only groping in the dark. I suggest that the minister is playing a cat and mouse game with the committee.

The CHAIRMAN: I think you are free to ask the minister the questions you feel you want to ask him. That is why he appears before us. He has already said that for security reasons it is not possible to table this agreement, because there might be some details in it which would be harmful if revealed. But he is ready to answer questions on it. You will have your turn, and you will be recognized and you may ask the minister questions on this specific subject. Mr. MacLean is trying to find out more about this agreement. But the meeting is not over yet, and I hope that when you are recognized you will be able to get from the minister the answers you are expecting.

Mr. MARTINEAU: The reason I raised the point of order was not that the minister has not had a willingness to answer questions. It is precisely because he has been answering questions, but doing so in an uncertain or more or less probable manner. He is not sure of what he is saying; he says "as far as I remember", and "if I am not mistaken" and so on. I raised the point of order to bring out the very unsatisfactory nature of this line of questioning. If it is classified material, surely it is all classified to the same degree, and the minister cannot give certain aspects of it. How do we know, however, whether these aspects are classified or not. I accordingly move, seconded by Mr. Winch, that the agreement be tabled before this committee.

Mr. WINCH: And if he submits that he cannot table it, then he should submit a statement giving the reasons therefor, if this motion carries.

Mr. MACLEAN: Are storages available in Europe for the Honest John and the CF-104, and if not, does the construction of storage have to wait the signing of the technical agreement?

Mr. HELLYER: In the case of the Honest John, storage is completed. This storage is being used by other units in the northern army group. In the case of storage for the air division, it is being done as part of the infrastructure, and has been under construction for some time. I am advised that it is not yet complete.

Mr. CHURCHILL: Is it accurate to say that last year at this time, last January and February for example, there were no nuclear bombs available for any part of the air division because storage facilities had not been completed?

Mr. HELLYER: That is correct.

Mr. CHURCHILL: And according to the press report of NATO, the storage facilities for bombs for the air division will not be completed until sometime this month. Is that a correct report?

Mr. HELLYER: I am advised that it may be later than this month.

Mr. CHURCHILL: So when the first aircraft of the air division were being taken over to Europe last fall, and in the early part of this fall, there was no possibility in the world of their going into action armed with nuclear bombs?

Mr. HELLYER: At that time.

Mr. CHURCHILL: And even at the present time, not until perhaps until the end of this month?

Mr. HELLYER: Well, it will be sometime much later than that, before they would be in position to go into action.

Mr. CHURCHILL: I would like to ask one or two questions. One has to do with page three of your brief at the bottom where you mention that:

> It is not expected that the Genie rocket will be available for Voodoo squadrons until the latter half of 1964—

In other words, a year elapses before the Voodoos are equipped with a nuclear rocket. What is the alternative plan in the interval, because we were told so often that our defences were so inadequate against the bomber threat?

Mr. HELLYER: What is your specific question, please?

Mr. CHURCHILL: What is the alternative plan in the course of the next 12 months for the Voodoos, when we were told so often that our defence was ineffective without the Genie rocket?

Mr. HELLYER: Mr. Churchill, in respect of our Voodoo, there is no alternative plan that I know of during this period to arm them with nuclear weapons. I also question your statement about being told that your defence was so inadequate. I think you were told that it would be much more effective if the weapon system designed for those planes were available for them.

Mr. CHURCHILL: I may be recollecting some things said at our meeting at Colorado Springs in that regard, but I would like to ask two or three questions on the spectrum of possible conflicts. I base my question on this; until the committee, which is making a serious study of this, knows what type of war we are preparing for, it is difficult to offer conclusions in our interim or final report. In the series of representation we have made recently, and in a question asked last week, we found differences of opinion among the senior officers, actively serving and retired, as to whether on not a limited war was probable. Now, the equipment of our forces will depend on the type of war we think may be fought. I would like to ask the minister if he considers that a limited nuclear war is a possibility without it extending to an all-out nuclear conflict.

Mr. HELLYER: I do not think there is any simple answer to that question. As you know, this is an area of very considerable difference of opinion. One of the great debates at the present time, and also one of the great areas of study in the western world, is to determine what is the best possible answer to the question of what degree or what level of nuclear force could be used on a battle-field without undue risk of escalation. I do not think anyone could give a categorical answer to your question.

As far as the spectrum of possible conflict is concerned, I think this much can be said; there seems to be a consensus that an all-out thermo-nuclear war is the least possible of conflicts, and that the most probable are small incursions, such as riots, the overthrow of governments, and so on. There is a broad band in between those two extremes, of course. But one must quickly add that in order to maintain the position that an all-out nuclear war is least probable, every effort must be taken to maintain a deterrence to that kind of war, which would keep this probability at a low level.

Mr. CHURCHILL: I would like to ask the minister this question: I do not know whether the minister has read last week's *Newsweek*, where a summary is given of the crisis of October 1962 over Cuba, and at pages 24 and 25 for *Newsweek* of October 28, 1963. Is that summary accurate? Perhaps the minister will tell us whether it represents military opinion when it indicates that no limited nuclear war was contemplated. It gives a list of the available strike capabilities of the United States which I would summarize as follows: 1,510 aircraft; 90 of them were constantly in the air; eight Polaris submarines carrying a total of 128 nuclear missiles; 168 launchers, Atlas, Titans, and Minute Men, making a grand total of 1,806 airplanes or missile dischargers available to discharge 1,806 missiles or bombs. There was no limited war contemplated there.

What I want to get at is this: I think there is an air of unreality in our discussion, because our experience to date from the second world war did not go beyond the explosion of a two ton bomb or shell or missile. Our technical experience does not go beyond that. We were not present at Hiroshima where the atomic bomb was dropped, but it was of the size of 20 kilotons, which means 1,000 tons of t.n.t In order that we may size up this problem, should we not

have presented to us as an appendix to one of our reports a glossary indicating the size of the missile or bomb used in the second world war, and the missiles or bombs available now, with their destructive capabilities, so we can make some determination of whether our part is small or great in the nuclear field, and whether or not it is desirable? I would like to ask the minister's opinion with regard to that.

Mr. HELLYER: The article you refer to I have not read. However I think there is sufficient information available to the public in respect of the relative yield and effectiveness of weapon systems to enable you to make a judgment on that particular aspect of your problem.

Mr. CHURCHILL: I think this should be set down because it is a bit beyond the comprehension of the average person. What about people who have never experienced an explosion of a bomb or a missile? My own experience is limited enough, goodness knows, but I find it hard to visualize the explosion of a megaton for example. We are talking about the explosive force of a million tons of t.n.t., yet apparently SAC bombers can carry two 24 megaton bombs, which is 24 times a million, or 48 million tons of t.n.t. I suggest that if we have this set up for the information of the committee and of the general public who might be reading our proceedings with interest, we might then be in a better position to form some judgment as to the part we are playing.

Then I go further and ask this if the immensity of the strike capabilities in the nuclear field is realized, then what advantage is there to Canada to have two Honest John rocket batteries, and 144 Starfighters to add small nuclear bombs or missiles to the explosive capabilities of the United States?

Mr. HELLYER: First of all, I think in respect of the implications of the explosive power of this magnitude there has been much written about it, but not very much can be added by anything we could write. There are films available showing the explosion of a very small yield weapon, and of a very large one. I think there is one available which is not classified, but we could get it even if it was classified.

Your larger question, I think, is a very difficult and involved one. You may get a better insight into it after you have visited Europe. But as you realize, the strategy of the western world has been that in order to deter attack on the central front in Europe, tactical weapons would be made available to the supreme allied commander as part of his resources for the deterrence of such an attack. No one knows what the enemy might do whether he would confine his attack to non-nuclear weapons or would use nuclear weapons as well.

The question you might look at when you are over there and being briefed by the people at SHAPE is the necessity, from a military standpoint, of having in the arsenal available to the supreme allied commander Europe a force which would deter an all-out attack on the central front in Europe by the Soviets, possibly including the use by them of tactical nuclear weapons.

Mr. CHURCHILL: I am not opposed to the idea of a deterrent, but I think the committee should have information available to it on whether the deterrent is now so great that no over all deterrent is required. May I ask the Chairman if it would be possible to have a glossary or summary such as I suggested compiled by people in national defence, in order to put it in as an appendix to one of our reports?

Mr. HELLYER: I do not know what specific information you are thinking about, but if you mean the yield of weapons, this could not be made available.

Mr. CHURCHILL: I am talking about that exactly, the yield of weapons, by reason of the fact that the yield of weapons in the second world war, which is the only experience we have to guide us.

Mr. HELLYER: It would be quite impossible to produce the specific yield for a range of weapons from 2,000 pounds of T.N.T. up to 24 ton megatons.

That gives you a very wide spectrum of explosive power which is technically feasible, whether the weapons are available throughout the entire spectrum or not.

Mr. CHURCHILL: I asked you a question in the House some time ago in regard to whether a one kiloton or two kiloton bomb had a low or a high yield, and you said it was low yield. Mr. Smith asked the air marshall about a one-half kiloton bomb, and I think the response was made that it was a pretty small bomb. In my experience it is a pretty large bomb, and I do not want to be anywhere near it. But are we not confusing the issue a little when we say that a one kiloton or a one-half kiloton bomb is a low yield bomb, as if it were insignificant, like a Mills bomb?

Mr. HELLYER: I said that these things are relative in respect to yield, and if you compare a two kiloton with a 20 megaton bomb, there is a high difference; one has a high yield, while another has a low yield.

Mr. CHURCHILL: It is not classified information that I asked for, but merely the inclusion in our committee proceedings of some of the material that has appeared in the press and in various articles. But do let us have an official classification of yield of modern weapons in comparison with the yield of weapons used in the second world war so that we can attempt to reach a conclusion on whether or not we have gone too far now in the nuclear field.

Mr. HELLYER: As you yourself have said, most of this information is published. Something that no defence department can do is to confirm or deny newspaper and magazine articles.

Mr. SMITH: I think we are flattering ourselves in the matter of our security. I often feel that the security imposed on our national defence is that of keeping people from knowing how inadequate our defences are rather than keeping anything from the Russians.

The CHAIRMAN: With reference to this question raised by Mr. Churchill, I think it should be possible for the people in national defence to give us a list of those weapons, referring to the clippings that appear in the papers.

Mr. HELLYER: We cannot and we will not produce a list of the weapons referred to in clippings. Any member of the committee can do that for himself very well if he wants to take a few minutes to research it.

Mr. MACLEAN: Would it not be possible? After all, the technical personnel in national defence are fairly familiar with the implications of various terms used, while the general public is not; in fact, even members of the committee are not. I would like to get, at least, a closer definition of even what a kiloton is. Even this is not familiar to many civilians.

Mr. HELLYER: A kiloton is a thousand tons.

Mr. MACLEAN: I know that, and also a megaton. Surely it would in no way be impinging on anything that might be classified.

Mr. MCMILLAN: How can we hope to decide upon a policy without this information?

Mr. HELLYER: I do not think you lack information in this field that would be of value to you. Mr. Churchill had all this information available to him at the time the strike attack role was adopted for Canada. Surely he recalls all he might require in order to make a judgment on this matter.

Mr. CHURCHILL: In five years we have moved into the missile age; there is a tremendous amount more explosive power available now in the hands of the two great powers than there was five years ago, and there is a steady increase in the strike capacity of the United States, if the stories are true about a Minute Man being placed in position every day, or every week, or something like that.

Mr. HELLYER: That is true, but there is less available now than intelligence estimates forecast five years ago.

The CHAIRMAN: I think it should be possible to find some people outside of national defence department to make a list for us which could be distributed to the members of the committee and which could appear as an appendix to our reports or minutes. It seems evident from what the minister has said that the department cannot undertake to do this kind of research for us. He has told us that there is published information. If there is published information, we can attempt to find it, and we have the ways and means of getting it, and we will certainly look for it.

Mr. WINCH: Let me ask you, as Chairman, in view of the statements made by the minister that certain studies have been completed, since the hon. member became a minister, and in view of the responsibility placed upon us, which is to try to figure out the policy for the next 25 years, how do you think this committee is going to function if we as a committee of the House of Commons are unable to get the information which the minister said is already prepared and finished?

The CHAIRMAN: The minister said that tomorrow evening, he is giving a dinner for us, and that he is ready to supply us with the information in camera. If after this information is available we have something else we would like to ask him, then I think that would be the time to do so.

Mr. MACINNIS: On a point of order, I refer you to pages 11 and 12 of the brief just presented by the minister in which he compliments the work of this committee. And I would refer to the remarks of the minister at page 4108 of *Hansard* for October 28 in the House of Commons. I suggest we are attacking the question in the wrong way. I would call the attention of the Chairman to the fact that the minister has just now endeavoured to direct the course of this committee, and that this is not his function. There has been a motion made, and it is before the committee, and it is the committee which must decide upon it without intervention of the minister attempting to direct the committee. Considering the criticism we had of the committee in his speech of October 28, and considering his complimentary remarks which are directly contradictory to it in today's presentation, I suggest it is for the chair and the committee to decide what is to be done with the motion, and we should do this without direction from the minister.

The CHAIRMAN: There is no question at all about that. Mr. Churchill was asking a question when Mr. Martineau and Mr. Winch brought up their motion. They have just sent it to me. I had been waiting for the end of the questioning to bring the motion before the committee, and it will be brought up as soon as Mr. Churchill finishes his questions.

Mr. WINCH: Might I ask you as Chairman, since this committee will be given certain *in camera* information tomorrow night, whether this committee can use that information in any way whatsoever of a public nature in the work we do in preparation for presenting our report which must be made before Christmas?

The CHAIRMAN: As far as I know this will be possible.

Mr. WINCH: Thank you.

Mr. SMITH: Presumably the report would be prepared *in camera.*

The CHAIRMAN: Oh yes, the report would be prepared *in camera.*

Mr. SMITH: The report itself will be made public, but not the committee hearings when preparing it.

Mr. WINCH: When you make a report you usually give the background of how you reached your conclusions, and if it is going to be *in camera,* then do we use it?

The CHAIRMAN: I think so. Are you through Mr. Churchill?

Mr. CHURCHILL: Yes.

The CHAIRMAN: I have before me a motion which I shall read to you. It is moved by Mr. Martineau, seconded by Mr. Winch. That the bilateral agreement signed between Canada and the United States to provide for the storage in Canada and in Europe of special ammunition mentioned at page 2 of the minister's brief, or such parts thereof to which the minister referred, be tabled before the committee for the information of its members. May I make a few remarks on this before we proceed with the discussion?

I understand that in the House of Commons a similar motion was put forward, discussed and voted upon on October 2, 1963. It was a motion by the Leader of the Opposition for the production of papers on the bilateral agreement. It was defeated in a vote by 105 to 91. It is reported in the *Votes and Proceedings* at pages 406 and 407 or in *Hansard* at page 3118 and page 3119. The minister said a few minutes ago that he did not feel he could produce the document, and I would like to ask him on your behalf in order to clarify matters if it is possible for him to summarize the unclassified information.

Mr. WINCH: I would like you now to ask the Clerk if he would again read to this committee our terms of reference. I think you will realize my point in a moment.

The CLERK:

> That a special committee be appointed to consider matters relating to defence and to report from time to time its observations and opinions thereon; that the committee have power to send for persons, papers and records and to examine witnesses, that it be empowered to adjourn from place to place, that standing order No. 67 be suspended in relation to the committee; and that the committee consist of 24 members to be designated by the house at a later date.

Mr. ASSELIN (*Notre Dame de Grace*): On a point of order.

Mr. WINCH: Am I correct in believing that we are empowered by the House of Commons to ask for papers? This motion is asking for papers.

Mr. ASSELIN (*Notre Dame de Grace*): On a point of order, can this committee order or even ask a minister to do something that the House of Commons has refused to do?

The CHAIRMAN: It seems to me this would be irregular.

Mr. BREWIN: I would like to speak.

Mr. MARTINEAU: It is my motion and I should be able to say a word in introduction of the motion.

Mr. ASSELIN (*Notre Dame de Grace*): I should think the question of the point of order should be dealt with first.

The CHAIRMAN: Please speak to the point of order.

Mr. MARTINEAU: The motion is made at the present time because the matter has been introduced before the committee by the minister himself. He has referred to the bilateral agreement with regard to the storage of ammunition.

There is a rule in the House of Commons that if a minister refers to a document he must table it. I believe those same rules which apply to the house should apply to a committee of the house. However, that is not my principle motive. My principle motive is that questions have been asked regarding this agreement to which the minister has not been able to give clear and positive answers. His answers were equivalent to shooting an arrow in the dark. He just did not know the exact information.

Mr. HELLYER: I do not think that is the best analogy you could use.

Mr. MARTINEAU: There is only one way for this committee to obtain the proper information, and that is to have the documents put before the committee. If he has quoted parts of the agreement, he cannot then invoke security reasons for not producing those particular parts. I am not asking for a summary; I am asking for those parts as they appear in the agreement.

The CHAIRMAN: I think your reference to the rule of the house is on the premise of a different interpretation. The rule is that when a minister quotes from a document the document must be produced on demand, but in this case I do not think the minister quoted; he merely mentioned a document. This changes the emphasis a little.

Mr. BREWIN: On a point of order, Mr. Chairman, I hesitate to disagree with my senior colleague Mr. Winch, but it seems to me that passing this motion would be quite futile. I regret very much that agreements on crucial matters affecting the welfare of this country are made in such a manner that they cannot be disclosed to the representatives of the people and the people themselves; but if those agreements are made with the inclusion of classified information which cannot be disclosed, in fairness to those with whom the agreements are made I do not think this committee or the house can in fact require the production of this material. With some regret and hesitation I say this; I do not often have the occasion to disagree with my senior colleague, but I do not think this motion can be supported.

The CHAIRMAN: On your point of order, Mr. Asselin, I feel we should proceed as soon as possible with the vote on this motion. Even if there were a reason for me to decide, I feel it is so relevant to the motion itself that we should proceed with the discussion of the motion and take a vote as soon as possible.

Mr. ASSELIN (*Notre Dame de Grace*): On a point of order, are you saying the motion is in order? The question has been settled in the House of Commons. Can we in committee, as a creature of the House of Commons, do something that the House of Commons has refused to do?

Mr. MACINNIS: May I speak on a point of order?

Mr. WINCH: On the point of order, I would say that is the reason for which I asked for the reading of our terms of reference. The terms of reference definitely state that we have the power to send for persons and papers. There is a paper definitely referred to here. Therefore the motion moved by the hon. member on my left and myself—and with all due respect to my learned friend Mr. Brewin who does not agree with me—under our terms of reference, asks for the production of a paper. If it is decided we cannot have it, that is one thing, but I am within the law in asking for something referred to by the minister himself. It is completely within our power to ask for that.

Mr. MACINNIS: On the dubious point of order Mr. Asselin was trying to raise, if this were to be recognized as such the words of the Prime Minister would be meaningless in that he has told this committee that they are to look into all aspects of defence, and I repeat—all aspects of defence.

Mr. ASSELIN (*Notre Dame de Grace*): I am glad, Mr. Chairman, the words of the Prime Minister are considered by my learned friend to be more important than the instructions of the House of Commons on this particular topic.

Mr. SMITH: On the point of order, Mr. Chairman, I do not think there is a doubt in the world but that the motion is in order, and we can pass such a motion if we so desire. The effectiveness of the motion may be another thing, but the strict point of order is completely acceptable, in my opinion. There is nothing in the world that says it is out of order as a motion. The effectiveness may be something that will have to be decided in another place.

The CHAIRMAN: I would like to remind the members of the committee that the House of Commons has taken a decision on this. But I know of no specific rule in Beauchesne or elsewhere which says it is out of order to bring back before a committee something that has already been decided by the house.

Mr. WINCH: Will you quote that authority?

The CHAIRMAN: I said there was none.

Are the members ready for the question?

Mr. MCMILLAN: May I ask one question before the vote is taken? Is it possible that tomorrow night *in camera* we will be receiving some information that we are not obtaining now?

The CHAIRMAN: The minister has already answered that. He said yes.

Are you ready for the question?

Mr. PATTERSON: I have one further question, Mr. Chairman. If this motion were to pass, could the government table this document without the permission and agreement of the other party?

The CHAIRMAN: I do not think so. It has to be reported to the House and then it has to be addressed to His Excellency the Governor General before the document may be tabled.

Are you ready for the question? Those in favour of the motion please raise your hands. Those opposed?

The motion is defeated by 12 votes to five.

Mr. LLOYD: On a point of order, there was a question raised. One of the members asked why are we sitting here. May I say in reply that I am sitting here to learn, not to prejudge before all the evidence is heard.

Mr. WINCH: We cannot get the evidence.

Mr. LLOYD: I think we are getting very substantial evidence, particularly those who are not coming here with a prejudice in their minds before the committee begins to work.

The CHAIRMAN: Mr. Brewin, do you want to continue with your questions?

Mr. BREWIN: We are not confined to the minister's statement, are we?

The CHAIRMAN: No.

Mr. BREWIN: I understand there is a review of NATO strategy to be undertaken by NATO itself. Am I right?

Mr. HELLYER: That is correct, yes.

Mr. BREWIN: Is this review to be completed or made available to the various nations concerned some time in December, or am I improperly informed?

Mr. HELLYER: I had hoped there would be at least some interim report from that review by December. Since the idea was adopted at the council of ministers in May some snags have arisen and consequently the whole project is running very much behind schedule. I hope they will iron out the problems and be able to get on with their work very quickly.

Mr. BREWIN: I do want to ask some questions of the minister in regard to that NATO review. First of all, does the Canadian government, make representations or present its own conclusions on what is an effective or non-effective strategy for NATO?

Mr. HELLYER: Yes, we do.

Mr. BREWIN: Is it possible for you, sir, to tell us what are the major points of emphasis at the present time? I ask that in this connection: We have had witnesses here who have suggested that the whole idea of a tactical response in Europe, with tactical nuclear weapons, is out-dated and dangerous. I think

I am not putting it too strongly. Does the Canadian government make representations to NATO with a view to having the whole NATO strategy adjusted to take care of this type of change in view?

Mr. HELLYER: We are participating in the discussions and we are quite able to put forward points of view. Unfortunately, I am not able to discuss at this moment what would be our point of view. I will make some reference to it tomorrow night when we are chatting.

Mr. WINCH: Tomorrow night's meeting will be an important one, apparently.

Mr. BREWIN: Is it not very crucial for this committee to know what must be the over-all view of our allies in NATO? We have to fit into that, do we not?

Mr. HELLYER: I think it is crucial.

Mr. BREWIN: Do you say at this time you are not able to tell us (a) of any preliminary decisions in NATO or (b), what representations Canada is making to NATO?

Mr. HELLYER: That is true. I would like to discuss with you in private some other problems, which I think would be helpful.

Mr. BREWIN: I understand that the present commitments we have—which you said were the subject of a great deal of discussion—arose out of the NATO decisions on the weapon systems and the aquiescence of Canada in those decisions.

Mr. HELLYER: I think that is a fair statement.

Mr. BREWIN: I wonder if we could have some sort of understanding whether new commitments will be made shortly in NATO which will prevent a full review of Canada's role which you say the government is undertaking and which this committee is to look at.

Mr. HELLYER: I do not think there will be any changes until we have come to our conclusions in relation to this problem and have made public a policy.

Mr. BREWIN: I do not like to detain the minister longer and I do not want to take the place of others. I have two articles here on which I wanted to question the minister, but perhaps some other time would be better. One is by Mr. Leonard Bertin and it appeared in the *Star*. Mr. Bertin is secretary of the *Star's* science editor. It quotes General Simonds as saying that the army is a sitting duck by reason of a lack of armoured protection. The other article appeared in the Ottawa *Journal*. It was written by Mr. Warner Troyer. He quotes someone who he says was a senior defence department official as saying: "I cannot tell you about tactical air support because we do not have any". If the statements in the two articles are correct, there would be some serious deficiency. I did intend to ask the minister about them, but I wonder whether this is a good time to do so.

Mr. HELLYER: On the first subject of armoured personnel carriers, I stated recently in the house that this has been a deficiency for a period of time. It has been recognized and talked about. It is still a problem that has to be faced.

In respect of tactical air support, I have no idea who the official you refer to is but probably he was referring to Canadian tactical air support, in which case the contention would be true. If he was referring to tactical air support, as part of the over-all force available to the supreme allied commander in Europe, the contention would not be true because the fourth allied tactical air force does provide tactical air support for the northern army group.

Mr. WINCH: Have you read the statement of the air marshal? If my memory is correct, he told us that there was no tactical support as far as the Canadian R.C.A.F. is concerned.

Mr. HELLYER: That is what I said.

Mr. WINCH: You depend on the others?

Mr. HELLYER: That is correct.

Mr. LESSARD (*Lake St. John*): Mr. Chairman, I would like to ask the minister if he thinks that the threat of a nuclear war is diminishing right now?

Mr. HELLYER: This is a very difficult question to answer and I do not really know what the answer is. As I stated earlier, as far as probability is concerned, I think it is the least likely, but at the same time there is always some possibility, and this is, I think, the problem that we cannot put out of our minds. As long as this tremendous force is available to both sides it is in a real sense a risk to the security of the world.

Mr. LESSARD (*Lake St. John*): Does the minister think that two or three years ago the threat was greater?

Mr. HELLYER: You mean in respect of the threat from the U.S.S.R.? A greater threat than now, personally, I do not think so.

Mr. WINCH: You should go back to some of your speeches in the last three or four years.

Mr. LESSARD (*Lake St. John*): If, at the time our forces were not equipped with nuclear armament, we felt they were strong enough to carry on their responsibilities, although the threat was really great at that time, and it was felt that we had enough deterrent forces to prevent a war, why is it that now, when the threat seems to be smaller, we need to have this additional deterrent force although we know that a limited nuclear war is impossible?

Mr. HELLYER: Without attempting to answer your question in specific terms, there has been, as you know, a sharp distinction between the strategic force and the tactical force. There has been, and is, now available to the west a pretty overwhelming strategic capability. It is in the tactical field that it has been thought by the military commanders on the western side that there has been a deficiency, and it is in this area that additional contributions have been asked for and are being made. This does not completely resolve the problem that you have raised in reference to escalation. This is a separate and very difficult problem which has to be considered on its own merits.

Mr. LESSARD (*Lake St. John*): To come back to our forces in NATO, of our four squadrons of Starfighters, two of them are in France. Why do we have our forces located at four different points very close to each other if we think it would be possible for them to take off and get to Germany to be armed if something happens? This seems to be impossible, and according to the witness we had the other day it seems impossible because it will only take a few minutes for them to take off and appear on the spot. I do not see any reason why we could not have all of them apart. You may say that the reason is that if they were in four different locations the danger would be smaller. I do not think so because if the enemy intended to attack at a certain time they could attack the four points at the same time. What is the real reason for keeping those two squadrons in France right now if they cannot get nuclear armaments?

Mr. HELLYER: This is one of the problems at which, as I indicated, we have been looking. First of all, the facilities which are available were required at the four bases at the time we had 12 squadrons because they need certain facilities for personnel, runways, air space control and all these things, so that you can only effectively operate so many aircraft from one place. Now, when we assumed the new role it was decided to reduce the number of aircraft but to still maintain the four bases because the strike aircraft are much more sophisticated and require more maintenance, more facilities, more

technical support, and so on. There is, in addition, this advantage, that you yourself have stated of not having all of the eggs in one basket, not having them all on one airfield for one target. As soon as you disperse, you increase the chance of survivability, of having aircraft which are not wiped out in the initial attack. So I think these are real considerations.

Now, a problem has arisen as a result of the inability of our squadrons in France to have their ammunition stored at the bases where they are situated, and this creates a problem which necessitates our looking at the whole thing afresh from all of these points of view.

Mr. LESSARD (*Lake St. John*): I have one other question. You announced that Canada will have three submarines. What is the cost of each one?

Mr. HELLYER: $11 million each, approximately.

Mr. LESSARD (*Lake St. John*): You also announced the cancellation of the frigates, the cutting down of the Voodoos and Starfighters. Does that mean that you contemplate the reduction of the over-all national defence budget?

Mr. HELLYER: No, I wish you could logically come to that conclusion, but you cannot. We are trying, as I have indicated earlier, to effect some economies so that we can have more of our dollars available for equipment and to get our total expenditures in better balance as between operations and maintenance on the one hand and equipment on the other. However, I do not think you could expect very much change in the degree of over-all expenditure. Still, we do hope to effect some modest economies and at the same time, if we can, increase our efficiency.

Mr. LESSARD (*Lake St. John*): Do you think the share of the budget spent on national defence is comparable to what other countries of our size are putting out? I would refer to, say, Belgium for instance.

Mr. HELLYER: I cannot remember the figures on Belgium. Does anyone have them? It was in the list that was circulated earlier. This is a matter of opinion. Personally I think our present level of expenditure is not unrealistic in relation to our capabilities. Some of our allies think we should be doing more; they think we can afford to do more. At the same time those who think we should, in most cases have a larger economy than ours and different considerations from those we have in respect of our other total commitments.

Mr. LESSARD (*Lake St. John*): I have one last question about submarine warfare. Do you believe we can really reach a degree of sufficient efficiency in submarine warfare that would make it worth while putting more money into building submarines?

Mr. HELLYER: Not only is this one of the most difficult questions we have but it is one on which there are the fewest categorical answers. Let me say this. In respect to the capability against the known threat, in other words against the existing threat, this very large fleet of Russian non-nuclear submarines, we have a very considerable capability in the western world which is quite effective. The things that we are doing in this direction are very good and we want to do them as efficiently as we can, because it is a real capability. The problem is really more a future problem of capability against missile launching submarines. Here the gap in technology between offence and defence is very great, and a great deal of effort is now being put on research and development to see if we cannot get some breakthrough which will narrow the gap in technology between the offence and the defence. I think this is the right emphasis during this time period, that we should put more money into the research to see if we cannot find out something that we do not presently know which would give us a better capability in that direction. During this time period we should not spend too much on a capability which would be ineffective against that threat.

To come back to your question, namely training submarines for existing capability, I think this is a valid requirement because there is this very large Russian submarine fleet at the present time. It will be in operation for a number of years, and the capability we have against it is a good capability and we should keep it right up to maximum effectiveness.

Mr. LANIEL: I have a supplementary question on submarine warfare. Is it completely impossible for Canada to build submarines here in Canada?

Mr. HELLYER: The answer to your question is that we could build them in Canada from a technical standpoint. We have not built submarines since the first world war, but I have sufficient faith in Canadian industry to believe we could build submarines in this country, indeed, and we could wind up with a submarine program in the future. I do not want to predict what we will require because I am not yet sure. The Oberon project was one which was started a year ago and it is really a production sharing agreement involving considerations on both sides. Now that the conditions have been met, we are proceeding with the arrangement which was initiated then.

Mr. LANIEL: What does the exchange contemplate? Do we supply raw material for submarines or do we supply material for material?

Mr. HELLYER: No, the United Kingdom is participating in the development in Canada of the CL-89 reconnaissance drone, and they are making other purchases here. They have an interest in quite substantial purchases of one or two items we are developing in Canada. In exchange for this we are purchasing the Oberon submarines in the United Kingdom.

Mr. SMITH: I would like to suggest that the minister, when he thinks that he and his officials can come up with a definitive military policy for Canada by the end of 1963, is an incurable optimist and that this deal will be as much unrealized as those past but not forgotten "sixty days of decision."

Mr. HELLYER: My optimism is congenital, Mr. Smith.

Mr. SMITH: I hope it is based on something more than that.

A large sort of our defence policy is based upon our agreements with NATO and NORAD, is that correct? I should like the minister to explain how we arrive at our contributions in respect of NATO policy. Are these policies imposed upon us? Are we instructed or asked to accept certain roles or policies? I ask these questions because of my inexperience with NATO.

Mr. HELLYER: I think I can best describe the situation in summation as being a two-way exchange; an exchange of views as to what we might as a nation undertake within our capability and, whether this is acceptable as a real contribution to the alliance.

Mr. SMITH: I suppose if NATO command came to us and said they did not have anyone else to undertake a certain role, or could not trust one of the other NATO countries to undertake such a role this would have a bearing on our decision?

Mr. HELLYER: I think we have to take all factors into consideration, both political and military, because one of the great strengths of the alliance is political solidarity. This is very difficult to achieve and maintain. When we consider with our allies how we can best contribute to the over-all effectiveness of the alliance, I think we must take all considerations into account.

Mr. SMITH: It would be possible for us to get squeezed into a corner making it difficult for us to say no to a request to accept a certain role; is that right?

Mr. HELLYER: I do not think I can quite accept that statement. I do agree that the pressure in respect of certain things at certain times is inevitably greater than in respect of other things at other times, or even the same things at other times.

Mr. SMITH: At times has there been great pressure upon us to adopt certain courses?

Mr. HELLYER: Pressures always exist within the alliance. There are particular pressures in respect of the increase in contributions. It has never been felt that we had adequate strength. Every time there is a review of the force goals within the alliance, there is great pressure upon everyone to make greater contributions than have been made in the past. The response to this pressure, coaxing or cajoling, if you wish to refer to it as such, varies considerably from country to country depending upon their economic resources as well as upon other factors.

M. SMITH: Some countries which are larger than Canada have not always considered their NATO obligations on an extremely high level?

Mr. HELLYER: In some cases that is the situation.

Mr. SMITH: One of the new policies of NATO, which has been widely discussed, has to do with mixed-man forces. I believe at the present time this is only related to naval matters. Has Canada formed any conclusions in respect of the feasibility of mixed-man forces?

Mr. HELLYER: As you know, the United States ambassador, Livingston Merchant, presented a briefing on this subject. This was a very impressive presentation. I think the substance of a multilateral force, as far as the United States is concerned, has regard to an increase in the solidarity, unity and cohesion of the major powers in the alliance. If it should be proceeded with, those would be the most important considerations behind going ahead with the project.

Mr. SMITH: Which leads one to the conclusion that the mixed-man force is some distance in the years ahead.

Mr. HELLYER: I would not care to predict in respect of that, but I think it is fair to say that by most people it is considered as primarily a political requirement, and that the military benefits are secondary to the primary purpose.

Mr. SMITH: At the time of dropping the plans for the general purpose frigate, one of the reasons given, and one of the substantial reasons, was the expense and the difficulty there might be with the missile system for air protection; that is, that it had not been completely developed, and would have to be acquired from the United States. In dropping this on to the review of naval policy that is now taking place, has any consideration been given to limiting Canada's role so that for a distance from its shores its surface ships could be protected by airplanes; in other words, develop an antisubmarine vessel which would rely for its own protection on land based planes.

Mr. HELLYER: This is one of the areas which would be considered in the study. As you know, this study has just got under way and will take some months. There is no doubt, however, that land based aircraft will in the future play a greater part than they do now. So, it is one of the possible options you would have to look at from the standpoint of performance and relative cost factors.

Mr. SMITH: It would seem to me there would be considerable room here for Canada to make a NATO contribution having regard to the length of its coast line; and we could still do a great deal of submarine patrol work within that limitation.

Mr. HELLYER: I really do not think there is much of an air threat in the western Atlantic. In any event, if we were engaged in a war involving aircraft coming to the North American continent, they are not going to waste too much effort going out in the Atlantic looking for antisubmarine vessels. The importance of air defence, therefore, depends largely on where our naval force is deployed.

Mr. SMITH: You are suggesting there is very possibly a role for a less sophisticated surface vessel whose primary task would be to hunt, detect and locate submarines.

Mr. HELLYER: Without making suggestions, I would like to say that if the primary task is to hunt submarines, there is such a vessel that could be designed and built.

Mr. SMITH: What is the weapon which is now placed in the Voodoo?

Mr. HELLYER: It is the Falcon GAR 2.

Mr. SMITH: Is it a high explosive guided missile?

Mr. HELLYER: It is an infra-red heat seeking missile.

Mr. WINCH: Is that the same as the side winder?

Mr. HELLYER: No; it is not the same missile. Did you mean the same principle?

Mr. WINCH: Yes.

Mr. HELLYER: It is the same general principle, yes.

Mr. SMITH: I would like to refer to defence sharing generally, and in particular to the Oberon submarines. During the first great war submarines were built and taken out by way of the Chicago ship canal.

Mr. HELLYER: I think that is historically correct.

Mr. SMITH: But, my question was a little more modern than that. When these defence arrangements are made—for example, we are buying three Oberon submarines for something of the order of $33 million and they are buying these reconnaissance training fighters from us—do the man hours of work enter into the negotiations? In other words, do we consider how much labour is required on submarines or is it strictly a matter of dollars and cents?

Mr. HELLYER: The criterion in respect of the United States, which is the major area of production sharing, is a dollar for dollar balance. I do not know that a study has been made in respect of man-hours but, if one was, I am sure it would show there would not be much difference in the man-hours involved on either side.

Mr. SMITH: I have a final question or two.

The CHAIRMAN: Is it supplementary?

Mr. MACINNIS: While we are on this subject I have a supplementary question which possibly may involve the normal responsibility of the cabinet; perhaps Mr. Cardin would answer it. In connection with the dollar for dollar value, assuming the Canadian government is going to spend $25 million to $30 million in submarines, are you in a position to indicate to the committee what dollar value the Canadian government will receive in connection with the drone production?

Mr. CARDIN: No. I cannot answer that question for you.

Mr. HELLYER: Perhaps I could answer it in part. The CL-89 drone is only part of the general consideration in this exchange, and it is a development sharing arrangement. The total British participation in this project would be of the order of $15 million or $16 million.

Mr. MACINNIS: Then there is an imbalance?

Mr. HELLYER: But this is only part of it; there are other areas, which do not seem to be at hand now.

Mr. MACINNIS: Does this necessarily mean that there are cost-sharing arrangements between the Canadian and the United Kingdom government in fields other than the submarine?

Mr. HELLYER: You mean that the United Kingdom will have additional participation in Canada other than the CL-89?

Mr. MACINNIS: Are we obligated in any way in connection with further cost-sharing arrangements or additional programs in the United Kingdom?

Mr. HELLYER: No.

Mr. MACINNIS: What is the over-all balance or imbalance?

Mr. HELLYER: Only time will tell. I would expect it would not be too far from balance one way or the other. It is not a hard and fast agreement, but the areas of interest are such that we expect about a balanced exchange.

Mr. SMITH: I have two more questions.

Mr. WINCH: If I may interrupt, are we going to sit this afternoon?

Mr. SMITH: There was an exchange of questions concerning what is commonly referred to as the Sutherland committee which is a temporary committee, I believe, set up to evaluate weapons systems.

Mr. HELLYER: Doctor Sutherland has been chairman of two ad hoc committees for the purpose of looking into various aspects of defence, including policy and one or two weapon systems as well.

Mr. SMITH: The United States department of defence in the last year or so has set up a completely separate branch in its defence department. I think they call it the systems analysis, and they have an under-secretary of defence, a Dr. Enthoven whose job apparently is to continue work on tactical propositions put forward by the three armed services and to do an evaluation on the weapons effectiveness. Has consideration been given to development of a similar civilian body who will be directly responsible to the minister on a more permanent basis than the Sutherland committee?

Mr. HELLYER: We do have at the present time a systems evaluation group, and this is the type of thing they do. Personally I think, if I may just give an opinion on your question, we should look very carefully at the possibility of setting up a group on the civil side which would review and re-examine proposals from the military side.

Mr. SMITH: I do not think there is much real similarity between our evaluation system and the American one.

Mr. HELLYER: It is not as different as you would think.

Mr. SMITH: Maybe it is not as similar as you think.

Mr. HELLYER: There are some techniques which we could employ which they have worked out, and it might be worth while to consider how this would be worked out in the organization of the department.

The CHAIRMAN: It is now 12:34. I understand the minister will not be available this afternoon and there are five more members who wish to ask him questions. The minister is ready to stay here until one o'clock. Should we proceed until one o'clock?

Mr. SMITH: On the assumption that he will not have his policy made by December 31, I think there are more than five members who want to ask the minister questions.

Mr. DEACHMAN: Even without accepting Mr. Smith's assumption it would be interesting to ask him questions.

The CHAIRMAN: We are going to North Bay on Thursday and Sunday we will be leaving for Europe. We will be back here on the twenty-fourth. I did not ask the minister but probably he will be available after our return from Europe.

Mr. SMITH: As long as the discussion now is not conclusive and not meant to mean that it is the minister's last appearance.

The CHAIRMAN: Do members wish to wait until we return from Europe, or do we proceed until one o'clock?

Mr. MATHESON: Can we go until one o'clock?

Mr. CHURCHILL: We should wait until we come back.

Mr. WINCH: It has to be understood that we have to get the questions over because we have committed ourselves to a report and we are going to have to meet together for at least two weeks to complete the draft of that report.

The CHAIRMAN: The minister will be able to come back after our return. The committee stands adjourned until Thursday morning at 7.30 in front of the parliament buildings.

—The committee adjourned.

APPENDIX "A"

DEPARTMENT OF NATIONAL DEFENCE

OTTAWA, 4 November, 1963.

Dear Mr. Innes:

Reference Minutes of Proceedings and Evidence No. 17 of the Special Committee on Defence, page 616, and the request from Mr. Harold Winch, M.P., for the strengths of Army Headquarters staff.

In May 1952 the strength of Army Headquarters, was 1,755 military and 1,287 civilian for a total of 3,042. The Army Headquarters strength on 1 October 1963 was 1,576 military and 1,232 civilian for a total of 2,808.

Yours sincerely,

G. Walsh,
Lieutenant-General,
Chief of the General Staff.

Mr. E. W. Innes,
Clerk of the Special Committee on Defence,
West Block,
Ottawa, Ontario.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 20

THURSDAY, NOVEMBER 7, 1963

(Visit to North Bay)

TUESDAY, NOVEMBER 12, 1963

To

SATURDAY, NOVEMBER 16, 1963

(Visit to Europe)

WITNESSES:

Air Vice Marshal D. A. R. Bradshaw, Commanding Officer, 1 Air Division; Group Captain D. C. Laubman, Commanding Officer 3 (F) Wing; Brigadier M. R. Dare, Commander, Colonel W. C. Dick, Lt. Col. C. D. Simpson, Major Crowe and Captain W. H. Moorhouse, all of 4 C.I.B.G.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

29567-5—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Hahn,	MacRae,
Béchard,	Horner (*Acadia*),	Martineau,
Brewin,	Laniel,	Matheson,
Churchill,	Lessard (*Lac-Saint-Jean*),	McNulty,
Deachman,	Lloyd	Patterson,
Granger,	MacInnis,	Smith,
Groos,	MacLean,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

NOTE: Mr. Plourde replaced Mr. Groos on the Committee after the Thursday, November 7, meeting but prior to the November 12 meeting.

ORDERS OF REFERENCE

WEDNESDAY, November 6, 1963.
(29)

Ordered,—That the name of Mr. Horner (Acadia) be substituted for that of Mr. Nielsen on the Special Committee on Defence.

FRIDAY, November 8, 1963.

Ordered,—That the name of Mr. Plourde be substituted for that of Mr. Groos on the Special Committee on Defence.

Attest.

LEON-J. RAYMOND,
The Clerk of the House.

29567-5—1½

MINUTES OF PROCEEDINGS

THURSDAY, November 7, 1963.
(29)

The Special Committee on Defence assembled in front of the Parliament Buildings, Ottawa, at 7:30 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Béchard, Brewin, Churchill, Deachman, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Matheson, McNulty, Patterson, Sauvé, Smith, Temple and Winch,—(19).

In attendance: Lieutenant Colonel J. R. Weeks, Office of the Military Secretary, Department of National Defence, who acted as conducting officer.

The Committee proceeded by military bus and aeroplane to the RCAF station at North Bay.

On arrival at North Bay the group was met by Air Vice-Marshal M. M. Hendrick, Air Officer Commanding Air Defence Command, who accompanied the party to SAGE headquarters. Air Vice-Marshal J. B. Harvey, Commander, Northern NORAD Region, welcomed the Committee and introduced the briefing officers.

The briefing sessions were conduced in *camera.*

At 12:30 p.m. the Committee recessed for a luncheon in the Officers Mess.

At 1:30 p.m. the briefings resumed *in camera.*

The Committee visited and inspected the BOMARC Installation and the 414 Squadron of the RCAF.

Some of those who assisted with the briefing were: Colonel T. H. Besson, Squadron Leader Terrell, A/C Pollard, F/L Taylor, S/L Tennant, W/C Lawrence, G/C Murray, and W/C MacKay.

At approximately 5:45 p.m. the Committee enplaned for the return trip to Ottawa, arriving at the Parliament Buildings at 7:20 p.m. At that time the Committee adjourned to the Call of the Chair.

TUESDAY, November 12, 1963.
(30)

Having arrived in Paris, France, from Ottawa on November 11, the Special Committee on Defence met *in camera* at NATO headquarters, at 3.30 p.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Bechard, Brewin, Churchill, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple, Winch —(24).

In attendance: Mr. Dirk U. Stickker, Secretary General of NATO; Mr. George Ignatieff, Canada's permanent representative to NATO Council; and Air Vice Marshal R. A. Cameron, RCAF, Military Adviser.

Agreed,—That the information tendered to this Committee today, by the NATO officials be recorded; that it be made available only to Members of this Committee, and that there be no attribution in relation thereto.

The briefing of the Committee was carried on *in camera.*

At 5.30 p.m., the Committee adjourned until 10.00 a.m., Wednesday, November 13, 1963.

WEDNESDAY, November 13, 1963.
(31)

The Special Committee on Defence met *in camera* at SHAPE headquarters, in Paris, France, at 10.15 a.m., this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Bechard, Brewin, Churchill, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple, Winch—(22).

In attendance: General L. L. Lemnitzer, Supreme Allied Commander Europe; and three briefing officers.

Agreed,—That the information tendered to this Committee today, by the officials of SHAPE, be recorded; that it be made available only to the Members of this Committee, and that there be no attribution in relation thereto.

The briefing proceeded *in camera.*

At 12.30 p.m. the Committee adjourned until 3.30 p.m. today.

AFTERNOON SITTING
(32)

The Special Committee on Defence resumed, *in camera,* at 3.45 p.m., at the Canadian Embassy, Paris, France. The Chairman, Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Bechard, Brewin, Churchill, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple, Winch —(24).

In attendance: His Excellency Pierre Dupuy, Canadian Ambassador to France; and Brigadier General N. V. Hinh, of the Republic of France.

Agreed,—That the information tendered to this Committee, by the spokesman on behalf of the Republic of France, be recorded; that it be made available only to the Members of this Committee; and that there be no attribution in relation thereto.

The proceedings of the Committee were carried on *in camera.*

At 5.45 p.m., the Committee adjourned until Thursday, November 14, 1963.

THURSDAY, November 14, 1963.
(33)

The Special Committee on Defence met *in camera* at the Canadian Embassy, Paris, at 9.45 a.m., this day. The Chairman, Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Bechard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple, Winch—(23).

In attendance: General Pierre Gallois, Writer, Mr. André Moynet, Chairman of Defence Committee of French National Assembly; and Mr. J. G. H. Halstead, Minister Plenipotentiary, Canadian Embassy, Paris.

Agreed: That the information tendered to this Committee today, by Messrs. Gallois and Moynet be recorded; that it be made available only to the Members of this Committee; and that there be no attribution in relation thereto.

The proceeding of the Committee were conducted *in camera.*

At 12.45 p.m. the Committee adjourned to the call of the Chair.

AFTERNOON SITTING
(34)

Having travelled from Paris, France, to Zweibrucken, Germany, the Special Committee on Defence reassembled at 4.20 p.m. this day, in the briefing room of 3(F) Wing of 1 Air Division. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Same as at morning meeting.

In attendance: Air Vice Marshal D. A. R. Bradshaw, Air Officer Commanding, 1 Air Division; and Group Captain D. C. Laubman, Commanding Officer, 3(F) Wing.

Air Vice Marshal Bradshaw read a prepared statement; during the reading of which slides were shown. He was questioned on that statement and on other defence matters.

At 5.35 p.m. the Committee adjourned to the call of the Chair.

FRIDAY, November 15, 1963.
(35)

The Special Committee on Defence met at 9.00 a.m. this day at 3 (F) Wing, Zweibrucken, Germany. The Chairman, Mr. Maurice Sauve, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grace*), Bechard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauve, Smith, Temple, Winch—23.

In attendance: Air Vice Marshal D. A. R. Bradshaw; and Group Captain D. C. Laubman.

Group Captain Laubman was introduced and he presented a brief statement.

At 9.25 a.m. the briefing was completed. Committee members then had an opportunity to view the following demonstrations and displays: Tour of 434 Squadron; No. 5 Field Technical Training Unit; Static Display of Aircraft and Equipment; and a Sentry Dog Demonstration.

During the stay at Zweibrucken, the Committee members were the guests of the Air Division.

At 2.30 p.m. the Committee departed from Zweibrucken, to travel by aeroplane and bus to Soest, Germany.

SATURDAY, November 16, 1963.
(36)

The Special Committee on Defence, having arrived in Soest, Germany, on the evening of November 15, met at 9.30 a.m. this day, at Fort Henry. The Chairman, Mr. Maurice Sauve, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grace*), Bechard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauve, Smith, Temple, Winch—23.

In attendance: Brigadier M. R. Dare, Commander, 4(CIBG) Canadian Infantry Brigade Group; Colonel W. C. Dick; Lt. Colonel C. D. Simpson; Major Crowe; and Captain W. H. Moorhouse.

The Brigade officers explained the role of the Brigade in NATO. To assist in this briefing, a diagrammatic cloth model was used.

Following this briefing and a short recess, the officers were questioned on Brigade operations and on related matters.

During the remainder of the morning and early afternoon, members of the Committee were given an opportunity to view the equipment of the brigade and to observe a reconnaissance demonstration.

While staying in Soest, Committee members were the guests of 4 CIBG.

In the afternoon the Committee travelled by bus to Bonn, Germany.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

November 14, 1963.

AIR VICE MARSHAL D. A. R. BRADSHAW (*Air Officer Commanding 1 Air Division*): First of all, gentlemen, I would like to extend to all of you on behalf of 1 Air Division a very warm welcome. I hope what you see and hear in Zweibrucken will be useful to you and hope that your visit will be a pleasant one.

You will understand that after the several million words that have been printed in the press about your deliberations on Canadian Defence matters of which a great deal seems to have concerned the Air Division, you will find that there have been many roles suggested for the Air Division. This is a good thing for you to have been given an opportunity to consider defence matters and particularly such an organization as the Air Division. Now on this type of visit instead of hearing about the Air Division from all sorts of people you are right in it, can feel it and face it, and I hope that what you hear and what you see will be good.

We are dividing your visit into two parts, the first part, this afternoon, I propose to give you a thirty minute briefing explaining what the Air Division is, where it is, and so on, and tomorrow morning we will show you in various short visits the various highlights of that Air Division. For the next thirty minutes here is what makes 1 Air Division. It has been designed to acquaint you with:

The composition of 1 Air Division;
Our Chain of Command;
The CF104 re-equipment program and the change in our role;
The technical support organization; and finally,
The personnel aspects of 1 Air Division.

The Composition of Air Division

First of all, in order to help you orientate yourself, I will present a thumbnail sketch of the Air Division itself. I am A/V/M Bradshaw, the Air Officer Commanding, 1 Air Division. 1 Air Division consists of:

A Command Headquarters
Four Main Wing Bases
3 Deployment Bases
Some eight Ancillary Units, and
A Materiel Depot in England.

The HQ is located at Metz, France, approximately forty miles south of Luxembourg and is approximately 200 road miles from Paris, 320 air miles from London, and 400 air miles from Berlin. Metz, by the way, is approximately 175 miles from the Iron Curtain.

Also in Metz area we have:

A Support Unit which provides administrative support for the HQ and subordinate units.

601 Telecommunications Squadron which provides microwave communications within the Division, and

An Operations' Centre whose function is coordinating the peacetime training use of 1 Air Division aircraft. This unit operates in a large underground bunker and is manned on a 24 hour a day basis. This provides a useful nucleus staff and location for the 1 Air Division War Headquarters.

Before turning to our field units I should add at this time that under our present plan, each of our 4 Main Operating Bases will have 2 CF104 S/R Squadrons, in lieu of the old program where we had 2 Sabre Day Fighter Squadrons and 1 CF100 All Weather Squadron at each base.

Switching now to the Field:

1 Wing is located at Marville, France, 60 miles northwest of Metz. In addition to the 2 CF104 squadrons programmed, it also houses:

5 *Air Movements Unit*—which is responsible for all external air movements of personnel and material, and serves as the European terminal for all RCAF transatlantic flights.

2 Wing is located at Grostenquin, France, 30 miles east of Metz. 2 Wing also houses 109 Flight, which is equipped with 10 Dakota (247) aircraft and 5 Bristol Freighter aircraft. These 10 Dakotas and 5 Bristols comprise our total internal airlift capacity.

Turning now to Germany:

3 Wing is located at Zweibrucken, 80 miles to the northeast of Metz. Also located at 3 Wing is 5 Field Technical Training Unit which handles our CF104 technician training.

4 Wing is located at Baden Soellingen, 120 miles southeast of Metz. There are no secondary units located at this base.

As a summary on the relative location of the four main Wings to 1 Air Division, this next chart shows that:

1 Wing is 60 miles northwest of Metz;
2 Wing is 30 miles east of Metz;
3 Wing is 80 miles northeast of Metz, and
4 Wing is 120 miles southeast of Metz.

In addition there is the Air Weapons Unit, located at Decimomannu in Sardinia, where in the past our Sabre and CF 100 Squadrons carried out practice air firing. Decimomannu is now being used by the CF104 Squadrons, for weapons practice. Decimomannu is an Italian air base, which we use on a tri-national basis with the Italian and German Air Forces.

Finally, we have 30 Air Materiel Base, Langar, near Nottingham in England. This was our main Air Division Supply Base in Europe, however, with the advent of the Yukon transatlantic airlift program, operating direct resupply between Trenton in Canada and Marville in France, the Langar facility has been progressively reduced. Langar is now primarily engaged in the disposal of F86 and CF 100 surplus spares and aircraft, and will be almost completely phased out by early 1964.

Command and Control

Now I would like to describe how 1 Air Transport fits into the NATO structure in Europe and how we are controlled operationally.

At the apex of the military structure, we have SHAPE, commanded by SACEUR; General Lemnitzer of the USA. General Lemnitzer is also United States Commander in Chief, Europe.

SACEUR commands four geographical regions. Allied Forces, Northern, Central and Southern Europe, and Allied Forces Mediterranean. Our main interests lie with Allied Forces Central Europe or AFCE, which is commanded by General Jacquot of France, whose HQ is at Fontainebleau.

General Jacquot commands Land, Air and Naval Forces. The Air Force portion is designated Allied Forces Central Europe (AAFCE) and is commanded by A/C/M The Earl of Bandon of the RAF, whose HQ is also at Fontainebleau.

Under AAFCE there are two Tactical Air Forces; 2nd Allied Tactical Air Force (or 2nd ATAF) with HQ at Munchen Bladbach in Germany, and the 4th Allied Tactical Air Force (or 4th ATAF) with HQ at Ramstein, also in Germany.

2nd ATAF is composed of UK, Netherlands, Belgian and West German Air Force Components. 4th ATAF contains the United States 17th Air Force, Premiere CATAC, or the Tactical Air Command of the French Air Force, Air Force Group South of the Republic of Germany and Canada's 1 Air Division.

Operationally then, the AOC is directly responsible to the Commander 4 ATAF, who at this time is General Disosway of the US Air Force.

In summary, our operational chain of command, starts with SACEUR at SHAPE and comes down through Allied Forces Central Europe, Allied Air Forces Central Europe and 4th Allied Tactical Air Force to 1 Air Division.

Our administrative chain of command is from AFHQ, Ottawa, to 1 Air Division and down through our Field Units.

Re-Equipment Programme

Turning now to the CF104 re-equipment programme and our change from the Air Defence to the Strike Reconnaissance role.

To begin with, I would like to emphasize one point, and that is, that as far as we know, 1 Air Division is the first organization to be tasked with:

Converting to a new aircraft;
converting to a new role; and
converting from conventional weapons to the nuclear environment,

all at one time. Individually, each of these three tasks represent major programmes, all of which are very time consuming. To further complicate the task we are constantly reminded that in addition to the normal standards established by the RCAF, we must also in many instances adhere to criteria established by NATO.

The change in aircraft type is proceeding smoothly. Aircraft deliveries started at 3 Wing in Oct. 62 and aircraft have been arriving at a rate of one aircraft every three days. The aircraft are first dismantled at Canadair Ltd. in Montreal, loaded on RCAF C130 Hercules aircraft and then flown directly to the user Wings. There they are unloaded, re-assembled and test flown prior to squadron acceptance.

In addition to the aircraft it has been necessary to provide:

new ground handling equipment,
test equipment and aircraft spares;
new aircraft maintenance facilities,
additional operational facilities, and of course,
the CF104 trained personnel to implement the new programme.

With minor exceptions, all of the items over which the RCAF has had control, have been provided on schedule.

While the re-equipment program is by no means complete, we are encouraged by the progress thus far. The first CF104 Squadron was activated

at 3 Wing, Zweibrucken, just two months after aircraft deliveries commenced. Additional squadrons have been forming throughout 1963, and the last squadron is scheduled to form in March of next year.

Change in Role

I would like now to tell you of what is being done in 1 Air Division to prepare for the new role at both the HQ and field level.

In changing from Air Defence to Strike Reconnaissance the Division HQ was and still is faced with a unique and challenging task. When an Air Force has been operating for some time with a fixed number of roles, such as Air Defence, Transport, and Maritime Operations, the HQ staff officer is normally engaged in continuously assessing and improving the effectiveness of the various units in their respective role; developing new tactics to meet a changing threat; or planning for the replacement of outmoded equipment. Since our staff officers at all levels have seen service and gained experience in the field, the RCAF has always in the past been able to dip into this pool of knowledge when a new program has been launched.

However gentlemen, it will be very evident to you, that the RCAF has had no experience in the Nuclear Strike business. Consequently our staff had to start from "Square One". The progress of gathering operational, training and technical data vital to the new role; assimilating this data, and converting it into operational procedures is now well in hand. While tailoring criteria and procedures developed for and by other National Organizations brings up some formidable problems, it is at the same time a stimulating test of our own ability and resourcefulness. Finally, as Canadians we can take legitimate satisfaction from the fact that during the most critical part of our re-equipment program we continued to meet our NATO Air Defence commitments in Europe.

(This was made emphatically clear in a recent message of appreciation from General Disosway, the Commander of the 4th Allied Tactical Air Force when the last of our F86 Squadrons was disbanded.)

At Wing and Squadron Level, as one might expect, our personnel are in the midst of preparing to operate within the nuclear environment.

As for the aircrew, each pilot must attain, and then maintain, a combat ready status to meet the high standards laid down by 4 ATAF and the RCAF. He must also satisfy the stringent nuclear safety and security criteria dictated by the USAF. Finally, he must be able to fly his aircraft at very low level, over devious routes, day or night and in all weather, up to distances of 200 to 600 miles, and then deliver his weapon with pinpoint accuracy. He must then return safely to his base.

In contrast to our Sabre pilots who flew in formation at great height with one or more other aircraft, assisted by ground radar for interception and navigation purposes, the strike pilot must carry out his mission alone, usually at low level and without any outside help.

Therefore it becomes dramatically clear why the strike pilot must be so highly trained and have such a high degree of initiative and determination if he is to be successful in his task.

Concurrent with the aircrew training is the very special training being provided our ground crew. The security forces, the weapon loading crews, the maintenance organization and all the supporting elements on the station must be highly skilled in carrying out their tasks. Once a unit has completed its basic training it must pass certain exacting tests before it is accepted into the SACEUR Strike Force.

In dealing with nuclear weapons only perfection can be accepted and a short-fall in any of the key areas can preclude a unit from being declared operationally ready.

Technical Function

The next item that I would like to discuss are those functions which directly support our primary operational function. That is:

The logistics system, and
The ground support organization.

Prior to January 1962, 1 Air Division maintained a Supply Base at Langar in England, which supported our Wings on the Continent. However, with the introduction of the Yukon aircraft to transatlantic service, 1 Air Division now receives support direct from Supply bases in Canada. This procedure has, as I previously mentioned, eliminated the need for a large supply depot in Europe thus shortening our supply and repair pipeline at a considerable saving in manpower and other resources.

Of course there are certain common domestic items which we purchase more economically on the local economy.

The distribution of supplies for 1 Air Division is carried out by service aircraft and motor transport. Supplies from Canada are transported from Trenton, Ontario to 1 Wing, Marville, and the internal distribution is then carried out by either the transport aircraft of 109 KU or service vehicles.

So much for the logistics system. The remainder of the ground support function is carried out much the same as it is in Canada.

However, there are certain complicating factors which at times cause delay and additional work for our personnel. 1 Air Division units are located in five countries in Europe: France, Germany, Belgium, Italy and England. Many of our most critical, costly fixed installations and facilities are provided through the NATO Common infrastructure program and consequently must be approved by all 15 nations. This in itself is time consuming but processing the approved projects through the complicated intricacies of the constructural nation can take a painfully long time. This procedure results in slower progress than we would expect in Canada.

Personnel

As a final point in this briefing I would like to briefly mention the personnel aspects of 1 Air Division's activities.

Our manpower establishment consists of approximately 800 officers, 5000 airmen, 200 airwomen and 1400 civilians, who fill the various established positions in England, France, Germany and Sardinia.

Service personnel are transferred overseas for four years if they are married and accompanied by their dependents, three years if they are single, and two years if they are married and unaccompanied. Aircrew officers on continuous jet flying are repatriated after approximately three years. As a result of this rotation program, the annual turnover of service personnel is approximately 2000.

In the personnel administrative field, an active interest is taken in the off-duty activity of personnel, in their discipline, and in their dress and behaviour on and off the unit. Constant attention is given to their physical welfare. Recreation facilities, clubs and sports facilities are available throughout the Division and active sports competition takes place between units.

In addition to the administration of Service personnel, there are other responsibilities associated with 4,500 wives and 9,750 children. A certain number of married quarters are provided on all our units except at Decimomannu in Sardinia. The number of married quarters in proportion to strength, ranges from 26% at our headquarters to between 50 and 55% at the Wings. The remainder of personnel must of necessity find their living accommodations in the local

community. You will note here that standards are frequently very low. At 1, 2 and 3 Wings and here at Metz trailer sites have been developed to assist in overcoming the shortage of accommodation in these areas. These sites are financed and administered by the individuals themselves at no cost to the Crown.

In Canada, our families would normally participate in local community affairs, but because of the differences in language and customs their participation in the activities of *our own clubs and associations* is much more pronounced although many do participate freely in local activities. Should family or welfare problems arise, and they do frequently, we have a competent staff of specially qualified welfare officers to assist personnel with their marital problems, teenage problems and so forth.

Under the Status of Forces Agreement the Governments of France, Germany and Italy have delegated to us the responsibility of the registration of private motor vehicles owned by service personnel. At the present time all Canadian automobiles are licensed under our licensing system. Traffic accidents are investigated by our Air Force Police and, when Canadians only are involved, the offences are normally tried by our Service tribunals. When French or German interests or nationals are involved, however, the offences are tried by civil tribunal. These regulations apply not only to service personnel, but also to school teachers, dependents and other Canadians attached to the Air Division. Should a service dependent be tried by a Service tribunal, however, the court must be presided over by a Canadian judge.

Turning to the medical service, our RCAF doctors and nurses are supplemented by civilian doctors to provide medical care for our personnel. Again, because of the language barrier and the rather limited medical and hospital facilities in some local communities, our medical services have been taxed with the added responsibility of providing medical facilities for dependents. Of course dependent treatment is on a recoverable basis.

Of our 9,750 children, approximately 5000 are of school age. Again, because of the language problem and the various standards of education which prevail in Europe, it was decided to form our own schools so that our children could have the opportunity of a Canadian education and qualify for entrance to Canadian Universities. We have schools at all units where the children are taught by some 275 qualified Canadian teachers. The teachers are provided by school boards throughout Canada and are transferred overseas for a two year tour of duty.

In the Canadian Armed Forces, dental and postal services are provided by the Canadian Army for all three services, thus we have at each unit a detachment of the Royal Canadian Dental Corps and the Royal Canadian Post Corps, each of which provides us with excellent service.

I have outlined some of the activities in the personnel administrative field which arise because of our European environment. There are, of course, many problems of a personal nature which face people who live in a foreign land. Nevertheless, our personnel, with very few exceptions, are taking advantage of their overseas tour to see and learn as much about Europe as possible despite constantly increasing costs. They adjust themselves remarkably well to their new environment and we like to feel that each is a good representative of Canada.

Conclusion

In conclusion, I would like to remind you that we have made a good start in converting to the new role; from a operational, technical, and personnel point of view. We have had some problems in the past, and no doubt, will have others in the future. However, we are looking forward to making a new and valuable contribution to NATO.

Mr. CHAIRMAN: Thank you, A/V/M Bradshaw. In the usual way I will recognize questioners and A/V/M Bradshaw will answer the questions.

Mr. DEACHMAN: Can you give us in detail what is the role of the CF104, we understand it is a strike role, but can you broaden it? What does "strike role" mean, can you describe it in detail?

Mr. BRADSHAW: I think you already have it from Air Marshal Dunlap. It is one which involves nuclear weapons. It is in the tactical area as opposed to the strategic area and, in the tactical sense, it is applied to military targets within range of the aircraft.

Mr. DEACHMAN: Can you give us some indication of the range that it will be called upon to operate in or the types of military target which it will be called upon to strike and can you give us some idea of what "Interdicting the battlefield" means.

Mr. BRADSHAW: Obviously any target that would be allocated to us would be within the range of our aircraft and, as I have said in my briefing, this would be in the space of some two to six hundred miles. I think, Mr. Deachman, when you talk of "interdicting the battlefield" you are confusing a strike role with an attack role. A strike role, in the nuclear, doesn't go around casting these off at targets of, shall we say, targets of opportunity. Certainly not in any context that I know of. Any nuclear target is a pre-determined target. That is, intelligence is reviewing at very high levels, they are determining from this intelligence what type of target would fall within the purview of strike aircraft and in due course these targets are allocated to us from the highest authority. All our targets, I am sure, will emanate from SHAPE itself.

Mr. TEMPLE: A/V/M Bradshaw, on the 17th US Air Force our Air Division, the Germans, etc., are they all of comparable size and number?

Mr. BRADSHAW: I couldn't answer that and, even if I could, I don't think I would be in a position to divulge the size of other national Air Forces within NATO.

Mr. MACINNIS: You mentioned the necessity of the new role and the low flying of the reconnaissance role of the strike role, what is the safety factor involved should they release the nuclear weapon from a low flying position?

Mr. BRADSHAW: I said actually that in the majority of cases you would probably be flying at a low level. Within the tactics used to deliver the nuclear weapon at various altitudes from low to medium to high are carefully designed what we call "escape manœuvres" that is to say, the method of delivery has with it the method of escape. We know well these are very precise. There is practically no danger of being involved in the blast from your own weapon.

Mr. MACINNIS: Have there been any casualties, by that I mean in your strike role, have there been any casualties in your pilots? By that I mean have any of them failed to measure up to the requirements of the new role?

Mr. BRADSHAW: I can say that without hesitation, no. You will hear from G/C Laubman tomorrow morning in a very short briefing something about the pilots we have here, who they are, what they are like, you will meet some of them and from what G/C Laubman will tell you, I can practically guarantee what your conclusions will be.

Mr. SMITH: Perhaps I am anticipating, but how much can we be told about the physical statistical methods of control of the weapons that these planes will be equipped with?

Mr. BRADSHAW: Are you talking about control as it relates to the storage of weapons here?

Mr. SMITH: The storage and the ultimate transfer from the United States to the squadron?

Mr. BRADSHAW: I will put it this way, Mr. Smith, we will show you tomorrow sufficient without any contravention of security to give you a very excellent idea of the pattern that this takes. You will appreciate there are some areas which we will gloss over but I think the picture will be sufficiently complete to answer your question.

Mr. SMITH: Generally speaking, the principals of your schools here—this is getting away from the subject and is a domestic problem which comes to mind from Camp Borden—generally speaking, how long does a principal of your schools here stay with you and what are his qualifications? Are they as highly qualified as they are, for example, at home, and how long do you keep them?

Mr. BRADSHAW: I can possibly answer that. I think the tenure is two years but most of them stay longer. As to their qualifications, they are of the highest. Many of them are ex-principals or came from a principal's position in Canada to a principal's position here.

Mr. WINCH: I would like to ask: What are the plans for or the instructions to the thousands of dependents in the event of a conflict?

Mr. BRADSHAW: I think we have to go back a bit here. A dependent is a civilian to start with. A dependent is also the wife or daughter or son of an individual serviceman and therefore in terms of telling them, civilians, you will go here or you will go there, you are under a certain limitation and, secondly, telling a serviceman where he will send his wife or what he will do with his wife or family is also getting on a touchy area. I can well imagine, Mr. Winch—I presume you are married—if I told you that you will send your wife to such and such a place in Germany your reaction will porbably be "Go to hell" or something equivalent to that, "I'll make up my own mind where my wife goes". Now let us look at it, we have 2,000 wives and 10,000 children, the family is here, if we split the family, assuming they agree to it, and send them somewhere else, what do we achieve, if you are talking in terms of nuclear war? I think it is safe to say that the government has been planning for some time various procedures for moving dependents and we here have our own plans, that is to say, the head of each household is aware of our facilities and he knows what to do and therefore has made up his own mind and in the majority of cases it is safe to say our dependent personnel will stay here in the same localities as their husbands.

Mr. LESSARD: What is the reaction of our jet pilots who know they will have or now have and will have to handle nuclear weapons?

Mr. BRADSHAW: Mr. Lessard, I think I would be less than truthful if I didn't say that they are extremely happy—if you can call anybody "happy" in this business—but they are happy at last to have the most powerful weapons available if, as and when they ever have to go to war.

Mr. LLOYD: Air Vice Marshal, the transport you mentioned is a problem and I will not comment on our trip here but we did see some routine operations, I wonder if you have any needs in this area you would like to bring to our attention in view of the large volume of personnel you have to transport back and forth and the supply operations you have from Canada?

Mr. BRADSHAW: That is getting very close to policy and programming in the RCAF. I have brought to the attention of my superiors the situation as we see it and I do know that it is being considered in the future and do not feel that I am in a position to state it.

Mr. HAHN: How serious to you, from an operations point of view, is the attitude of the French in not allowing you to have your warheads in France for your two squadrons?

Mr. BRADSHAW: The French, being a sovereign nation, can make up their own minds to do whatever they like and have done so. At the present time it has put us, as A/C/M Dunlap and others have told you, in a very difficult position in regards to both bases in France. Any decisions as to what will be done with us on those bases I am sure must come from the Minister. I do not think it would be appropriate for me as a person who is operating in the field to comment on governmental matters.

Mr. LANIEL: Part of my question has been answered by your answer to Mr. Lessard about how did the Air Force feel as to the assignment they have been given. I imagine, as you say, everybody is happy and now have the tools to fulfil the job. My second part is to ask you if this assignment was the best which could have been given to the Division in Europe?

Mr. BRADSHAW: The government made the decision and told me through AFHQ to get on with preparing the Division and this is what I have done. I think any military man would agree with me in this: war is a dirty, ugly business, don't let anybody be under any other concept. When you get to war there is no place lower to go, everything else has failed, it is dog eat dog and the fellow who wins, wins—we think—and the fellow who loses, loses; sometimes it is a debate as to who wins. When you get to that type of condition in war your whole concentration of mental and physical effort is determining the war successfully. I know after the war there are many people who criticize the national leaders for the action they took at that time. You all know the old expression about the Monday morning quarterback. I have seen war. I commanded a squadron in the last war and lost it in terms of men more than twice over. I buried some and wrote letters to all the dependents. I took part in the first thousand bomber raid. If you have to get in it, the only way you can win is with highly skilled troops, determination, and the best equipment you can lay your hands on. You can draw your own conclusions out of that, gentlemen.

Mr. MATHESON: With reference to tactical support, strike reconnaissance, are we dealing with a bomb which is approximately three times the size of the bomb which was dropped on Hiroshima or larger and if this is so are we not on a bombing mission.

Mr. BRADSHAW: It is an extremely difficult question to answer staying within the bounds of security. We have a small airplane which obviously cannot carry a tremendous size bomb. I would say that it is a small bomb in the nuclear field, whether it is bigger or larger, I don't think I can actually answer that properly. But, I would put it this way: I think we would have to use more than one CF104 to do the same damage.

Mr. SMITH: How many other—the Air Forces of how many other countries are being equipped in the strike role and how many will have Air Force squadrons stationed in Germany? In other words, Belgium, Holland, Britain, France, Germany, will they all have squadrons with the same role as the Air Division?

Mr. BRADSHAW: To the best of my knowledge all or the majority of NATO countries will be equipped.

Mr. SMITH: We realize, even as civilians, the ones such as Turkey and Greece and so on—

Mr. BRADSHAW: In Germany you mean?

Mr. SMITH: Yes.

Mr. BRADSHAW: We are in Germany, the Germans are in Germany, The British are in Germany, the US is in Germany, and the French are in Germany.

Mr. SMITH: Are the Dutch and the Belgians, those are the ones I want to know about?

Mr. BRADSHAW: I don't know.

Mr. SMITH: A supplementary question then. I take it all these countries that were mentioned are or will be in a strike role.

Mr. BRADSHAW: Let us put it this way: All the countries that I have mentioned have or are being equipped with nuclear forces, where they have the nuclear forces located is something I cannot answer specifically.

Mr. LESSARD: Back to the social problems, I would be interested in finding out how many French-Canadians you have here and how many French-Canadian children you have here and whether you are teaching French in the schools here?

Mr. BRADSHAW: Mr. Lessard, that is a question I anticipated and I really can't tell you. I had never given it much thought. So I phoned my Senior Personnel Staff Officer and I said "Ernie, how many French-Canadians do we have here, officers, nco's, men any combination?" and he said "I can't really tell you, we don't keep track of them. We make no distinction". We can't say there are 227 English here and 34 French-Canadians, we don't know.

Mr. LESSARD: What about their lessons? They are learning English only, they are not teaching French?

Mr. BRADSHAW: We have French instruction in the schools, it is predominantly English. The instruction is predominantly English. The CO can tell you more about that than I can.

G/C LAUBMAN: The classes are in English but French is available, sir, from Grade 5 on.

Mr. LESSARD: Is there any distinction in teaching the French or English speaking children or do they all follow the same curriculum?

Mr. BRADSHAW: They all have the same curriculum. It has been one of our greatest worries; as you know, our teachers are from all across Canada and our children are from all across Canada, from BC or Quebec or New Brunswick, and of course in that province they were taking the curriculum of that particular province. Trying to run in our schools the curriculum of any particular province is just an impossibility. We have had several goes at this over the years and at the present time, through trial and error and studying the results of the children after they go back to Canada, we are following the Province of Ontario in our high schools and in our public school we have a curriculum now that we feel, that Dr. Patton feels, that is completely competent and will permit the children when they return to Canada, wherever they go, to fit right into the educational level.

An hon. MEMBER: I would like the Air Marshal to say, if he can, if the control provisions for the use of the nuclear armament are satisfactory from an operational point of view?

Mr. BRADSHAW: I take it you are talking about the inter-governmental committee or the technical arrangements?

An hon. MEMBER: The technical arrangements, the one that the Air Division is involved in.

Mr. BRADSHAW: That has not been completed it is in its final stages and is in the Minister's hands at the moment, certainly it is in Ottawa. I think you would have to ask him whether it is suitable or whether it is acceptable to the Government or not. We have little feeling in this matter, we work as directed.

An hon. MEMBER: The question was for the purpose of determining—because the Air Division was using the weapons—if those provisions, the physical arrangements for their use would be satisfactory?

Mr. BRADSHAW: As presently envisaged, yes.

Mr. HAHN: The last two or three days proceedings have been centered around conventional war in Europe and the visibility of the limited nuclear war. In your opinion are either possible in a full-scale war?

Mr. BRADSHAW: You will appreciate I have read the minutes of your meetings and have lost track of how many times that particular question was raised by members of your committee and have lost track of the number of answers given and obviously by people at least senior to me and probably more competent too. Gentlemen, anything can happen in war. Who in this room can stand up and say the war will be conventional, limited nuclear, all out nuclear or any combination thereof? You don't know. My answer, therefore, is that we have to be prepared for any eventuality.

Mr. HAHN: Would the role of the Air Division take part in limited nuclear war or all-out nuclear war?

Mr. BRADSHAW: I can't answer that. The decision as to when we participate, in what manner and at what stage will be done by SACEUR and the Canadian Government. I don't know at this moment what is being arranged by Canada in terms of "Yes, the Air Division can be used in nuclear war", I do know at the present time in the operational chain I outlined to you that our instructions would come from SACEUR. How he gets the permission, I don't know at this time. I will know, I suppose, in due course and how and when he proposes to use us I am sure would be dictated by circumstances.

Mr. HAHN: Surely, with the size of the weaponry you could give the committee—it would be a potent striking force—and you could tell us if it would only be used in an all-out war?

Mr. BRADSHAW: Let me give you a few parameters against which you can form your own answer. As I said earlier—and I am sorry if I offended anybody —War is an ugly business and I also mentioned that I was on the first thousand bomber raid. In that raid there were more than a thousand bombers, but let us say there were a thousand. It was comprised of four and two engined bombers and let us say there were 3000 engines thumping away carrying this force aloft. This is the average between all the four engine and twin engine aircraft. The average aircrew of all those different types of aircraft—Hampdens, Wellingtons, Whitbys, Lancasters, Stirlings and lord knows what else—was probably in the order of six, so that is six thousand aircrew, airborne. The average weight of bombs and by that I mean different types of bombs, incendiaries, the weaponry, was probably in the neighbourhood of two and a half tons. I think it was actually in the order of 2,200 tons if my memory serves me right, we will say 2000 tons just by way of loose figures. The time taken to complete this was an hour and a half over the target. That is the time it took for the whole force to pass over the target. And the total duration of the whole trip was in the category of five hours flying time. Some took a little longer, some were quicker, depending on the type of aircraft and where they took off from. Now, you can see what was required for two thousand tons on target. With the bombing equipment we had in those days, a large portion of that weight of bombs fell on other than the target, such as the outskirts of the city. The target was Cologne. So some factor, roughly 70 percent, this is sheer guess work it was so long ago, fell in the main target area. We will be generous and say 70 percent. If somebody said 40 percent, I would still believe it. Now, what did we do? According to the reports at that time, we burned up 935 acres, I don't know how many were killed or wounded or made homeless. Now, we get over here. I have got one engine, not 3000, I put one aircrew, I put one minute, if the distance is roughly the same, I put one and one half hours, if he gets to the target, I will put down, like Ivory Soap, 99.9 percent, and the damage he will do, I don't know, but it will ballpark for that. Now, I am not saying one bomb is equal to 2000 tons. I am not even giving a close

approximation, but I am saying is a large destructive effect and a large destructive effect in the ballpark, there is the difference. This is nuclear. If I take one engine, one aircrew one times 1000 bomb, conventional bomb, one minute, one and one half hours, I will probably do damage of some decimal part of one acre.

Mr. WINCH: That is the clearest answer we have had from anyone.

Mr. BRADSHAW: I would caution you again, gentlemen, one bomb and 2000 tons of conventional weapons as used in World War II are not equivalents. I was just making a picture. I might conclude by saying insofar as I know the nearest thing to a nuclear explosion done with nuclear weapons, the nearest thing to damage with conventional weapons which would equate something of this nature would be the "Fire" raids on Hamburg in July 1943 when the RAF Bomber Command went over three times and the USAF twice in three days and nights and the first reports were there were 35,000 killed and 375,000 wounded and homeless. These figures were conservative at the time, but it was caused by what they call the "Fire" bomb. But it was a fantastic effort with a fantastic result.

An hon. MEMBER: Supplementary question then. Could these targets be defined as a demographic target? What I mean is is it mainly a military target or a large city where large numbers of population live?

Mr. BRADSHAW: I am glad you asked that. Targets in the tactical sense are not population centers but in the tactical sense targets are those which are military in nature. Supply dumps would be a good example, large troop concentrations, naval port where there is ship building going on is a military target as opposed to what was done in World War II at one time—bashing cities—this is the difference. Tactically we are on military targets. Now we would be very naive to think in the course of war, which, as I say, is very brutal, that some civilians are not going to get hurt.

An hon. MEMBER: I asked the question because you gave Cologne as an example.

Mr. BRADSHAW: Normally, I gave this because in the history of war aviation this was the first time a thousand aircraft were on one target. This was in '42, I think it was.

Mr. WINCH: Going back. Considering no change in the French policy regarding no nuclear warheads on French soil, how long would it take you to arm your two squadrons in France if their nuclear warheads are outside of French soil. We asked this in Canada and they don't know.

Mr. BRADSHAW: The answer I know, the Air Marshal, I wish I had his answer here, he said in a very few hours or in less than an hour.

Mr. WINCH: Can you make it better than that?

Mr. BRADSHAW: We have an old saying in the Air Force: "The difficult we do immediately, the impossible takes a little longer". Tomorrow in terms of what you are going to see we will give you a simulated loading, it won't be precise and for security reasons we can't make it so but it will give you a feel for the type of answer you are looking for.

Mr. WINCH: If you could give us some idea of the speed of the plane as well.

Mr. BRADSHAW: The speed of the plane is Mach 2 which is twice the speed of sound.

Mr. MACINNIS: I was going to try and pin it down a little closer. Your non-nuclear squadrons will scramble, I believe, to bases in Belgium and Germany, what procedure what training procedure has been worked out involving the time factor and this is exactly what Mr. Winch was asking.

Mr. BRADSHAW: At the moment none. The squadrons in France are just receiving their equipment and they have a long procedure to follow before they start getting a procedure, if that is the policy. At the moment we haven't worked out a policy.

Mr. MACINNIS: Then, as was stated in Ottawa, the estimate of less than an hour is only an opinion at present?

Mr. BRADSHAW: It is opinion in a sense that it hasn't been done, but you must remember that many of us sitting right here in this room have 20 to 30 years experience in aviation and in operations at assorted times so I would say that our opinions are quite accurate.

Mr. WINCH: In conjunction with the preparation that is going on in France at the present time, is there a similar preparation going on at the bases in Belgium and Germany?

Mr. BRADSHAW: No, at the moment it isn't necessary. We will know more definitively where we are to go and what we are to do when some of these areas have been cleared up at policy level and the government has made up its mind.

Mr. MATHESON: Air Marshal, in your judgment we have come to the time when we have to spend more money relatively and absolutely on equipment?

Mr. BRADSHAW: I don't know what you mean.

Mr. MATHESON: The portion of the air dollar has declined more than 50 percent since Korea and you are in service for your third year, I believe, in Europe, in your opinion should we be thinking in terms of larger expenditures towards equipment or has it suffered?

Mr. BRADSHAW: I think you have got to come back to "Square One" here. The parliament has got to determine first what its defence policy is going to be, and secondly, how much they wish to contribute towards defence policy. Only then can we determine how much we can get for your defence dollar and then you have to determine whether this is enough or not. You have had various people in front of you, and Air Marshal Dunlap was one, I can't recall others, who told you that for years we have been faced with a slowly declining defence budget and a rising cost in the price of all the equipment that the services need. It takes no stretch of the imagination to see that at some time these two lines have got to cross. Now, under the pressure or impetus, if you like, of that situation, I think all three services have been striving with might and main to economize, if you will in the sense of getting more defence out of the personnel and equipment and you can only do it to a certain point and then—to use a fishing phrase—cut bait. It isn't for me to say whether to spend more or not, I think it is safe to say that no general or air marshal or admiral was ever satisfied with what he got.

Mr. BREWIN: I don't know if it is within your field or if I should be asking you, but is it reasonable to assume that the USSR has strike reconnaissance planes and equipment and so on of roughly a similar nature to what we have?

Mr. BRADSHAW: I will answer it this way. Many years ago, not that many years, just after the war, a very famous US scientist who was very high in government circles during World War II was giving a lecture and he said it was a proven thing when you have large nations endowed with a good share of natural resources and who are educationally and culturally on the same level that in any scientific achievement of a major nature if one discovers it the other is not far behind. I think he said this could be proven over literally hundreds of years. I think it is true that the USSR is a very large nation, wealthily endowed, scientifically very advanced, the Sputnik will support that. Therefore I think it is safe to conclude that their land, sea and air forces have all the elements of weaponry formations and that their equipment by and large will be in the same ballpark of efficiency as ours.

Mr. LESSARD: Suppose that you are a Russian and that you have decided to launch a nuclear attack, don't you think that your targets will be here and the other nuclear base which will have nuclear armament and that you will neglect the other two bases which are in France and are without nuclear armament and which will be useless and which are useless right now?

Mr. BRADSHAW: In war nothing is useless, Mr. Lessard. You are making the assumption, I think, that we are going to be sitting here and get hit out of a clear sky, with no warning, no indication. I know one shouldn't throw questions at the committee, but I can't help but feel "Who says we are not going to get any warning?" If we get a warning, this base will probably go. If one assumes that their weapons are indeed zeroed in on this base. But, the chances are it will be too late and they won't be successful in stopping us. You see, if you use your conclusion you could apply it to all military installations and say "What is the use of having them?" You must put yourself in the other person's shoes, he knows he is faced with an efficient professional force who is as well or better equipped all the time and he gives us credit for being as fast off the mark and as efficient as he is.

Mr. ASSELIN: Air Vice Marshal, you were very high in your opening remarks with regard to the personnel you have here. I wonder could you tell us with regard to personnel if you have sufficient personnel to carry out the task assigned to you here?

Mr. BRADSHAW: I don't know. I am not quite sure now the size and shape we are going to be in after the deliberations of your committee and the review the government is currently doing. Assuming that nothing changes in terms of size and shape in the government's deliberations, I would say that fundamentally we have sufficient. There may be some increases in certain areas now that the technical arrangements are just about complete, we have been working on this for some time and we are beginning to find out that in some areas we are a little above strength and in others just about right. In the main, I would say "yes", it will be adjustments rather than any massive increase. If they increase the role we will need more personnel.

Mr. ASSELIN: In relation to your present role and present task?

Mr. BRADSHAW: I think we are about right. We pride ourselves and if it sounds like boasting, it sounds like boasting, but I believe it. We pride ourselves that we have airmen, aircrew, ncos and ground crew that in terms of esprit de corps, ability, training, are second to none and we can do jobs others have difficulty in matching.

Mr. LANIEL: Could our Air Division in Europe become able to participate or fulfil its role of a striking reconnaissance role and at the same time have the option of being able to participate in a non-nuclear war?

Mr. BRADSHAW: At the present time we have only one role given to us, the role we have trained for and one role we are working on and it is nuclear strike reconnaissance; that is, within 4th ATAF we have not given any thought to any other roles higher authority is dreaming up for us, if indeed they are.

Mr. LANIEL: Supplementary question. Could his be done with the vehicles we have?

Mr. BRADSHAW: Air Marshal gave you the answer to that. If you mean right this moment, the answer is no. If you mean to spend some more money and do some more re-training of aircrew and groundcrew and buy some more equipment, then anything is possible.

Mr. MACLEAN: Do you feel from the operational point of view, the efficiency point of view, do you consider the length of rotation is much too short and the efficiency would increase considerably if the length of the tour was increased to five years?

Mr. BRADSHAW: No, I think we have it just about right. I know other services envy our stability. I think this is one of the reasons we have done so well here. Our people have been here a sufficient length of time to become very proficient in the area and in the military organization in which they work and have worked together a sufficient length of time to get that team work going which is so essential. It is just about right as I outlined in that paper. We don't want to increase it and if we decreased it we are going to suffer.

An hon. MEMBER: As far as morale is concerned, do the people get dissatisfied or homesick, if you want, towards the end of their tour? Does their efficiency go down towards the end of their tour?

Mr. BRADSHAW: The efficiency does not go down. I think it is only human if you have been away from your country for four years to look forward to returning to Canada to see your relatives that you haven't seen for four years but on the other hand we have quite a number who practically beg to stay over here for another year. In the odd case we consider this if they have a particular reason for wanting to stay. In the main "no", they go back and the morale does not drop at all.

An hon. MEMBER: I didn't use the correct term in the military sense at all. What I meant was do the welfare problems increase or decrease in the length of time the families are here?

Mr. BRADSHAW: I don't think there is any relation between the two at all. I would say that the very fact we have the families here in area and within the bounds that I have described, our people live just as normal lives as they do at home and have their ups and down and such like.

Mr. SAUVÉ: Thank you, Air Vice Marshal Bradshaw. The sitting of the committee is adjourned to the call of the Chair.

November 15, 1963.

Group Captain D. C. LAUBMAN (*Commanding Officer 3 Wing, RCAF Zweibrucken*): I would like to formally welcome you to 3 Wing. We are pleased that you selected our base as one of the stops on your busy tour to see our temporary home and our facilities. We are proud of our home away from home and of the job that we are doing over here and we welcome the opportunity to show you both.

This briefing will take approximately 20 minutes and has been designed to familiarize you with:

(*a*) The organization of a typical Canadian Air Division Wing;

(*b*) The changes which have been necessary as a result of our conversion to the CF104 aircraft, and finally;

(c) How we are going about the job of preparing for our new role.

Following the last portion of the briefing which will concentrate on those elements of our activity that differ from other RCAF organizations of which are peculiar to our new role, we will give you a conducted tour of the Wing to demonstrate those things about which I will have been speaking. So that we can keep this group intact and to permit us to answer any questions you may have while travelling from point to point we will use the bus for the tour of the station and the Air Vice Marshal and myself will accompany you.

Organization

As Air Vice Marshal Bradshaw explained to you yesterday the RCAF Air Division is responsible in different ways to two separate headquarters one of which is national and the other international or NATO. So too is this Wing.

I report to the AOC, 1 Air Division on all matters concerning training, administration and logistics both material and personnel. Operational control, however, as the Air Vice Marshal mentioned is vested in the NATO organization and flows from SHAPE down through 4 ATAF and thence direct to the operational Wings with the Air Division Headquarters monitoring such control. Since we are not at the present time combat ready, the NATO channel is not now active and all of our control is being exercised by our national headquarters.

The Wing itself is organized along fairly conventional lines. We have three major branches each of which is headed by a Wing Commander. The first of these is the operations branch which controls the flying activity and those services except technical which support it directly. The heart of the operation is of course the flying squadron of which we have two. Both are equipped with the CF104 aircraft and are staffed with very experienced and competent pilots. As a matter of interest our average pilot is 33 years of age, is married and has 2⅓ children. He has flown 3600 hours of which 2200 has been on jets and approximately 225 on the CF104. In order that this man can maintain a high standard of proficiency on an aircraft as complex as the CF104, he is required to fly it approximately 20 hours per month. So that maximum benefit will be derived from this flying and in those aspects which will be of most value to the pilot should he ever be required to perform in his operational role, a whole series of training exercises have been devised to help him keep the necessary skills sharp. Two of the most important phases of this training are navigation and bombing practice. Of these the majority of our time is spent in perfecting the art of navigation with special emphasis on precision of location and of timing. If the weatherman will co-operate with us this morning, and at the moment this is in doubt, we should know definitely in an hour, so that you will be able to witness the act itself, we would like to give you a demonstration of our capability in this regard and to do so I have asked two of our pilots to come here prepared to fly a navigation exercise. These officers, Squadron Leader Annis and Flight Lieutenant Price, both fit the description of the average pilot fairly closely. One point of interest concerning these officers is the fact that they were both members of the original Golden Hawks team, a group about whom I am sure you have both heard and seen a great deal. On the map behind me you will see two routes. Squadron Leader Annis is going to fly the red one and Flight Lieutenant Price the one which is marked in blue. Each of these officers may arrange his own departure time but I am going to ask him to fly his route and arrive back over the aerodrome at a specific time which will be 11.20 for Squadron Leader Annis and 11.21 for Flight Lieutenant Price. Squadron Leader Annis, would you give the time, please. (Squadron Leader Annis gives the time 8 minutes past nine (a.m.)).

We will position ourselves out on the airfield to watch their return where a large clock will be available. For your information, the aircraft will be at a height of 300 feet and a speed of 600 knots when they cross the aerodrome. They will at the completion of this exercise put on a brief flying display for your benefit. We will now excuse them so that they can prepare for their flight.

One other aspect of the flying training program which is worthy of comment is our bombing practise. This training as the Air Officer Commanding has already told you is carried out at Decimomannu in Sardinia. Our pilots go to Decimomannu periodically for a session of concentrated training during which they drop a number of practise bombs using the range facilities available there. This training culminates in the dropping of a larger 'training shape' as it is called. The pilots' accuracy is assessed on this exercise and if the results are satisfactory he is considered to be qualified. You will have an apportunity later this morning to see the practise weapons which are used for this training.

Before leaving the aircrew I should mention that all CF104 conversion training is done at Cold Lake in Canada. Thus, when he arrives here the pilot is thoroughly familiar with this aircraft and it only remains for us to familiarize him with flying in the European environment here and in the type of weather which we encounter here. In this regard we operate a Wing Instrument Flight equipped with T33 training aircraft on which our pilots do their instrument flying practise.

With the exception of the Wing Operations Centre the remainder of the operations branch is completely standard and is not worthy of special comment. I mentioned earlier that operational control is vested in the NATO organization and flows direct to the Wings from 4 ATAF. In our case, it will go to our Wing Operations Centre the staff of which will be responsible for directing and controlling the operational activities of this Wing. As a matter of interest the room that we are now sitting in will become the operations centre for 3 Wing. A project is just starting to convert this room to an area where boards containing such information as the availability of aircraft and personnel can be displayed and where our operations staff will work.

There are several features of the administrative branch of this Wing which are peculiar to our European location and which may be of interest to you. One of these is in the employment of civilian personnel. We are required by the NATO Status of Forces Agreement to hire, where possible, citizens of the host nation to satisfy our requirements for civilian labour. The conditions of employment, including wages, holidays and hours of work are as specified by the German Tariff Agreement which document could be compared roughly to the Canadian Civil Service Act. Some of the provisions of the Agreement differ greatly however from what might be called standard practices in Canada. For example, a German civilian employee is entitled to six weeks of sick leave with full pay each year and the prevailing attitude toward this provision is that since it is an entitlement all will take it. The result is that we can seldom count on having more than about 80% of our civilian employees at work at any time. To further compound this situation is the shortage of persons suitable for employment. This latter fact is due of course to the very high level of employment which prevails in Germany at the present time.

Another departure from the normal practice is in the nature and size of the non-public operation at the European Wings. By this I mean the provision and/or operation of a number of facilities to provide for our servicemen and their dependents a number of goods or services which are required for either or both for two reasons:

(*a*) It can be classed as desirable or essential and cannot otherwise be obtained.

(*b*) It can be considered as desirable or necessary by Canadian standards but, because of its high cost, procurement through our resources would impose undue hardship on our personnel.

Examples of the former would be our theatre, bowling alley and curling rink and of the latter would be our station store and the provision of gasoline for private automobiles. The goods and services thus provided do much to maintain the high morale for which the Air Division has always been renowned.

Several other features of our domestic operation are worthy of note. We have 400 married quarters and in addition to these another 500 families live on the German economy. European accommodation is quite austere by Canadian standards however in this area we are somewhat better off than most. In addition to housing this number of people, we provide schooling for over 1,000 children. To teach these youngsters we have 58 teachers who have come from all parts of Canada for what is normally a two year tour.

Another aspect of our administrative branch which is sufficiently different to warrant attention is the whole question of security and more particularly the means by which we enforce it. If this Wing should be equipped with nuclear weapons, it will be necessary and understandably so for us to maintain a very high level of security. To do so will require a comparatively large number of trained security personnel. If, however, we did not have sentry dogs the number of men required would be much higher. You may find it difficult to believe that one dog can do the work of 4 or 5 men but I think you will more readily accept this statement after you have seen the dogs perform later on this morning. In fact these demonstrations have been so effective and word travels so quickly that all we really need do is post signs which say that the area is patrolled by sentry dogs. I have not yet seen anyone who would be willing to question the statement.

Before leaving the administrative branch I would mention that we have a 70 bed hospital and associated medical staff on the Wing who, in addition to looking after all the personnel of this Wing, also handle the more difficult cases from the other Air Division units.

Finally we come to the technical branch which, as might be expected, includes the majority of the personnel of this Wing. I have made passing reference to the fact that the CF-104 is a complex piece of equipment. This fact has a profound effect on our maintenance operation in both the volume of work which is required to keep the aircraft operating satisfactorily and also in the skill levels that are needed by the tradesmen who work on the aircraft. The first of these problems is solved in much the same way as in any large factory, we run a production line. All work that is similar in nature is funneled to one spot where the technicians who are skilled at performing those tasks and the specialized equipment which is required by them are concentrated. The resulting operation is much more efficient than it would be if we asked the tradesmen to perform a greater variety of jobs. This "centralization" of resources is effected in two principal areas. First in what we call maintenance where all of our scheduled or planned work on the aircraft takes place. At periodic intervals, determined by hours flown, the aircraft must undergo a thorough inspection and overhaul. This operation is not unlike the activity of an automobile on the assembly line. The other area is called servicing where all of our unscheduled work, or snag rectification to use our terminology, takes place. Any aircraft which develops a fault during operation is taken to the central servicing area where again specialist crews and equipment are available to correct the trouble in minimum time. Although we are centralized here to a much greater extent than most RCAF stations we feel that the system is paying dividends.

The other important demand made upon us by the CF104 is the requirement for comparatively high levels of skill in our tradesmen. These are obtained first by employing only experienced personnel on the CF104 and secondly by giving them special training. For this purpose, we are fortunate in having at 3 Wing, the Air Division Field Technical Training Unit. This is a school which employs highly qualified personnel as instructors and in addition has an invaluable set of instructional devices. Each of the classrooms is equipped with an actual or representative working model of one of the aircraft systems. Lectures on the particular system are given to the aircraft technicians, and pilots as well I might add, who are able to progress to much higher levels of knowledge than has ever been the case heretofore without actually working on the aircraft. During our tour this morning we will go to the FTTU where you will have an opportunity to examine some of this equipment and listen to an instructor give a very brief description of one of the aircraft systems.

As a result of our conversion to the CF104 aircraft and the attendant switch in role, many changes have taken place at 3 Wing. In the first place we now have two Squadrons rather than three. The dispersal area which was occupied by the other Squadron is now the centre of much activity on the part of construction crews who are converting it to our Quick Reaction Area. Facilities are being constructed to accommodate those aircraft and crews, both air and ground, which this Wing will be directed to maintain on a high state of readiness. This area, which must be accorded a high degree of security, will be fenced and access to the area will be rigidly controlled. Both air and ground crews will remain in the area for their full tour of duty, likely 24 hours. Food and adequate accommodation will be available to them in the QRA. Adjacent to the QRA is another area designed for high security, the Special Armament Storage or SAS area. It is here that the weapons would be stored in the custody of United States personnel. I might point out that the funding, the specifications and the contracting for both these areas have been handled by NATO staffs. Our tour this morning will permit you to see both sites.

Another unusual aspect of the CF104 operation, at least as far as the RCAF is concerned, derives from the fact that the 104 lands and takes off at very high speed. Should anything go wrong during the take-off and it should be necessary to abort or if the braking action should be bad during a landing, it is unlikely that the aircraft could be stopped on the runway. Serious damage would be the certain consequences. The CF104 is fitted with a drogue chute which is used on every landing to assist in braking the aircraft, this, however, is itself subject to the occasional failure and so it has been necessary to provide a positive arresting device for emergency use. We turned for assistance to those who had the most experience along these lines and have installed on our aircraft and on our runways a hook-arrestor barrier combination of the type the Navy have used for years. Because of the geography of 3 Wing, which has resulted in our runway being built on the levelled-off top of a hill, we are particularly pleased to have this equipment and have in fact had occasion to demonstrate its value to our complete satisfaction.

This closes my briefing and we have to keep on schedule this morning, we would like to keep on schedule if possible and after the Air Vice Marshal's comments, we will proceed to the bus.

A/V/M BRADSHAW: I would like briefly to pass on this information; firstly the Alsatians are large dogs which have a crunching power of approximately 600 pounds to give you some idea of what this dog would do if he bites you. The average one runs from 85 to 95 pounds. The one I have weighs around 120. The other one is; because of the advances in technology in the world of electronics, the introduction of transistors and devices, you may have thought the equipment in this CF 104, which if I went back to World War II, in the way we constructed things the way they were built, the same computors, radios and such, in the advance of technology of twenty-five years ago, I doubt if we could get it in the North Star, so you will realize why we have some black boxes which contain the equipment.

November 16, 1963.

Address by Brigadier M. R. DARE, DSO, CD,
Commander, 4th Canadian Infantry Brigade Group

The CHAIRMAN: Gentlemen, the meeting will now come to order.

Brigadier DARE: Mr. Sauvé and gentlemen. First I would like to give you a welcome on behalf of all members of 4th Canadian Infantry Brigade Group and Canadian Base Units in Europe. I can't really properly welcome you to Germany because I know you have been in Germany certainly but not to our part. I thought it would help firstly if I just outlined our programme which I

have planned for you. We propose first of all to use this cloth model (placed on floor before the members of the Committee) to illustrate the tasks and roles of a typical deployment of the major components of the Brigade Group. I intend to use our last major field exercise as a background for this. This will be followed by a briefing by Colonel Clement Dick, whom you have all met before, the Commander of the Base Units in Europe of the Garrison aspects of our Force here which would include our peacetime locations and some of our base administration—schooling, housing and so forth. Following this, we will have a coffee break and we will then leave ourselves an open period for questions which the Committee may wish to have. After that we have arranged for you for the balance of the morning a display of the major equipments of the Brigade Group and these are the equipments that I have been talking about in their tactical employment in this first presentation. These equipments are all manned with their full crews hence you will have the opportunity of seeing them at it and any detailed discussions you wish with them as to how they employ their own particular specialty. After lunch at 1400 hours we have an hour long display outdoors which is the fire control centre of the Infantry Battalion, its battalion group, supporting arms and so forth. Following that briefing by Major Peter Hall we will then take a quick trip of about five minutes to see the Reconnaissance Squadron giving a very short demonstration of how the information is located from the air and ground point of view. The level of this briefing is unclassified. Of course the reason, I am using our recent exercise as a background. I would emphasize that the locality in which we are using for the exercise and the skills of attack have nothing to do with real life operational circumstance. But again I hope by this device to be helpful to the Committee and let you get the feel of the battle as we see it.

I have got with me here a panel of experts and any individual questions that I can't answer, I am sure that they can. Now firstly, as you are all too familiar, our force, our Canadian Army force, the Brigade Group, is assigned to NATO by our Government of Canada, and the Supreme Commander, General Lemnitzer, has in turn grouped our force to work in concert with the British Army and to be grouped tactically with Northern Army Group. And again to get the feel of it, it might be helpful to know that Northern Army Group consists of course of ourselves, British forces, German forces, Belgium forces and Netherlands forces. Our formation is a self-contained team of all arms and the administrative services required to support us tactically in the battlefield. Possibly just to—I know you have had a handout on what comprises the brigade group—it might be just helpful to refresh your memory by using this chart and I won't confuse you with a lot of figures, but just to illustrate the brigade's tactical force and the logistics force of the tactical group, I keep stressing this, because as you will appreciate there is one type of administration for the field and there is another type for Garrison which is Colonel Dick's complete responsibility.

The first thing we have, even though there is not a gun on parade, we have on the line the artillery. This is a full Regiment of 24 105 guns. These are, I think you are aware, American equipment. Next is a regiment, but not under its command, is our Surface to Surface Battery Missile Battery, allied with it, 4 Honest John Launchers. And here, gentlemen, again you will see these launchers this morning. Next is an armoured regiment of some 44 Centurion tanks. These tanks are as modern as we can make them. They carry the 105 millimetre direct fire anti-tank gun. This gun is the equipment that the Germans are putting in their new tank. We have continued to improve this vehicle but fundamentally of course as you appreciate it was designed in 1950, the British Centurion tank, but it it is a fully operational machine at the moment. Next also part of the Fort Garry Horse (the armoured regiment),

and insofar as regimental affiliation, but an independent unit working directly under me is a Reconnaissance Squadron, the Brigade Reconnaissance Squadron; this is equipped with two major pieces of equipment first a light helicopter, a 'Hiller' which you will see and a 'Ferret' scout car. The scout car carries only a .30 Browning machine gun. Next is a field engineer squadron. This squadron has the equipment to meet all of one's field engineer requirements. This goes from either demolitions, if we are on the defensive, to construction if we wish to repair a bridge or a road or build an air base. Next is a signal squadron, which I will not deal in any detail, except to say it is sown throughout the Brigade in order to communicate with each and every unit. Its purpose, device, lies really in battle or exercise, control the tactical or the administrative operation of the brigade group. We have a new set, the C42, and by this, I want to get it quite clear to you, this is a verbal means of how one issues one's orders over this wireless communications system. Next are three (3) infantry battalions; first The Royal Canadian Regiment, which is from the Ontario area at London, and secondly The Black Watch, who are fundamentally an eastern regiment in Camp Gagetown or that part of the country, and lastly just in the throes of transition now are the Queen's Own Rifles handing over to the PPCLI who are from Victoria. Here again I won't confuse you with figures, I will just show you the equipments of the infantry battalions, they have a tremendous amount of fire power in relation to what we used to have and know, those of you who have in the Army in World War II, for a simple example, the 81 millimetre mortar is now a company weapon. This used to be a battalion weapon. You will see that it has replaced the 4.2 which used to be an artillery piece. You will also see a large increase in the automatic fire power capability of the battalions.

In turning to the logistical support of the group, and I do say the tactical logistic support, first we have a Transport Company of the Serivce Corps which has 128 load-carrying vehicles. These are the carriers of all our bulk commodities, our ammunition, our fuel, our food or anything else, mines, demolition materials required for operations. Next is a straightforward field ambulance, which looks after any casualties within the brigade tactical group. Dental I won't dwell on; there is again throughout the units attached a Dental officer. Ordnance Field Park, these carry immediate battlefield replenishments of either vehicles or equipments which may become a casualty as a result of enemy action or unserviceable. Next a Workshop which is capable of repairing the whole range of equipment in the Brigade Group. This covers everything from fixing a watch to a helicopter. Next, the obvious one, a Postal unit, again a very small unit, a simple function; and lastly the Military Police, a Provost Platoon. This force is there to control the traffic, control prisoners of war, run the PW cages, and again those of you who have been in service, there is no fundamental change since then.

Now, gentlemen, that is the operational side. I would like to now ask Captain Bill Moorhouse (Intelligence Officer) if he would put on the model (floor model in view of the Committee Members), a portrayal of the exercise intelligence ("Exercise Intelligence"), to set off this part of the demonstration.

Captain W. H. MOORHOUSE (*the GSO 3 (intelligence) officer*): Gentlemen, the model in front of you represents an actual area on the ground. For the purposes of this demonstration, two European countries are considered, "Brobidnac", which we shall refer to as enemy territory, and "Lilliput", which we shall refer to as friendly territory. (Assistant points to locations on 'model').

The political situation is that BROBIDNAC, the stronger of the two countries, has designs on some of LILLIPUT'S territory. Canada has treaty obligations with LILLIPUT and has agreed to provide an Infantry Brigade Group, the 4th, and a limited number of nuclear weapons in the event of LILLI-

PUT being attacked by BROBIDNAC. If this happens, the area allotted to the 4th Canadian Brigade will be the area you see on the floor model.

Before giving you the Intelligence appreciation of the enemy threat to LILLIPUT and the 4th Canadian Infantry Brigade Group, let me describe the area that we are concerned with and some of its geographical features.

First we have the International frontier between BROBIDNAC and LILLIPUT. (Assistant points). Next, the border between LILLIPUT and the neutral country in the north. (Points). Then the operational boundary between 4th Canadian Infantry Brigade Group and the LILLIPUT Guard Brigade. (Points). At this point I must mention that the real border between East Germany and West Germany lies some distance to your right off the model. (Points). This training exercise was carried out with Canadian troops facing west, to your left (facing the Committee Members), so as to avoid any possibility of incidents on the actual West German-East German border.

To go back on the ground, the Leine River, a water obstacle, runs here. (Points). The distance from the north to the south, (Points) is about 23 kilometers or approximately 14½ miles. The Zweigkanal Hildesheim, another water obstacle, lies here. (Points). There are heavily wooded features here, Diester (Points), here, Kleindeinster, (Points) and here, Osterwald, (Points), also here, Vorholz, Fort Garry Horse, (Points) and the feature south of Hildesheim. I should like to call your attention to these areas of extremely flat ground; here, east of the frontier (Points) and here, east of the canal, "Zweigkanal Hildesheim", (Points). As you gentlemen can see, there is good pattern of highways and roads through this whole area. To name just a few of them, we have from the west, three good highways here. (Points). Then we have the Autobahn (highway), running roughly north-south. (Points). Also, coming out of neutral territory, there are several good roads running south over the Weser-Elbe Kanal (canal). (Points). The towns and villages all have their names printed by their side on the model. There are numerous bridges in the area. However, for our own purposes, I will point out just a few of them; two (2) on the Leine River here (Points), and here (Points) two (2) on the canal and two (2) on the river here. (Points).

So much for the ground itself. Let me now consider the threat to the 4th Canadian Infantry Brigade Group as seen by the Intelligence Staff. In this exercise, which is purely illustrative of the sort of tactics which this Brigade might be up against, it was appreciated that the enemy would be able to launch his operation with a superiority of at least 4 to 1 in tanks. As far as Armoured Personnel Carriers are concerned, one cannot make a ratio comparison of the enemy on the exercise, having these in abundance, whereas 4th Canadian Brigade had no armoured personnel carriers at all. In addition, the enemy had heavy support weapons such as mortars and tank killer and logistic support. It was considered that the enemy would aim to seize initial objectives across the Zweigkanal Hildesheim (Points) and further objectives, perhaps much further east. (Points). The Intelligence Staff also considered that the enemy would be able to close up to the frontier (Points) very quickly once relations between BROBIDNAC and LILLIPUT had worsened to the point where war was inevitable.

It was also appreciated that, despite the presence of neutral country in the north, (Points), the enemy could conceivably violate this neutrality and pose a threat into our northern flank.

Brigadier DARE: Well, gentlemen, it was against that background that I was faced with formulating my plan for the exercise. I would like to point out that the exercise was controlled by Headquarters 4th British Division and at that time it was commanded by General Jean Victor Allard, who, as you all know, is a Canadian. The enemy force was entirely German, it con-

sisted of a Panzer or tank elements and a full directed Infantry brigade. My appreciation for the battle was to attempt to fight it in three phases. Firstly, it would be a covering support action to which I allotted the Queen's Own Rifles with the Reconnaissance Squadron, half a battalion of tanks, a battery of artillery and a troop of Engineers. The task of that covering force was to impose a maximum delay against the enemy and to clearly define his main thrust or access lines. Phase 2 of the battle was the main battle line of the River Leine itself, and for this I decided to put left the Second Black Watch with a half squadron of tanks and of course its normal affiliated detachment and an Engineer Troop. On the right was the Royal Canadian Regiment which was supported by its affiliated "J" Battery of the 3rd RCHA. The Reconnaissance Squadron, once its task was completed, was to fall back and screen our northern and neutral country to the flank.

Phase 3 of the battle was the brigade or the employment of the brigade reserves and I attempted to produce the classical armoured role of keeping the Fort Garry Horse in hand to cope with any unexpected enemy situation. That armoured regiment was strengthened by the Queen's Own Rifles who were here (Points) once they had completed their here, they had come back and came under command of the armoured regiment. Their mission was to be prepared to mount blocking position if the enemy should produce any penetration in brigade sectors and secondly, to be prepared to counter-attack and destroy the enemy preparation. Well now that was appreciation. Next was what actually happened. Traditionally so, one's appreciation is never the way it happened.

The first phase we moved from our peace-time location here (Points) under cover of darkness on Friday night. We made a night move on two routes which took us approximately 6 hours to concentrate the brigade in its exercise area. This was preceded by what we call a practice alert or survival drill, which means that all the soldiers are quickly assembled, moved out to practice areas and then on to whatever tasks are assigned to them. Saturday and Sunday was spent in preparing the positions. This was done under the cover of darkness, hence there was a minimum amount of movement during the daylight hours. This again is most important in one's deployment of the battalion. Again first light Monday we were ready from an exercise point of view. What happened, of course, it wasn't per book at all, and again this is why we were out there, was instead of the enemy coming across his frontier and probing to our perimeter, he sent a limited conventional action, where Bill (Capt. Moorhouse) is putting it down on the model there, now this was designed to put a foot across the frontier, the major war, insofar as the exercise setting was concerned, which had not been declared. This, in other words, gentlemen, was a probe. At this stage it was totally conventional operations. Hence my first task was to in turn not to permit the enemy this aggressive action or seizure of this small bridgehead into our territory and I must come to grips with this, however, I was not to prejudice the employment of our main battle positions. It follows that I could not use the screen for so this task in case, so what we did is, Lieutenant Colonel Duncan McAlpine with the Second Black Watch and a half Squadron of tanks supported by all the available artillery carried out a reconnaissance in force to probe out the enemy fundamentally and see if he would withdraw in the face of a specific firm action by us. This was quite a useful little exercise, however he did not withdraw and we were forced to, in fact, then accept that we couldn't move him out of there without a major action. On Monday evening the enemy made his, first thing Tuesday morning, made his major crossings against our whole brigade sector. This consisted of a full scale assault again non nuclear at this stage. After the Black Watch had finished their limited action, I pulled them back and put them again into their main battle positions and left the brigade

sector. The Queen's Own then with covering force Reconnaissance Squadron and their other supporting arms fought a delaying and covering force action all of Tuesday up until mid-afternoon, between Monday night and Tuesday. By 1500 hours on Tuesday, the enemy had completely closed to the river on the south, and we commenced the pivoting back of the Queen's Own on the north to step them without contact home safely for the next phase of the battle. This was successfully accomplished. The night of Tuesday, the enemy launched his major assault along the Leine River. This consisted of firstly, a attack which we subsequently determined was of a minor or diversionary threat or possibly a probing threat against the Black Watch. This attack was held by them. It was a limited bridgehead and contained by the defenders. On the right however, or the northern sector, in the RCR, the enemy put his major and determined effort and was successful in crossing the river and seizing the manœuvre area. By first light on Wednesday morning the situation was such that the enemy had a major enlaunchment on the west or our side of the main obstacle. I was directed to clear up that lodging, and this was done by an attack by the Fort Garry Horse at 1200 hours noon. For this, (Lieutenant) Colonel Bill Little used his full armoured regiment less that half squadron which was with the Black Watch plus two companies of the Queen's Own Rifles.

Colonel WILLIAM CLEMENT DICK, OBE (*Commander, Headquarters Canadian Base Units Europe*): Mr. Sauvé, gentlemen, our Commander having left off pointing out where the Brigade gets its organic logistic support from, I believe it is right and proper I should first of all describe the first task the Canadian Base Units Europe are charged with, that is the non-organic logistics support of 4 Canadian Infantry Brigade Group, in other words, it is Canadian Base Units Europe responsibility to see that this force gets everything that it needs when it needs it, and in order to do this the logistics support is integrated with the British Lines of Communication. The British provide us with all our common user items, that is, items that are common to the Canadian Brigade and the British Army of the Rhine. For the items that are peculiarly Canadian, we have Canadian Base Ordnance Unit located at Antwerp and there they receive all the heavy equipment and place them in the British Lines of Communication, and they move up, as you can see, across the Maas, the Rhine, into this area in the circle (Points) where we are now or if we were further forward, on up the chain. At the top, you will note the distances from Antwerp to the Leine River, the brigade area at the moment (On the floor model) and forward. This will give you some indication of the time-space factor that is required for the movement of the stocks forward. I would like to point out that on the integrated logistics support with the British that in the two and a half years that I have been here that I have found this arrangement highly satisfactory, we have never asked the British for anything that they could not produce for us, and our relationship is very good and we get precisely the same treatment as any other formations that they have in the British Army of the Rhine.

Now our second task is the care and maintenance of the garrisons and this, of course, not only the soldiers but their wives and children; and I would like to go to this map here and show you our locations; and I will start off with the Hemer area where we have an Artillery Regiment, an Armoured Regiment and an Infantry Battalion, and we have the British Military Hospital in this locale (Points) and we share this facility with the British on about a 50-50% basis. We then move along over to Werl where we have an Infantry Battalion, an Engineer Squadron and a Field Ambulance; and we move over to the Soest area where we have just outside of Soest, Fort York, where we have an Infantry Battalion; and at Fort Chambly, we have the Service units

the Commander spoke of, the Field Workshop (RCEME), a Transport Company, the Ordnance Field Park, and the Recce (Reconnaissance) Squadron; and then we come last but by no means least to Fort Henry where at the present time the Headquarters and the Headquarters Units are located.

Now in the three locales Hemer, Werl and Soest, we have our permanent married quarters (PMQs), and in these three areas we have, in Hemer 561 quarters, Werl 450, and in Soest 605. These are to look after, these 1600 quarters, are to look after approximately 3,000 families. So that as you can see, we have in round numbers 1,400 families who are living in the general area of these three garrisons on the civilian economy. Now some of this accommodation is good, some of it is marginal, and we always have a certain portion of it that is sub-standard. I think the figure at the moment of sub-standard accommodation in the area runs somewhere in the neighborhood of around 110 to 115 families.

Now having these wives and children with us, naturally they have to be educated and for this purpose we have six schools four of them are of permanent construction the other two are converted barrack blocks one in Fort MacLeod at Hemer and one at Fort Chambly. We have 2,700 odd school children who attend in 113 classrooms and we have 151 teachers. These 1,400 families and their children who live on the economy, you can imagine the problem of getting them in the school and home again; there are some of these children that have to leave shortly after 7 in the morning and return about 6 at night. They come into school and they enjoy it and generally speaking we find that the morale of the people on the economy is very good. Again the economy families creates a problem in getting the right kind of milk. All of our milk is imported from Denmark and thus the units deliver milk to each of these families every morning except Sunday. The facilities in the garrisons, and by the garrisons, these three areas, Hemer, Werl and Soest, we have in the Forts, a Gymnasia, we have four artificial ice rinks, bowling alleys, squash courts, theatres, Junior Ranks Club, which are the Men's Canteen operated by the Maple Leaf Services; churches we have one each, Roman Catholic and Protestant in each one of the Forts. We have tennis courts and the usual sports fields. We try to keep here the same communities activities going that we have in Canada, and you will find that the Boy Scouts, the Cubs, the Girl Guides, the Brownies, the Teacher Parent Home and School Association, the Teen-age Groups, Little League Hockey, Little League Baseball, the Cadet Corps, and one peculiar thing here is our teenagers have, I think, a rough go because they are not permitted to work; there are very few jobs, the odd one in the MLS (Maple Leaf Services), so that the summer creates quite a problem for the children when the schools are closed and for this reason the last two years we have had a summer recreational programme operating and we bring over from Canada to assist us eight or ten instructors and these children were organized each day five days of the week for this period when school is closed. This has been a highly successful programme and we are using the teenagers, we run a course for them, to assist the instructors so that they have something to do for the summer and a method of earning a little extra pocket money. On the medical side in each of the three garrisons we have a Clinic which is staffed by a doctor and a nurse and this is where the wives and children go for their medical consultation. If they have to see a specialist, an appointment is arranged at the British Military Hospital where we have a staff of some 15 doctors and 30 odd nurses. Dental for the dependents, is we do what we can for them but in the main they have to go and use a German dentist. The Women's Voluntary Service—you may remember this from the War—it is a British organization and they have been with the brigade ever since it came over from Canada and they have a representative in each one of the main

spots and they look after the men exceedingly well. They do everything from "write" their love letters, buy their wedding rings, engagement rings, Christmas Shopping and so on and so forth. We have Welfare Information Centres. This is like a travel agency where a soldier who wants to go on leave, why any place in Europe, they make all the arrangements for him, be it a tour that he wants, hotel reservations or tickets to some play or what have you. The Salvation Army—they operate a centre in Soest and a centre in Hemer, and they serve light lunches; they have souvenirs for sale down there; they have room for various groups that meet during the week and of course they do a great deal of work on the welfare side through the unit officers and the Padres in some cases that we never hear of, and they are a great help. We have three banks, one in each area, the Bank of Montreal. They run a Deutsche Mark account, not in dollars; they don't pay any interest and they don't make any charges for this service unless you are borrowing money. We have our own radio station, Canadian Army Europe (CAE), which broadcasts approximately 17 hours a day and about 10 hours on Sunday. We get the football games and the hockey games and the C.B.C. are very good in providing us with tapes and their is the local production that goes on at the station itself. We have our own newspaper, which I think you all received a copy of, ("The Beaver"), and this is maintained by the advertising revenue which is received from a circulation of 7,000.

We have our Military Policemen. They look after every form of police work; they are the RCMP; they're the provincial police; the municipal police, and the military police, and after that why they interpret and enforce the German Police Regulations. They maintain a wonderful relationship with the German police. We are very pleased with this relationship and I must say that the Provost are a very very tireless team of workers.

And the final point I would like to speak of is 'rotation'. As you know a third of this force rotates back to Canada each year and up until last year we were doing this with ships. Last year we started with the RCAF; it was a combination of the ocean transport and the Air Force out of Dusseldorf air head, and I was very skeptical when this thought was approached and I must say with the very fine relationship with the Air Div (Division), and the military transport service that this RCAF air rotation is working first class, and we liked it and the people liked it, and we gathered them together, take them to Dusseldorf, put them on the plane and at the same time the other people on the plane coming in were coming up and it works exceedingly well. I think on that note, gentlemen, no doubt there will be some questions, so I think that is all.

Brigadier DARE: Gentlemen, I suggest we have a short break for coffee.

Mr. WINCH: Mr. Brigadier, could I just ask before you break, the Chairman of our Committee, Mr. Sauvé, and yourself, if we might make a slight change in our arrangements. This briefing to me is so important that I can think of about six questions that I would like to ask myself, but there are 24 members, and our procedure, sir, is one question to a member, but I do feel that there may be questions in the minds of some members, I have about six myself, if it would be possible in following our procedure of one question per member, in order to maintain your schedule, if an officer could be told off now that in the break that we could speak to that officer on certain questions and if they are not asked in our tour d'effort of 24 members that you, perhaps, sir, then on information from an officer, could very briefly answer things that we would not be able to ask who would like to have an answer, and I am asking our Chairman and yourself if that could be done?

Brigadier DARE: I have my panel of experts here who are certainly free to answer any questions you ask them if they can. The only thing I would say to you is firstly bear in mind this is unclassified, that is my terms of reference;

secondly, matters of policy, anything outside 4th Canadian Infantry Brigade Group is not our purpose, and we are not really qualified to answer things beyond our own periphery. I would certainly agree to discuss with these gentlemen.

Mr. WINCH: I am sorry, sir, I have not made it clear. There are some questions which all of us would like to hear an answer to, so if the question is not asked, could we give an officer during the break the question so that if it is not asked then the officer could tell you that these are some things we would like to hear about and you perhaps take 5 or 10 minutes to answer those questions. Because, with 24 of us, we can only ask one question. Is it all right, Mr. Sauvé, if we do that?

Brigadier DARE: Bill, I suggest you and Monty circulate among the gentlemen and pick up any questions and we will give the answer there or our sympathy. Is this right?

Mr. WINCH: Thank you.

The Meeting is recessed.

The Meeting is resumed.

Mr. WINCH: My official question, as a Committee, is this: Our Committee has been told by the Secretary General of NATO and by the Commanding General of SHAPE that on the Army Corps, Canada is committed to one brigade in Europe but committed to a division in the event of trouble, so my question is, as you are the Commander of the Army Brigade of Canada in Europe, how fast and in what way can you get the division strength from Canada?

Brigadier DARE: I am sorry, but I want to be quite clear that I am not going to hedge any questions that I am free to answer, but my problem is only for Brigade, and the balance of the division, insofar as timing and how it physically gets here is best answered by the Chief of the General Staff, but I do want to impress on you that I am going to give you a straight answer whenever it is within my province.

Mr. WINCH: But as the Commander of our Canadian unit here, and with your knowledge of our commitment, you must have some understanding when you can get the division here, if required? But you cannot answer that question then?

Brigadier DARE: No, I can't. My operational plans are for me to employ the resources that I have here, i.e., the 4th Canadian Infantry Brigade. I am not current or privy to the detail of how the balance of the Division would get here.

Mr. MATHESON: Brigadier, where does 4 CIBG now stand with respect to modern equipment?

Brigadier DARE: I am a professional soldier and I would never be satisfied or happy. We are in need of an armoured personnel carrier. We need this for both the conventional aspects of the battle and also for any nuclear. We are in the process of getting very shortly a whole new family of anti-tank weapons systems. These are the SS 11 and the N tank. When we get those equipments we will have then the anti-tank capability in order to complete the kind of tactics that I want to play of keeping the armour uncommitted in the battle and back in reserve to manoeuvre around the infantry base. These are new weapons and new equipments and will certainly satisfy that particular field. In the longer term, we are going to need a gun for the 105 for two reasons, the range of the 105 while it is slightly, correct me if I am wrong this one, it is nearly 11,000 metres but for operational use you consider it 10,000. That is not sufficient. Secondly, the weight of the shell, it is a shell designed against personnel, not against an armoured force. Now, this is not a peculiar Canadian problem because the Western Powers are busy designing and studying, and I don't want to

convey any impression to the Committee that if we had an open sesame in funds and we could turn immediately to the gun we want, because that is very much under development and discussion. Tank, this tank I mentioned during the briefing is as modern as we can make it. The Centurion is really now fully operational in every respect, but the tank is 20 years old. When I say that I mean its original design concept. These particular tanks of course are not. These tanks are fully operational; there will be in the future a prequirement for a new tank. At this moment there is no, very similar to the gun, there is no immediately available tank that I would particularly desire, and I speak as an armoured corps officer, and I want to fight a battle here, if I may just go back of manoeuvre with the cheapest possible means of coping with that enemy armoured thrust, VE in tanks or VE in personnel bill. I want to keep that hard hitting force in my hand, so that will be upcoming but it is not available. We are just getting one in combat clothing and this will be on issue, I think I am right in saying, starting in December. We are starting to get that into Brigade right now. On the small arms side we have certainly and distinctly in relation to the other NATO forces as strong a resource as anybody here in NATO. The weapon that the individual soldier carries is the NATO standard round 7.62. Our wireless equipment, we have just taken into service about two years ago. So fundamentally, as I say, I am always looking for improvements, but fundamentally right now I need an armoured personnel carrier as Number 1; I need a growth of our ability to fight with fire power. This is my tactic personal and the Brigade policy, and indeed the Army's, the tactical philosophy is to try to gain information and to respond to that information with either a conventional or if necessary a nuclear means. We never want to cross bayonets man for man, he's got more people.

Mr. SAUVÉ: Mr. MacInnis? Supplementary, Mr. Lambert.

Mr. LAMBERT: Brigadier, you mentioned your actual fighting requirements, what about your logistics support? Are you not in a position, because of your requirements for dispersal and mobility, there is a requirement in this respect?

Brigadier DARE: We are just in the process of designing what is called a Services Battalion. This is designed, really its taking and re-organizing this resource. It is designed to cut down the manpower used to achieve more with it. What I am really saying here is, we've got the resource now, remember, it's a matter of re-organizing it. The Chief of the General Staff has been personally interested and I think the Committee are aware, conducting a test at Camp Gagetown of this philosophy, and this is an idea to achieve modern logistics with the same manpower and equipment. We are carrying ammunition, if I could serve to illustrate, in this type of battle in the hundreds of rounds for our major weapons such as the artillery piece. We have to do that in order to create this target, and that creates a big big load on that subject.

Mr. LAMBERT: What I was a little concerned about was the requirement to get off wheels, to get off roads.

Brigadier DARE: Oh, yes. There's no question. I am sorry, I missed the point, there is no question that this organization, this Transport Company, to get off not only wheels, but it needs to get in the air, and this means a cargo helicopter, a combination of a cargo helicopter and a cargo tracked carrier, because the whole idea of this battle is one of using the whole countryside as a dispersal and because of possible damage to roads they're not on.

Mr. MACINNIS: The Brigadier has answered my question and that is the exact, that is the satisfaction to the original question, that is to the satisfaction of the Committtee of the armoured personnel carrier being top priority. However, I would ask a question in respect to what may or may not be a decision yet to be taken, however it has been brought to my attention that there is

consideration to be given to nuclear mine fields on the front of the potential enemy; just what part does the Brigade play in that?

Brigadier DARE: The nuclear mine is not a NATO weapon. Nuclear mine is an United States piece of equipment. We can just—our Field Engineer—is privy to some of the details of how these things are employed, but it is a political decision of the United States not to write this into NATO or talk about them; I may say that. Now why this is, I am totally outside. It is not part of our plans.

Mr. MACRAE: Mr. Chairman, my question was to Colonel Dick and if you want to pursue this line I would be willing to defer it, whichever you wish. I was interested Colonel Dick when you were dealing with the dependents and you mentioned the fact that there were nearly 2,800 children here going to school, and you have been here you mentioned now for going on to your third year, two years and a half, and I wondered if you had given any thought and perhaps if you haven't given any thought to this that you would, and I would be glad to communicate with you and any of your officers; the children that are left here for the summer, you mentioned that they had nothing to do and you instituted a summer recreational programme which would be excellent; I wonder if something like this might be done, a summer school for gifted children because we realize how the children of service personnel are moved around. In some cases perhaps a youngster was in five different schools in five years I have heard of that happening, and that is not unique at all. Also in Canada we have eleven educational systems, and some children even though they may be well ordinary, we all are, find it difficult transferring from school to school, there might be summer school given in supplementary classes for youngsters so that when you are posted back to Canada, while perhaps most of the youngsters do well, yet some of them have had a rough time of it and they could then fit into university and other training. I am making more of a speech that a question, but I wanted to ask you whether you have thought about this and whether or not you would like to discuss it further at some time with some of us?

Colonel DICK: I would be very interested in discussing it further, sir. Our problem is that we have so many teachers; they are under contract to the Department from the School Boards across the country. Their contract commences on the second of September and they are entitled to the holidays that any other school teacher would have, this would necessitate us bringing in special teachers for the summer. This of course—

Mr. MACRAE: That is understood.

Colonel DICK: —would not be as good as if we could have the teachers who were teaching these children throughout the year to remain with them for a portion of the summer. We have had one instance when the Summer Recreational programme was conceived, a year ago last March, one of the teachers gave up his summer in order to see this through its first session; and when I say summer recreation, it just isn't sports and swimming and so on, there is a certain amount of classroom work done for the smaller children; but I would not say it carried through your suggestion in teaching them the academics, those who needed it, but I think it is a very worthy project worth consideration and I would be delighted to discuss it further with you later on.

Mr. MCNULTY: Brigadier, to what extent could you have or did you have air support whether it was conventional or nuclear?

Brigadier DARE: We did not play in this particular exercise air support. The reason for it is we are always trying to scratch our heads and play the worst case. The Air Force has got, and I am sure you have heard this in the Air Division, a very full plate of their own in the initial stages, and this is

something I couldn't in an unclassified briefing, dwell on. So as I say we always try and train to the worst case, and in this case no air support was available to us.

Mr. SMITH: Supplementary to Mr. McNulty's question, where do you get your air reconnaissance and your close support from now?

Brigadier DARE: The 2nd Tactical Air Force and he has his headquarters side by side with General Sterling who is the British Commander of Northern Army Group.

Mr. SMITH: Second Tactical Air Force, is that an American or British?

Brigadier DARE: British, Belgium, the countries again in Northern Army Group less Canadians.

Mr. SMITH: And my question was and how long, and we've been hearing back in Canada about this forward defence strategy, how long would it take to deploy your brigade close to the East German border?

Brigadier DARE: I won't answer, Mr. Smith, the time, and I'm sure you wouldn't want me to, but I think I can answer the intent of your question. This so-called forward strategy really in terms of time means a very short distance from our previous disposition.

Mr. BREWIN: Perhaps I could preface my question, Brigadier, by saying that in the Committee we have heard a good deal about the dangers of escalation was tactical if nuclear warfare was resorted to, and in the battle which you described, I am not sure the second or third day, you moved rather quickly into the tactical nuclear weapons and we understood there was quite a change in the way in which you handle things after that; there were some problems involved going from one to the other, I wasn't even clear who started the use in the exercise of the nuclear weapons and how easily or who made the decision to move in the other side to use the tactical weapons which we have been told is quite an important dividing line, the consequences perhaps of very great magnitude and gravity and it didn't seem in the exercise—I hope I am not making a speech, the Chairman doesn't like us to—it seems to me that phase was dealt with almost casually, sir, and I would like you, sir, to deal with that problem if you would.

Mr. WINCH: I put that in one sentence and written to the Brigadier.

Brigadier DARE: If I gave you that impression, that this was being done casually, you are entirely wrong. This is a very major step and obviously you gentlemen are better aware than I of the political checks that go with the decision to use the nuclear weapon by anybody. This is totally outside my province. We will get the government decision and, indeed, the U.S. Forces decision who are in custody of these nuclear weapons or warheads. We will get a release from no less a person that the President, so you don't question the release generally, for release from place A to place B I assure you.

Mr. WINCH: Mr. Chairman, could I ask a supplementary question because it was on my written question to the Brigadier. I asked this question on this tactical exercise, who gave you the authority, on the right side here, to use the nuclear?

Brigadier DARE: For exercise purpose, and also to answer your question, that was done by the Exercise Director, General Allard, in his overseeing of both sides. Now you will recall that I mentioned earlier that this was conventional at the outset. I am sure that I don't have to illustrate in any detail to you gentlemen the pause in this terrible moment of truth for some room for decision and discussion in coming to grips with reality for decision.

Mr. WINCH: But, sir, I am sorry, this was an actual exercise?

Brigadier DARE: Yes.

Mr. WINCH: O.K., who gave you the authority to use the nuclear at this stage?

An hon. MEMBER: He just told you, the control set up.

Mr. WINCH: I asked him—the control set up?

Mr. LESSARD: How much time elapsed between the first explosion and the authority?

Brigadier DARE: In terms of the major enemy assault, it started on the first thing on Monday morning.

Mr. LESSARD: With nuclear weapons?

Brigadier DARE: No, no, the first crossing of the front, that first action, was Monday morning. It was Tuesday night in the setting of the exercise before nuclears were released.

Mr. LESSARD: I presume that the enemy had shot first; what I want to know is what time elapsed from the first one and the authority that you—

Brigadier DARE: I don't think this—it was a matter of about an hour, but I don't think this has any useful purpose for your deliberation because this was again the control staff, I am sure it was a matter of an hour in the exercise, after he (the enemy) had taken the action.

Mr. TEMPLE: General, I am sorry, Brigadier, just a bit more with the logistics, what peculiar Canadian equipment—what other equipment is brought in from Canada to Antwerp that we don't get through the U.K?

Brigadier DARE: Almost all of our heavy equipment is brought through Antwerp, that includes the tank. The support that we get that is common with the British, are the assemblies and the spare parts to support us, all our wheeled vehicles, all our weapons, our tanks, scout cars, come through Antwerp.

An hon. MEMBER: I know through Antwerp, but from Canada, that is what I want to know.

Brigadier DARE: The Canadians buy the equipment and it is taken and delivered into our possession.

Mr. MACRAE: The information given to us a few moments ago by Colonel Dick when he indicated that he was quite happy that this supply line, with this last war supply line, does this also apply to Maple Leaf Services for the Battalion food rations or the portion of the food rations that you use?

Brigadier DARE: Yes, Maple Leaf Services is our own, as you know, and is an independent company or a board which has a Board of Directors and the Army Council is on it, it put in Canadian products for the dependents. Now, as I say, one is never happy; you are always wanting more. It performs an entirely adequate service.

An hon. MEMBER: I will ask one more question; with your equipment supplies, and that is, are they in line with the Americans—you have this service coming direct from Canada through Antwerp and directly into the British Supply line—would it not be feasible that Canadian goods also be delivered, that is, the whole requirements of rations could not be delivered direct in some way?

Brigadier DARE: Gentlemen, I will let Colonel Dick answer this; this very point was studied, and it was found not economical practice some years ago.

Colonel DICK: The question of rations, as I mentioned, we are integrated with the British, the British provide us all our services and one of the services and a common user item is rations, oil, gasoline, and so on. On the ration side the British are buying for their own force and we get the advantage of this large buy that they are making in the theatre which, if we were bringing it in from Canada, it would cost us a great deal more money. We would then

have to—if we were bringing it in from Canada,—we would then have to set up our own warehouses; in other words, if we took this service away from the British, we would have to construct cold storage plants and warehouses to hold the necessary rations that the British now hold for us. So, it is not only the additional cost of the rations, but the additional cost of overhead in plant and manpower to operate these warehouses; that would be a figure up away out of what we are getting it at.

An hon. MEMBER: So, therefore, the necessary middleman for relaying Canadian produce to the Canadian forces is eliminated?

Colonel DICK: Some Canadian products, yes, from the British, and the MLS, of course, they bring in their own, on their own, supply lines, in other words, their goods are shipped on through their own arrangements and cleared through the force, and they have their own transport.

Brigadier DARE: This is a supplementary point here: to give you a feel of it, what we can't do, because of our space, is give a wide variety; if, I mean, one doesn't like the A & P, go around to Loblaws. What we do do is provide the basic commodity if we can't give the full range of "tomato juice," throughout the brigade.

Mr. MACLEAN: Brigadier, will you give us some conception of the fire power of the brigade group in conventional weapons as compared to a World War II brigade?

Brigadier DARE: I would say, it is worth, three World War II brigades.

Mr. MACLEAN: I have a question which perhaps you can't answer.

Brigadier DARE: I am not speaking of individual rifles, I am thinking of an increase in automatic weapons which you will see later.

Mr. MACLEAN: I have a secondary question and this may not, perhaps, you cannot answer. If the brigade group was brought up to additional strength, divisional strength, the Brigade Commander on the spot has this additional troops, does this come under his command?

Brigadier DARE: No, sir. it would be a divisional commander. I would like to think that, but—

Mr. HAHN: Turning back to the question raised earlier of air support in this exercise you say that the air support was not involved, do you or would you in the normal context of the battle have available to you close air support?

Brigadier DARE: Yes, I would. I would train for this. I don't want to give the Committee the idea that we never train for this, it was just on this particular exercise we didn't; we painted the worst picture.

Mr. TEMPLE: Supplementary, just to clear that up, General, with the close air support power, would the force become nuclear?

Brigadier DARE: Oh, yes.

Mr. MACLEAN: Now can you tell the Committee what steps were taken before the exercise commenced to make these weapons instantly available should their use be authorized?

Brigadier DARE: No, sir, I won't answer the question, but in fact it was just an exercise setting, the exercise decision, I can't detail the procedures for the release of the weapons, no, sir, I am sorry.

Mr. LAMBERT: How about air transport for the movement of troops right down into brigade, did you have air transport for your troops and vehicles and supplies under your control whether they are flown by army people or air force, it doesn't matter, but what I am talking about is, you had an air component right close at hand?

Brigadier DARE: At the moment I only have reconnaissance helicopters which are three place vehicles, which you will see. The cargo helicopter—I don't personally care how it is flown so long as we have the operational say where it should go and be flown.

An hon. MEMBER: I am thinking, sir, of something like the Cariboo.

Brigadier DARE: Yes, that would be, I think, a little outside the brigade. I think the Cariboo might bring stuff up to the brigade from corps replacements rather than from brigade forward, it would probably be a helicopter.

Mr. HORNER: In this skirmish, Brigadier, you used tactical nuclear weapons; what training do you envisage for the group with regards to a cleanup after the use of this nuclear weapon?

Brigadier DARE: Yes, sir, this a very good question indeed. This is exactly what Colonel Little's force has to do, to act in a nuclear strike, and assuming it has been successful and it was in the correct spot, the armour and the infantry move through the area and destroy any final people who are still alive; like all other things infantry weapons are not going to be an all endo; there are still going to be some remnants of the defenders and that is what he copes with.

Mr. HORNER: Just follow that a little bit further, what about the radio activity, can you move in immediately after or do you have to wait for a period?

Brigadier DARE: Our tactical plan is all on the basis of air burst, hence there is no contamination; I don't mean in the next second but as fast as you can to get there from the danger area insofar as your own armoured vehicles.

Mr. LESSARD: Let us suppose the enemy escalates—it is stronger in its nuclear armour than you?

Brigadier DARE: Then you run into an awful problem.

An hon. MEMBER: Brigadier Dare, the French military authorities whom we talked to when we were in Paris were quite emphatic that they did not believe you could fight a mixed nuclear and conventional exercise of the kind you described and, for these reasons, that to achieve effective power with a conventional force you would have to mass your conventional force and, in massing your conventional force, you would become a fire target for nuclear weapons. If you dispersed your conventional force, you would reduce your power and thus you would have to make a choice at the outset of the battle, they put it to us, as to whether you were fighting a conventional war or a nuclear action.

Now, I wonder if you would comment on that in the light of what they said to us?

Brigadier DARE: After nuclear war had been declared—I presume it is the second action which you are referring to—in other words, is it realistic to create a target with conventional weapons? We think it is and we worked this out both mathematically and on exercise. Now here is really one of the reasons I say we need again a longer range artillery piece in the longer term because what you do is hit his movement as he comes in on you with the ordinary every day conventional weapons systems and by disrupting him you force him to concentrate locally and if you are in doubt about whether you made your correct decision, that is the moment to launch your nuclear weapons.

Mr. LAMBERT: Supplementary here, sir on the business of employment. You are organizing or either organize conventional or you organize the other because on the nuclear basis you are so far dispersed that you just can't flow from one into the other; it's all right in a small force to say your are going to spread but when you are dealing with armies or larger forces you just can't go from hot to cold, it's not like a shower that you can adjust—

Brigadier DARE: I think that with our increased range of weapons that this is possible. I am only dealing again, Mr. Lambert, within the brigade sector.

We would be prepared to test a non-nuclear war with the techniques of mobility and of armour and personnel of infantry mounted in vehicles at an opening stage.

An hon. MEMBER: May I ask a question on this same subject? In your tactical exercise where you have the large red arrows coming in from a neutral country there, and where you have an atomic strike now, that was a conventional force which really at that point had not been herded into that position by conventional weapons, but say the effect was of a relatively widely massed conventional force and it was struck with an atomic attack, this is the very point that the French make, that you have destroyed all the major force simply because it is amassed for the purpose of achieving fire power on the break through, and I think the demonstration makes their point very well.

Brigadier DARE: Well, that didn't happen, he became an atomic target as a result of blocking force or blocking actions by our force, in other words, we didn't let him run loose, some of it was personnel and some of it was fire power.

Mr. WINCH: Mr. Chairman, could I ask a supplementary question on this too? I think it will bring it right to its head. You are the brigade commander of our forces here. A number of forces of the western world, according to our information, is terrifically overcome by the number of divisions on the other side. All right. If you, as Brigade Commander of our Canadian troops are being pressed back by overbearing forces, would you use your nuclear, although they were only using conventional?

Brigadier DARE: We would have to.

Mr. WINCH: Thank you, you have answered my question.

Mr. GRANGER: I noticed what you said about the need for an armoured personnel carrier and the need for, an air carrier, shall I say, too; I wonder if I might ask you if you would be good enough to outline your own ideas of what the Army of the future should be?

Brigadier DARE: I really couldn't give you a sensible answer. I have a lot of personal ideas but I would be treading here in the fields of policy and certainly, and the real reason that I am not personally capable of knowing the equipment developments technically. I have my own ideas on the characteristics of the tank I want but I am not qualified to say that it is justifiable. It is outside my province.

Mr. MCNULTY: Brigadier, you made on the spot decisions during the exercise, who during the actual warfare would also make the judgment decision to use nuclear weapons, what would govern your decision to call off and swing back to conventional weapons?

Brigadier DARE: I think sir, that once we had crossed this bridge that this would be the end of the war, that would be the decision. Now, insofar as me having the authority, I do not have it at the time, the tactical authority.

Mr. MCNULTY: No, but somebody has to, being on the spot here, how is the control person going to know what your judgment decision is?

Brigadier DARE: We put up a request to him.

An hon. MEMBER: What about swinging away from it again closing off from using nuclear weapons, you swing from a conventional to nuclear, from nuclear to conventional back again.

Brigadier DARE: Every target is not responded to by a nuclear weapon, it only has such a limited number of this, the per day, if you have any kind of numbers at all say one weapon for use, unless you had a terribly worthwhile target.

Mr. WINCH: This is supplementary. I am asking the question from a Brigadier and I was just a two pip miracle in the last War, sir, if you are in charge

of the Canadian forces using the conventional and facing the annihilation of your troops—not used by a brigadier but a Colonel or Captain or Lieutenant who has it—is he not going to use that nuclear when he sees the annihilation of his Canadians, Brigadier?

Brigadier DARE: I am sure that is quite understandable. There is a NATO policy on the control of these things and I don't have it, this is up and above me. I put up my request for a target based on a real live thing and the tactical procedures are as such that if my target is sound and we have resources, the time factor, to send a signal down and they say, yes it is practical.

Mr. WINCH: Then your brigade could be wiped out until you got the decision whether you could use the weapon?

Brigadier DARE: I suppose you could say that, but once we joined the battle—it is like our field artillery—it's a request for power and back it comes.

An hon. MEMBER: Brigadier, do you carry these armed, nuclear not warheads, but weapons at all times, more or less at all times, you don't have to go up to the supply lines, they're right with you at all times in the battery?

Brigadier DARE: No, sir, in the battery once the release was given.

An hon. MEMBER: Yes, even though you have them, you have to send back for word to use them, you would still have to send them back again?

Brigadier DARE: This thing is controlled by the senior artillery commander. Now we have at our battery, 1 SSM battery, in the event of war and when the nuclear release is given, I want to be terribly clear about this, we would have the weapons at the battery.

An hon. MEMBER: And supposing your line of communication broke down, I mean your request was never received.

Brigadier DARE: That is all under control. We practised and trained this.

Mr. MACLEAN: I think perhaps, I hope that this is getting to the heart of the question that has just been asked, is it physically possible for a small formation like a brigade, supposing it is completely overwhelmed and it is facing annihilation, is it possible that higher formations would withhold the use of the atomic weapon from some relatively junior commander, would it be physically possible for him, in desperation to use nuclear weapons without authority?

Brigadier DARE: Yes, sir, the only authority is of a senior level of control in the current policy of NATO, it is a corps command.

Mr. MACINNIS: The answer to Mr. MacLean's question brings this to my mind now; the previous questions indicate once the release of nuclear weapons was requested the wire would then be used in order to bring that nuclear weapon up to the front. In answer to Mr. MacLean's question the Brigade Commander indicated that it would be quite possible for a junior officer in desperation to fire off one of these nuclear weapons. I don't get the drift of this. If he is at the front and he requires nuclear weapons, where does he get it, how can he fire it off in desperation if it was necessary for him to go back to supplies and bring this weapon up to brigade for his disposal?

Brigadier DARE: Once the weapons are released the war heads would be physically with that battery.

Mr. MARTINEAU: At what stage are those weapons released then?

Brigadier DARE: Oh, after nuclear war, but with political decisions to turn to nuclear war but not before.

An hon. MEMBER: Yes, but by then, are you not dispersed in battle?

Brigadier DARE: Yes.

An hon. MEMBER: If this release came about, it couldn't be fired, as Mr. MacLean was answered, it could not be fired in desperation, the release to use the weapon was already given, so it couldn't be a matter of desperation on the part of the junior officer on the front to fire it, and further to that, is there no precaution against this desperation, is there no measures, security measures, taken which would prevent such a desperation move on the part of the field commander on his own to release this weapon? Is there not a safety factor there or something, the removal of a part from a rifle or a firing pin or something else, is there not a precaution such as that taken, is there not one item of that weapon that could be removed as a safety factor or the key, so to speak, that would not be in the hands of somebody to make a desperate move, and it would be only placed at his disposal when it was free to go?

Brigadier DARE: Denny, you might answer this to explain part of the control system, the firing system.

Major CROWE (*Commanding Officer 1 SSM Battery*): The Brigadier is quite correct, I think too, but there might be some impressions there that may be wrong. First of all I am charged with the firing of a weapon if I have to, it is my responsibility. However, there are certainly built-in safeguards, the American authorities that will be with us for certain safety devices which they retain in their possession even after release. After release we can ask for this safety device in response to an authorized target and get them, before release we cannot get them. The American is responsible for his atomic nuclear weapon and will not arbitrarily without proper authority give these safety devices to us, and I think personally, as an operator of this weapon, and yet in desperation we had to use them, I don't think that this case would ever come up, I would destroy the weapon first before I would use them unless I had proper authority from an authorized commander.

Mr. MATHESON: Brigadier, we notice as we have been travelling in Europe some of the officers and witnesses who have been kind enough to answer questions have already read some of the evidence of our Defence Committee and I would say I was wondering in particular with respect to recommendations that appeared to be implicit in the evidence of Lieutenant General Guy Simmonds and General Charles Foulkes which, if interpreted correctly, suggested that perhaps there was another role that we could play rather than the role at the moment and this is something that might be faced in a period of years, perhaps in reserve thinking in terms of a highly elite mobile force to be transported rapidly from one part of the country but not up at the front, something that might be supporting perhaps the Danor troops, something that can be disengaged from NATO assignments to special UN task operations, something that would be especially central for peace-keeping. Now I know that this is not in your province and you have a specialist role here, would you be in a position to make any comments in respect of this general line of recommendation?

Brigadier DARE: No, sir, I wouldn't. General Lemnitzer is the man who is—who would be able to answer whether the forces of NATO he has are prepared to go into reserve in the overall force of NATO. I know this, that General Sterling, the Commander-in-Chief of Northern Army Group would certainly be disturbed at the present time if he were to see us not in Northern Army Group, and he has said this.

Mr. WINCH: Could I ask a supplementary and go back? It's very important and I would like to ask a supplementary. I think he is the Commander of the Honest John, is he not?

Brigadier DARE: Yes.

Mr. WINCH: I understood him to say now that even if the President of the United States released authority for the use of the nuclear equipment, that you said that even with the release that the Americans have control on safety factors, only use against designated targets, now did I get that correct, if so, then although it is released, you can't use it under your own control except you get the auhority, on designated targets, did I get that right?

Major CROW: That is correct, sir, the weapons systems is held by the Americans before release, this means he will not give them to us. After release when properly authorized targets have been approved and come down through approved channels to me, they will be fired. The American at this stage is right there, that is, he is with us, you might say he is a Canadian soldier, he is right with us with all his safety devices, but this whole business of safety I feel very critical, I trust my soldiers but I want to make sure that there are some safeguards although we have the weapons released to us, weapons that we will not fire them until we are authorized by our commander.

Mr. WINCH: That is what I want to get, it has been released from the President, it has been released through SHAPE, you have got the weapon, you have got the warhead, you are right in the battle and you as the Canadian commander can't fire unless an American there tells you you can.

Major CROW: No, sir, I'll not fire until my brigade commander tells me. The business of the American is simply a step in the way, that is all.

Mr. HAHN: As I understand it up to a certain point in battle these weapons are not released, the decision is taken politically involving somebody in the United States, these weapons are then released to us, and from that point forward you as the Canadian Commander on the spot are able to draw this as a normal weapon in your arsenal and call for it as you require it, without getting permission back from the States for each particular shot once release is made it is a weapon in your arsenal, and you just use it as you see fit?

Brigadier DARE: I don't have the executive orders, the lowest level in NATO policy at the moment is the Corps Commander.

An hon. MEMBER: After release?

Brigadier DARE: Yes, sir, and I put up my demands when I think the picture is right.

Mr. LLOYD: Brigadier, it has been publicly stated and reported in minutes that a nuclear warhead on a Bomarc will de-activate a nuclear bomb carried in an aircraft. In this kind of deployment, is it conceivable that a nuclear warhead exploded by the enemy offers the possibility of deactivating your weapons in the field?

Brigadier DARE: I suppose it is, I will ask Denny (Major Crow) to answer this specific question?

Mr. LLOYD: The purpose of the question, Brigadier, is just simply to be informed of this factor. This factor has been taken into account in the whole strategy?

Brigadier DARE: To illustrate this point, we didn't site his battery centrally, each launcher that you will see is sited independently of the other, hence it is a very difficult thing, secondly he sites that launcher in what we call a hide, he comes out of that hide and goes into action to fire, and as soon as he fires he is automatically removed to another location and he has 3 sites, 3 potential sites for each launcher all the time. Now, to answer your specific say if another round hit on top of his launcher with a warhead on it, is that what you mean?

An hon. MEMBER: Within distance, it doesn't have to be on top of it?

Major CROW: I am not technically capable of answering that question because the reason is I don't know enough about it, I have not received that information.

An hon. MEMBER: But you take it is information you should have surely?

Major CROW: Yes, it is information that I will be getting.

An hon. MEMBER: Well, the whole strategy depends upon it.

Mr. SAUVÉ: Brigadier, and others, thank you very much, the Committee stands adjourned.

Mr. WINCH: Well, has the Brigadier answered the question put to the officers?

Brigadier DARE: I thought these were coming out as we went along, however, I will try to answer them. The first one was, who gives the authority for the use of the tactical. The second was advancement for the helicopter. This is under study at the moment. We always constantly try to improve our techniques of employment of the helicopter. You will see a demonstration this afternoon, but it is not armed at the moment, and for the chain of command, I am afraid that is passed by, as the NATO Order of Battle, and I assure you it is very real. The question of dependents in the event of an emergency, I believe that question has already been answered. We have Operation "Safety" which is the marshalling of the dependents in the PMQ areas in the three fundamental localities and what happens after that is the interdepartmental decision and I can only say, and believe I am speaking entirely frank, about how on the occasion of the Canadian dependents during the time of Suez, these people adopted a tremendous responsibility attitude and some of them rather took the realistic point that it may be that there is no point in being anywhere else. Secondly, of course, there is the political appreciation, that is not just a Canadian problem, it has to do with everybody else in NATO and indeed the people you have in this particular area in the exercise. "What is your air support"? This I presume, we covered that, and, "Do we arm tactical air support"? and the answer is "Yes", and in this particular exercise we didn't have it because we used the worst case, both sides were doing the worst case. Mr. Martineau, I think, asked how does the brigade get instructions to use the tactical nuclear weapon, and I think we covered that.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 21

MONDAY, NOVEMBER 18, 1963

To

FRIDAY, NOVEMBER 22, 1963

(Visit to Europe)

THURSDAY, NOVEMBER 28, 1963

WEDNESDAY, DECEMBER 11, 1963

(Visit to Washington, D.C., U.S.A.)

WITNESSES:

Right Honourable George Drew, Canadian High Commissioner to the United Kingdom; and Mr. Leonard Beaton, Institute of Strategic Studies, England.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

29651-7—1

SPECIAL COMMITTEE
ON
DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),	Horner (*Acadia*),	Martineau,
Béchard,	Laniel,	Matheson,
Brewin,	Lessard (*Lac-Saint-Jean*),	McMillan,
Churchill,	Lloyd	Patterson,
Deachman,	MacInnis,	Plourde,
Granger,	MacLean,	Smith,
Hahn,	MacRae,	Temple,
		Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

NOTE: Mr. McMillan replaced Mr. McNulty after the Friday, November 22, meeting, but prior to the Thursday, November 28 meeting.

NOTE: Mr. Groos replaced Mr. Plourde on December 4, 1963.

CORRECTIONS

Proceedings No. 14—Thursday, October 17, 1963

In the Evidence—

On page 443 line 20 the word "justifying" should read "protecting".
On page 447 line 17 the word "change" should read "chance".
On page 461 line 18 the word "formidability" should read "mobility".
On page 466 line 11 the word "conceivable" should read "irreconcilable".
On page 468 line 19 delete the words "not in" between "was" and "a tri-service college".

ORDERS OF REFERENCE

MONDAY, November 25, 1963.

Ordered,—That the name of Mr. McMillan be substituted for that of Mr. McNulty on the Special Committee on Defence.

WEDNESDAY, December 4, 1963.

Ordered,—That the name of Mr. Groos be substituted for that of Mr. Plourde on the Special Committee on Defence.

Attest.

The Clerk of the House,
LÉON-J. RAYMOND.

29651-7—1½

MINUTES OF PROCEEDINGS

MONDAY, November 18, 1963.
(37)

The Special Committee on Defence met at 9.00 a.m. this day in the Foreign Ministry in Bonn, Germany. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(23).

In attendance: From the German Foreign Ministry: Herr Franz Krapf, Head of Political Division *II*; Dr. OncKen and Dr. Hans Arnold, both of Political Division *II*. *From the German Defence Ministry:* Colonel i G. Jähne; Colonel i G. Hopfgarten, and Lieut. Colonel i G. Neubert. *And also* Colonel K. A. Toms, Canadian Military Attaché.

Agreed,—That the information tendered to this Committee during this meeting be recorded, that the record be made available only to the Members of this Committee; and that there be no attribution in relation thereto.

The German spokesmen were heard and questioned.

At 12.30 p.m. the Committee adjourned to the call of the Chair.

TUESDAY, November 19, 1963.
(38)

The Special Committee on Defence met at 10.00 a.m. this day in Bonn, Germany. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard, (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(23).

In attendance: His Excellency J. K. Starnes, Canadian Ambassador to Germany; and Herr Fritz Erler, Deputy Chairman of the Social Democratic Party Republic of Germany.

The Canadian Ambassador introduced Herr Erler.

In turn, Herr Erler spoke to the Committee respecting German society, foreign policy, the relations between the various countries within the European community, and military strategy. He was questioned on his statement and on related matters.

Agreed,—That the information tendered to this Committee by Herr Erler be recorded, that the record be made available only to members of the Committee, and that there be no attribution in relation thereto.

At 11.15 a.m. the Committee adjourned to the call of the Chair.

WEDNESDAY, November 20, 1963.
(39)

The Special Committee on Defence met, *in camera*, at Christiansborg Palace in Copenhagen, Denmark, at 10.00 a.m. this day. The Chairman, Mr. Maurice Sauvé presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(23).

In attendance: Mr. Victor Gram, Danish Minister of Defence; Mr. Paul Fischer, Under-Secretary of State for Foreign Affairs; Major General S. B. R. Helsø, Chief of Defence Staff; *And also:* Major General Blixencrone-Møller, Army; Major General Ziegler, RDAF; Captain J. Petrsen, RDN; Lt. Col. Gruner, Defence Staff; Capt. M. Petrsen (RDN) Defence Staff; and Mr. Frederiusen, Foreign Affairs.

Agreed,—That the information tendered to the Committee today by the Danish spokesmen be recorded; that the printed record be made available only to the Members of the Committee; and that there be no attribution in respect of that information.

Members of the Committee were welcomed by the Danish Minister of Defence.

The proceedings of the Committee were conducted *in camera.*

At 12.00 noon the Committee adjourned to the call of the Chair.

THURSDAY, November 21, 1963.
(40)

The Special Committee on Defence met at 10:00 a.m. this day at Macdonald House, London, England. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(23).

In attendance: Rt. Honourable George Drew, Canadian High Commissioner in London; Mr. B. Rogers, Deputy High Commissioner; Mr. R. H. Melville, C.B., Second Permanent Secretary, British Defence Ministry.

Agreed,—That the statement by Mr. Drew be reproduced in the Committee's printed record; but that the proceedings of the Committee during the balance of today be *in camera* with copies of the transcript being made available only to Members of this Committee, and that there be no attribution in relation thereto.

The Rt. Hon. George Drew was introduced and he addressed the Committee respecting the work of the High Commissioners' office; in addition he outlined the work and responsibilities of Canadian personnel in London, particularly of the Chiefs of Joint Staffs.

At 10:55 a.m. the Committee recessed.

At 11:05 a.m. the Committee resumed *in camera.*

Mr. Melville addressed the Committee and was questioned on British Defence problems and Defence reorganization.

At 12:38 p.m. the Committee adjourned until 3:00 p.m. this day.

AFTERNOON SITTING
(41)

The Special Committee on Defence resumed *in camera* at 3:00 p.m. today, the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(21).

In attendance: The Chiefs of Joints Staffs (London); Professor Michael Howard; and Col. Gwynne-Jones.

The Committee's proceedings were conducted *in camera.*

Agreed,—That information requested by Members of the Committee be appended to today's evidence (*See Appendix "A"*).

At 5:45 p.m. the Committee adjourned to the call of the Chair.

FRIDAY, November 22, 1963.
(42)

The Special Committee on Defence met *in camera* at 10:30 a.m. today in Macdonald House, London, England. The Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard, (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith, Temple and Winch—(23).

In attendance: Rt. Hon. Peter Thorneycroft, British Minister of Defence; and Mr. Denis Healey, Defence Spokesman for the British Labour Party.

Agreed,—That the proceeding of the Committee's meeting with the Hon. Mr. Thorneycroft and Mr. Healey be recorded; that the printing record be made available only to the Members of the Committee; and that there be no attribution in relation thereto.

The meeting was conducted *in camera.*

The Chairman thanked Messrs. Thorneycroft and Healey.

At 12:45 p.m. the Committee adjourned until 3:00 p.m. this day.

AFTERNOON SITTING
(43)

The Special Committee on Defence resumed at 3:00 p.m. this day, the Chairman, Mr. Maurice Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Horner (*Acadia*), Lambert, Laniel, Lloyd, MacInnis, MacLean, MacRae, Matheson, McNulty, Patterson, Plourde, Sauvé, Smith and Winch—(19).

In attendance: Mr. Leonard Beaton, Institute of Strategic Studies.

The Chairman introduced Mr. Beaton, who addressed the Committee respecting Defence requirements, policies, balance of payments problems and other matters.

He was questioned on these and related subjects.

At 4:35 p.m. the Committee adjourned to the call of the Chair.

THURSDAY, November 28, 1963.
(44)

The Special Committee on Defence met at 11:00 a.m. this day. The Vice-Chairman, Mr. Marcel Lambert, presided.

Members present: Messrs. Béchard, Churchill, Deachman, Granger, Lambert, Laniel, MacLean, McMillan, Martineau, Patterson, Smith, Temple and Winch,—(13).

The Vice-Chairman presented the following as the 9th report of the Steering Subcommittee:

1. That the Committee seek, through the Canadian Institute of International Affairs, a number of informative papers respecting defence matters; that reasonable remuneration be paid therefor where required; and that any other incidental expenses incurred, in respect of the securing and preparation of this information, be defrayed by the treasury.
2. That arrangements be made for the Committee to meet in Washington, D.C., U.S.A., preferably next week, to meet with the United States Defence Officials.
3. That the Clerk of the Committee accompany the Committee to the United States of America.
4. That the actual living and travelling expenses of the Committee members and staff in attendance during that period be defrayed out of moneys to be provided by the Treasury.
5. That the Committee secure, for the use of Committee Members, four English copies of Helmut Schmidt's book "Defence and Retaliation".

The Committee proceeded to its consideration of the above mentioned report.

Recommendation No. 1 was amended to read as follows:

1) "That the Committee look into the possibility of securing through the Canadian Institute of International Affairs, a number of informative papers respecting defence matters."

Recommendation No. 2 to 5 inclusive were adopted.

On motion of Mr. Temple, seconded by Mr. Winch,

Resolved: That the 9th Report of the Steering Subcommittee, presented this day, be adopted as amended.

"A Review of the 'Mainguy Report'—1962", prepared by Commodore James Plomer was tabled.

The said review, which has been distributed to the Committee members, was identified as *"Exhibit No. 7"*, and ordered to be included in the Committee's evidence as an Appendix (*See Appendix "A" to today's evidence*).

The statement to the Special Committee on Defence, presented by the Voice of Women to Canada, was tabled.

The said statement, which has been distributed to committee members, was identified as *"Exhibit No. 8"*.

A brief on Research and Defence, submitted by the Canadian Peace Research Institute, was tabled.

This brief, which has been distributed to committee members, was identified as *"Exhibit No. 9"*.

At 11:30 a.m. the Committee adjourned to the call of the Chair.

WEDNESDAY, December 11, 1963.
(45)

The Special Committee on Defence assembled in front of the Parliament Building, Ottawa, at 9:00 a.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Granger, Groos, Hahn, Horner (*Acadia*), Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch,—(23).

In attendance: His Excellency Charles S. A. Ritchie; Brigadier Bennett, Acting Chairman of the Canadian Joint Staff (Washington); Mr. D. Gilchrist, Director of the Washington Office of the Department of Defence Production; Mr. W. P. Bundy, Assistant Secretary of Defence (International Security Affairs), U.S.A.; Mr. J. C. Kitchen, Deputy Assistant Secretary for Politico Military Affairs, Department of State, U.S.A.; and Mr. Henry S. Rowen, Deputy Assistant Secretary of Defence (Planning and National Security Council Affairs), U.S.A.

The Committee proceeded by military bus and aeroplane, to National Airport, Washington, D.C., U.S.A.

There, the Committee was met by the Canadian Ambassador to the United States of America.

The Committee proceeded to the Canadian Joint Staff Building, where they were briefed by the Ambassador, Brigadier Bennett and Mr. D. Gilchrist.

Agreed,—That the information tendered to the Committee by the United States officials be recorded, that the printed record be made available only to members of the Committee; and that there be no attribution in respect of that information.

Following a luncheon break the Committee was further briefed, *in camera*, by Messrs. Bundy, Kitchen and Rowen, American Government Officials.

At 5:30 p.m. the Committee adjourned, after which it enplaned for the return trip to Ottawa, arriving at the Parliament Buildings at 10:30 p.m.

E. W. Innes,
Clerk of the Committee.

EVIDENCE

FRIDAY, November 22, 1963.

The CHAIRMAN: Gentlemen, this afternoon, we have with us a Canadian who has done very well, Mr. Leonard Beaton. He is going to talk about the problem of weapon development, a subject which was discussed yesterday by Mr. Drew and he is coming at this time, at the end of our European tour. The meeting is open in the sense that there is no restrictions at all for the Press and the Minutes of the Committee will be published in the usual form in Canada.

Mr. BEATON (*Translation*): Perhaps I might thank you in French, Mr. Chairman as a Quebecer, for the opportunity of coming here to speak to your Committee—(*Text*)—and, having said that to show that I am really a Montrealer, I would like to open up with a particular question which has been bothering me a lot and which, I think, should be bothering the alliance more than it does and then to answer any of your questions or discuss any problems with you. I was really asked by Mr. Rogers to talk to you about the NATO strategy and I persuaded him to let me put forth this little point today, but if you would like to talk about the NATO subjects, or any other subject, I shall be delighted to do anything I can to be of any value to your committee.

What I would like to talk about is the problem of weapon development inside the North Atlantic Treaty Organization in the context of a situation which is rapidly developing, in which major weapon projects are becoming extremely expansive; solution is being needed far more than it has ever been needed before and we are now, in my view, exploiting the colossal resources which are available to the Western world because of a situation which has arisen and which is practically dependent on the fundamental problem of balance of payments. So, this is going to be a sort of economic military thesis which I submit for your consideration.

The traditional balance, inside the NATO alliance, has been that the United States has felt free and has developed the entire range of weapons for its own purposes, quite naturally. There has been a few points where the Americans have found that it was desirably urgent to put into production, usually on a licence basis, something which someone else had done, like the British Canberra bombers, at the time of the Korean war, which was the only jet bomber at that time in the world and the French anti-tank weapons and now, without bothering this committee with the "ins and outs" of it, they are looking as if they want a lot of Caribous and there are other cases of that kind.

Secondly, we have within the alliance a very wide British arms base; Britain has, broadly speaking, deriving from the war in a fairly continuous stream, the whole range of weapons, tanks, artillery, aircraft carriers, fighters, bombers, destroyers, helicopters, submarines, mines and so on. On the other hand, there has been a hesitant approach to guided weapons which were developed at the beginning of 1948 with one programme and an increasing number of programmes during the 1950s which have been especially concentrated on surface-to-air guided missiles and in fact anti-aircraft guided missiles, to some extent, I think, because of the battle of Britain. Militarily, there was a very strong priority in this country for anti-aircraft defence and two big programmes, BLUE STREAK and BLUE WATER, both bombardment missiles, have been

cancelled for various reasons. On the other hand, this country remains an enormous developer of aircraft and of all these other basic and primary elements of military equipment.

The French have revived an arm base which obviously disappeared during the war and which has been, on a much limited basis, in aero engines they have got some naval aircrafts, small missiles, light bombers, tanks and now it has a more selective programme because it has not arrived from a more or less complete arm base. Elsewhere, in the alliance, there has been what I would suggest, a selective programme, we have the Canadian underwater development, the Avro Arrow, a certain amount of Canadian activity with aero engines, the Caribou, certain kind of aircraft and so on. The Italians have developed light strike aircraft with success, the Dutch have been superb in radar and the Belgians in light arms. The Germans have been coming hesitantly into small guided weapons and a certain amount of joint aircraft development such as the TRANSALL with the French and the STARFIGHTER with the Americans, both of which being basically licensed programmes. We now have a situation deriving from history which, I will suggest to you, does not reflect the industrial strength in these particular places of the alliance as it is developed nor does it reflect the defence budgets of the alliance, although about 70% of the money that is spent on defence in NATO is still being spent by the Americans. This is altering steadily as Western Europe becomes more wealthy. Yet, we have had no basic development which would reflect who is going to develop these great new weapons, who would put up the money and if successful who would make the money in selling them or have a strong military power in developing them.

From this came intellectually the idea of interdependance in the late 1950s which McMillan and Eisenhower put forward very enthusiastical at Bermuda and so on. The idea is that we would become independent, the British and the Americans in particular, but of course the Americans cannot become dependent on anybody else. Other countries, because they were unable to provide their own weapons base, have become increasingly dependent upon the Americans. In response to this quite obvious situation, a secondary solution was produced, namely the notion of creating specifically a European Arms base and Mr. Watkinson—those of you who follow the NATO will know that Mr. Watkinson was the British Minister of defence—Herr Strauss and Mr. Meyer were talking a great deal about the 16 or 20 European projects. Well, of course, these projects have certain very obvious defects, one is that by definition, they were duplicating the American arms base and if I had time, I would like to argue that we cannot afford this, to become really effective as a military alliance. Equally, however, and very much more difficult was the fact that what we needed, in fact, was a common requirement of the European countries who were participating in this programme. If, for example, they decided collectively to adopt the STARFIGHTER, or air guided missiles, or the HAWKS missiles, which are proven American missiles and they collectively knew what they are getting, they knew what it is going to cost them, they knew what it is going to be and collectively decided to produce it under licence. That is obviously a very easy thing to do, but to attempt to set up requirements on which countries will agree and will continually agree on throughout the life of the weapon and agree on all industrial contracts that go with it and so on, is, I think, quite unrealistic. The Americans, or indeed any country, and this country as well, and no doubt Canada, have a hard enough time compelling their own air force and navy, who happened to be under the common discipline of the same government, to adopt the same requirements at the same time and, to do it for a group of governments, each of which has its own pressures, is in practice going to produce such a weak compromise that it will be unsatisfactory. The full notion of interdependance depending on the idea of common requirements by several governments is, I suggest, absolutely unrealistic and is a waste of effort.

That problem is there. It seems to me that one of the effects of this problem is that a country like Britain, for example, which is going on persevering in developing its own equipment has sometimes a complete winner and has the best weapon but, very frequently, they have something comparable may do but they have it two years later. Now, if you talk with british officers, I think you will find that they can say: "here is an american weapon that we can have in 1965, or there is a British developing programme which we can support but which will be ready in 1967 only". The result is that because the sales are going to be relatively small, the British programme may be extensive but it means that in the period from 1965 to 1967, that particular british element is not going to be as well equipped as it would otherwise. What I am saying is that for the alliance taken as a whole the best equipment is not being deployed, that the very large portion of the alliance's equipment is something worse than it would normally be if we were a single nation.

I would then like to look at a separate problem which is the balance of payments because I would suggest to you that the real source of one of our weaknesses as an alliance is this. The real reason why the British don't want to put any more troops in Germany and dislike the forward strategy and dislike the NATO pressure for increases of force, is the balance of payments burden; 80 million pounds a year, or slightly more, of british money is going across the international exchanges to keep the present 65,000 men in Germany and that sum could go up a great deal if Mr. McNamara had his way in providing a full conventional defence. The Americans are now in the same position, 2.5 billion dollars have been going across the exchanges which, of course, years ago, was simply writing an existing unbalance. Now, it is the cause of a great loss of american gold and foreign exchange. Mr. McNamara, by various means, which I would like to mention, has brought this down to 1.7 billion dollars through the exchanges for defence expenditures outside the United States. One of the reasons why he has done this is that he has adopted a policy of selling armaments quite deliberately and vigourously to compensate for the foreign exchange burden involved in maintaining troops abroad. This policy has been fully accepted by the German government in particular and I think quite rightly and logically. The West German Government is very concerned indeed at the prospect that at any time the Americans may be compelled or may feel they should withdraw, or even only reduce their force in Germany, they are prepared to pay whatever price must be paid and, for this reason, they readily recognize the american balance of payments problem and they have said to the Americans, "we will help you in solving this problem possibly by buying vast quantities of our own equipment from you, which of course is a cheaper way and a better way for the Germans to equip themselves. Now, there no foreign exchange burden to them because they have a colossal intake of foreign troops on their soil, not just Americans but British, Canadians, French and Belgians. One of the side effects of this is that there is no prospect whatsoever of European countries, or other countries of the alliance, including Canada, selling this sort of equipment to West Germany because West Germany has committed herself to the Americans and by definition, is not going to buy the same things from other people. This means, of course, that if it was not true for other reasons, the European arms base is not going to open and operate because the Germans have it both ways.

So, the present position is that the Americans are deliberately and I would suggest, without any serious consideration of the consequences on their allies—I don't think this has really crossed their minds—pursuing a policy of what amounts to a monopoly in armaments development. I don't think this is a conscious policy, but, this is the result of their policy and I think they see in their hearts that there is something logical about this. I think that if they had thought a little bit longer, they would not feel that way; this is rationalized in their minds by the conviction—and this is a perfectly proper and correct

conviction—that this policy is necessary to save the American balance of payments situation which must be remedied if the free world is to be defended. However, this is creating a great dilemma for all the other arms industries in the alliance, either actual or potential, except for the Germans who, to a large extent, have said: "All right, let we not have these industries for the coming years".

Now, is there a solution to this problem? If my appreciation of the situation is right, where do we go from here? I would suggest that anything based on common requirements, getting together the Americans and telling them: "Let us have the British build this kind of missiles or that kind of airplanes" it is just not going to happen, it is a dead end, this won't work. Now, what I would like to suggest to you is that the universal belief that, without this, there is no solution is incorrect and also that the present method of policing American expenditures by bilateral negotiations on a political basis is not getting the best equipment for everybody and also that the failure of this system to balance up the heavy expenditures of the American abroad and the British and the Canadians, Belgians and French in Germany is throwing a very heavy burden on the international liquidity structure. I don't want to bother you with liquidity; I am sure that many members of this committee know much more about it than I do but there is a profound difficulty in the world trade by the fact that there is such an unbalance in quantities and the quantity structure does not insist to maintain this unbalance and armaments are one of the principal causes of this and will remain so as long as we have not, by some magic structure a perfect balance between foreign expenditures on troops and the ordering of armaments. The amounts of money involved in these military expenditures are so enormous that the structure that exists in the world trade has a very difficult time.

After all this build-up for which I apologize, I would like to suggest that the solution is to take defence out of the balance, to take aid out of the balance of payments and I would suggest that there is a means to taking defence out of the balance of payments; this could be done by the formation, in NATO, of a Defence Payments Union. The method by which we would do this would be perfectly simple; we would simply say this: NATO, as an organization, would define what defence expenditures are; it does at the moment, as a matter of fact, NATO publishes figures of defence expenditures under what they call the NATO definition and it defines defence expenditures. Suppose they take the Canadian Defence expenditures and say: "we don't include this kind of pension, we don't include this and that, what is left is what we call the Canadian defence expenditures"; they then put it out under NATO definition. Naturally, this would have to be done in great detail. Basically, our purchases made inside the alliance, which are defineable as defence expenditures, would go through the Defence Payments Union; this would include either the ordering of arms from somebody else or the stationing of troops in some other countries, so that, for example, the Canadian brigade in Germany, her expenditures would be paid to the Defence payments Union in Canadian dollars and the German government would have to put up the credits for the Marks that were spent on the Canadian troops subsisting in Germany and the only way the Germans could redeem that money would be by buying something else through the Union, station some German troops in some other countries,—which is unlikely to happen—buying starfighters from the United States, buying Caribous from Canada, whatever it is that the Germans want to buy. Now, the essence of that system would be that there would be no settlement date. Now, I don't know how much you know about payments union, but normally a payments union is designed simply to iron out rises and falls in a situation where people are getting into debts and where payments are out of line. It is designed to iron out rises and falls and if somebody is in persistent deficit, then he has

to start paying off. Well, this would have no settlement date because the fundamental principle would be the keeping troops abroad or the buying of armament abroad is not something which makes you indebted to others, it is not a wasteful and anti-social activity; it is a good and alliance worthy activity. Therefore, those people who are in consistent deficits with the Union are doing their alliance duty; those people who are in persistent credit with the Union will just have to keep on putting up that credit until such time as they realize that they cannot go on making money out of their allies this way and they have to start buying from them, or else, they will have to start stationing more troops somewhere in the alliance where they are needed. Now the result of this would be that the Americans, if the international situation dictated it, there would be no balance of payments issue and the Americans would raise their troops in Germany from six to ten divisions, or twelve divisions; there would be no balance of payments which, I suggest to you, is the really decisive factor today in our decisions and also in ordering equipment, there would no longer be an issue and countries which are making money out of the alliance, either by being hosts or by selling a great many arms to the others, would find that they have to change their policy and you would get an automatic regulation forcing the Germans to buy from others in the alliance which would be similar to what they have today and which is imposed on them by the Americans politically and bilaterally impose may be the wrong word but you understand what I mean. The effect of this would be that it would not remove from governments and above all from the armed forces the choice of what they want. If the Canadian Navy says "what we really want is this American Torpedo or this British Torpedo," nobody will say to them "Fine, it would be nice for you to have them but we already have a balance of deficit with the United States and we don't want to add to it", because that would not be an issue. The second point which could not be put to the Navy is that nobody could say: "we have got a torpedo factory here and if they lose this order, it is so much work gone". In such a case, the reply would be "If we lose this order and we buy the American torpedo, then the Americans are going to have to place some other orders from Canada for some other Canadian things, because, otherwise, they are going to let us have those torpedoes for nothing, they are going to have to advance credit and in the end, the Americans are going to be forced to place an order." We don't know what order they will place but they will buy something which they want. The point is that you will return these decisions to the places where they are going to be made with the military interest of the alliance at heart and this applies both to equipment and to the stationing of troops which, I would suggest, is in a terribly inflexible position at this stage.

Now, it just happens that the people who sell the most military equipment abroad at this state, that is the American and the British, are also the people who are laboring under the heaviest burden of maintaining troops abroad. So, there is a natural balance as it happens in the situation and therefore, nobody would be put in a disastrously embarrassing position from the start. I suggest that we would get major benefits for everybody in the alliance, anywhere in the alliance, for example: The Fiat company, in Italy, which is an extremely efficient firm, may have a good idea and may decide that they want to develop a certain kind of surface to air guided weapon; well, they could make this weapon if the Italian government supports their development programme, if the Italian air force was interested in this programme, Fiat could develop that weapon in the knowledge that if it succeeds there will be almost no annihilation by the British, German, Americans and so forth. In fact, probably that the Americans are in great need of buying something abroad because they will be getting even with credits and there would be no annihilation in selling this throughout the alliance, certainly no annihilation based on the notion that it is against your own industry or your own balance of payments if

you buy foreign equipment. I would like to suggest that the idea of creating another United States in Europe, which would solve this problem, is now being discarded and if everybody else in the alliance in effect will not be put out of the modern weapons business by the pressure, the power, the size and the strength of the United States. Such a mechanism is needed as otherwise the alliance is going to become very uncomfortable from the point of view of arm development with all these industrial, commercial and other implications. The alliance can become very uncomfortable for those nations who are neither enormous like the United States or else so small, like Norway, Denmark, Portugal, Iceland and probably Greece and Turkey if they don't really contemplate putting their resources into advanced weapons development. For everybody else, the sort of crisis or the sort of dilemma which the Arrow represented—the Arrow which was an extremely successful and first class airplane, I don't want to put myself in real hot water here—but the Arrow was there without its logical market which was the United States Air Force for all sorts of reasons. This mechanism would not solve the problem entirely but I suggest that it could be done, it could do an enormous amount of good for the world liquidity and the world's trade; it would also stabilize the system and remove the dramatic unfairness which is represented by the continuing self-sufficiency and growing dependence by everybody else.

Mr. Chairman, that is the thought I was anxious to put in your committee's mind; I apologize because it is so specialized but I think this is a crucial question but it has not been recognized as such. We are paying a very heavy price for our balance of payments difficulties and I was really anxious to put this question before your committee and, as I said before, if you like to talk about anything else, I will be happy to answer you if I can.

The CHAIRMAN: May I add that Mr. Beaton is from the Institute of Strategic Studies so, he spends all his time on problems of defence. Now, as he told you when he started his remarks, he is also ready to answer questions on other problems than the ones he has raised.

Mr. HORNER: Mr. Beaton, your theory on defence financing, would it not ultimately cost Central Europe more money than they are now paying for their NATO or alliance defence?

Mr. BEATON: I think it is possible that if one country in the alliance happens, by the existence of a forward strategy, to be a host permanently to a very large number of troops, which is the case of Germany today, as I think there are about 500,000 troops in Germany, that is a very complicated situation, it cannot be denied. From the balance of payments point of view, it is going to be most unfortunate for the Germans if they have automatically to create credit for all these troops and to discharge that credit through buying arms. On the other hand, it is equally unjust and unfair if somebody in the alliance is paying a price for putting its troops in Germany; somebody in the alliance, it does not matter who, in going through the ringer to defend Germany and the rest of us; not only that, but that somebody is refusing to put more troops into Germany, which they might otherwise do and which might be militarily desirable and necessary. The point is that our set-up is such that there is a strong economic problem in doing something which we consider as being militarily necessary. So my point is that I quite agree that this is going to put somebody, like Germany, on the spot. What they will have to do is that they will have to accept responsibility for repatriating all this money that is flowing into Germany, but I don't think it is unfair.

Mr. HORNER: I am not questioning the fact that it is unfair or not, I just want to understand your theory. Now, the next question that enters my mind is: Will Germany accept this greater cost?

Mr. BEATON: Obviously, she does not want to; I think Germany has been one of the most mature and sensible member of the alliance in a great many ways and the German government understands one thing better than anybody else and that is that they have got a very big neighbour to the East, which is very strong indeed and they want a great many troops and a great many allies and great many weapons and I think that if it is put to the Germans as it has been by the Americans on their bilateral agreement, that if the German government wants this situation, it cannot be done at the expense of other, like for example Britain having to stop her economic development, or Canada having to take crisis measures in order to sustain a German growing favorable balance payments situation which she is getting from these troops in her own country and I think the Germans will agree as a fundamental principle that this is a place where they cannot afford, over the long pole, to make their foreign exchange.

Mr. HORNER: I think this question has been dealt with to some extent when the United States have been saying, time and time again, we want to withdraw our expenditures one way or the other from Europe and we want to see Germany, for example, take a bigger hand in the NATO alliance and Germany has been doing it. As far as I understand, they are producing F 104s at a rapid rate and they are building up their army at a tremendous rate; as a matter of fact, they have more soldiers now than any other NATO country outside of the United States. Whether you can get them to pay on the longer run the cost of the alliance's injuries, well more power to you?

Mr. BEATON: I did not say they are paying it, they are not paying anybody's cost what they do is that they pay for their own defence, just like we all pay for our own defence, but there won't be a foreign exchange coming from those troops. If the Germans cannot get on without this money, then there is something wrong with the German economy, because a country like Canada is receiving virtually nothing from the existence of foreign troops on Canadian soil, or from foreign countries' order in Canada—I said virtually nothing, I would like you to correct me if I am wrong but I did not think it is anything comparable with what Canada is spending on arms order even if Canada is still trying bilaterally to get a balance from the United States.

Mr. HORNER: Could not Canada, to offset its expenditures or the maintaining of its troops in Germany, carry out a greater training programme which would be greater than what there is today, something similar to what Canada did back in the second world war, for example, training fighter pilots from Germany in Canada to offset this expenditure?

Mr. BEATON: Yes, well the German government would have a real incentive to do that because all that training, if they were running a big credit with the payments Union, then they would say: "Look, let us send all our pilots to Canada, we will have them trained for nothing because it will all come from the discharge of our credit", "That means that we can have all that training for nothing, we will send our sailors to the British or whoever it is and the Germans would automatically have an incentive for taking action. Why should they throw away their surpluses now by sending their pilots to Canada?

Mr. SMITH: I have a question on a definition; this payments union, is that to put a sort of a system of block currency?

Mr. BEATON: Exactly, yes, I mean it is a block currency in the hands of the union itself, for which creditor nations are obliged to create credit.

Mr. SMITH: Each partner has either a deposit credit or a deposit debit in this union?

Mr. BEATON: Right.

Mr. MATHESON: Sir, to get away from this exchange problem, General Simonds, I think, in his evidence, suggested that perhaps there was place for a bold ..... capital development of equipment; I think he was speaking in terms of nuclear powered submarines that might become a military vehicle and could also transport grain, for example, at the bottom of the oceans. Now, looking at our history, we endeavoured to do three good ideas, NADOR, ARROW and BOBCAT and we failed in them all. NADOR was the navy programme, it was a good idea but was never developed because we did not push it hard enough; ARROW failed although you indicated the idea was basically sound and perhaps would have served the need; BOBCAT at one time was apparently ahead of itself and simply died because others replaced it.

Mr. BEATON: I am afraid I don't know BOBCAT, what is it?

Mr. MATHESON: BOBCAT was a carrier that was developed in Canada. Now, as an economist and a Canadian, do you feel that it makes sense to Canada endeavouring to go into important research which involved a great capital development. What types of things could we really add to our industrial potention and at the same time make a significant military contribution to NATO. I think there is a fear to our economic shifting away from the high labor content type of industry.

Mr. BEATON: This, I think is a tremendous question and my instinctive reaction is that I think that a country like Canada should be in this highly sophisticated development business. You have got to have good nerves, a tremendous gambling instinct, because this technological game is gambling of the highest order and it goes on over a number of years. The main thing is that you must not let your nerves slip at the wrong moment. On the other hand, you must not hang on to a loser too long; you ought to know when a loser is a loser and I think the answer is that you got to start a fair number of projects and then, when you get to the sort of one or two million dollars stage, which is basically betting into serious development, that is the moment when you should really review it with all the resources that you have got and cancel it if it is a loser. Britain has got itself in such a condition of neurosis about cancelling projects now; as you know, it is a very hard game to sustain in a democracy because it leaves opportunities for accusations of waste and so on, but you have got to have the nerves to cancel it when it is a loser, and when you have not cancelled it, you have got to go for the one you are backing and back it heavily because a small country has to back heavily otherwise it is going to be too late and, invariably, I am sure the serving officers in this room will agree with me, about a year after, invariably you feel that the project you have started is the wrong one; it is obvious to you why it should have been that much different, it is obvious to you that it is a waste, that is the moment when your nerves slip on you and you say: "well, let us take another year and let us amend it this way; then the thing stretches and stretches out. I think that the French people have been superbly successful in this regard. Their great thing, I think was the (?) Aviation which has gone in for missiles which took over the German wire guided missiles which we were playing around with since 1945 and which settled down a relatively cheap technology. It may look very simple but none of these things are simple in term of getting really ready, available hardware that is ready for use, they settled down on this, they concentrated on it and nobody can overtake them now. This has taken them into other fields; they have now the AS 30 and so on. I know much less about the Canadian weapons development that I should, but it is perfectly obvious that Canada is now leading the world in light tactical transports with the CARIBOU's, as a spectacular example. I am sure that that kind of field has a natural base in the domestic economy.

Knowing very little about the actual situation, my hunch would be that Canada should back up that winner very hard, go on with it, develop it and say "we are going to take this up to the next stage and we are going to stay ahead of people, and we are going to have the same resources going into this field as the Americans are going in other fields because, even though we only got 1/10th of the population and resources of the United States, we are going to put 10 times as much effort into this field as they can spread on the average of their projects because they are doing 10 times as many projects". Some one may say that these caribous are finished, it might be so, but you have got to have good nerves and survive this stage because there are so many phases in the opinions which may change one's mind. One of the keys to this is a very good structure organization in the Department of Defence itself. One danger that is met in England and in Canada too, is that people are removed from their jobs the minute they have learned their business and have mastered their problems. If the Americans had done the same thing with *Rickover* who has done more for the American defence establishment that any other man that I know of, it would have been different. However, this man sat on the same job for years and years developing an atomic powered fleet and he has the authority to do it. That is an element of organization. This has been a long answer for which I apologize, but my basic answer would be "yes, Canada must be in this game, we must not have too many projects, we have got to chose and the big thing is to have the nerves and have the right attitude". That is a tremendous political problem for a nation to solve.

Mr. LLOYD: Mr. Beaton, could you be a little more specific with respect to the kind of development Canada might be best suited for. You mentioned the CARIBOUSs, transport aircraft; are there other things that you could identify.

Mr. BEATON: It seems to me that basically, you want to identify general fields which are of interest to your country. For example, Canada has not paid much attention to guided weapons. I would say that there is a very strong case for not paying too much attention to guided weapons, for excluding low categories of developments. Those decisions are made by some pressure or by service pressure or by industrial pressure and I think my philosophy is right, you have to get a winner; you have got to make a very close study of what is going on, particularly in the United States because had the American been interested in CARIBOUs, had they really had a programme of this kind, then CARIBOUs would have been a crazy think to do. There are number of thing the Americans would like to be doing and are not doing; I think it is very important for everybody else in the alliance to make a very close study of what the Americans are doing. Then, of course, you will have to look at the resources that exist in the country. I am not answering your question because my feeling is that Canada has a very good, if small, aircraft industry which has done the best in that field.

Mr. LLOYD: What about the nuclear propulsion?

Mr. BEATON: Well, I would think that nobody is going to overhaul the Americans in the nuclear propulsion of ships and I think that it would be absolutely the wrong thing to do to go for this propulsion business unless there is a very real conviction that it can succeed.

Mr. LLOYD: Are you suggesting that it is a hazard here while we are all threatened by a nuclear war, we still hope that by some magical term it will be avoided and the residue of the benefits of the vast research programme by the country is liable to come under the ..... and weaponry development and the by-products of those research will go to private enterprises. Is that what you suggest?

Mr. BEATON: I am sorry, I am a little bit lost by your understand which I do not understand fully.—Anyway, I don't know if we are going to have a nuclear war or not, but I think that if we don't have a nuclear war, there ought to be great advantages to the people who are in command of technology and I think we have got to work on the assumption that we are not going to have a nuclear war. We also got to work on the assumption that in order to avoid a nuclear war, we have got to have good equipment for our troops, whether we make it or buy it. I do think we have got to look hard, the Americans never failed to look hard at the commercial implications of weapons development. A country like Canada which has got a first class civil nuclear industry and which, in some way is leading the world in large nuclear power plants for civil purposes, should certainly constantly keep in mind the possibilities for marine propulsion, but I would think that for Canada to start pouring money into marine propulsion nuclear power plant which will be a very expensive business.....

Mr. LLOYD: Just a moment, please, what you are saying is that you have to avoid the competition internationally when the economic field is occupying your attention just as much as the threat of a nuclear war?

Mr. BEATON: Well, at the same time, not 'as much as'.

Mr. DEACHMAN: Sir, in regard to the payments union, is it not correct to say that over the next decade or so, Europe will tend to want soldiers and want people in the field which will have to come from other countries, from the United States, from North America and will not particularly want soldiers in the field ..... so that the North American continent will tend to be an exporter of soldiers to Europe during that period?

Mr. BEATON: I think that is right, yes, in fact it is the case now.

Mr. DEACHMAN: So, we look to the future and see a continuing flow of men from North America to Europe which will have to be maintained in the framework of the plan. Now, for their part, will not the Europeans say that in making payment for their part of the plan, they will provide us with capital equipment such as planes, guns, electronic equipments, ships and the like. Would this not tend in the circumstances that they are not sending men to us, it is going to have to fall back upon sending equipment to us because it is no use sending raw material to North America, North America is a country that is full of raw material, so, the exchange will be made in capital goods. Is this not so.

Mr. BEATON: Well, I think you are setting the exchange wrongly because Canada or the United States send men to Europe and, at the same time, what is the effect of sending men to Europe if you send money as well.

Mr. DEACHMAN: If you agree that men and money are going to be sent to Europe in the next decade, how is it going to be paid, by what?

Mr. BEATON: The way it will be paid for is by sending money to America and the result of that is that the Americans, having sent men and starfighters to the German Air Force, they will be in balance. Now, you put this question in such a way that it is confusing me but I think I am right. The fact that you are sending men is not the key to it. The point is that by stationing men in Europe, you are buying from Europe, you are buying food, shelter and so on and it is the equivalent of equipment you sell to Europe.

Mr. DEACHMAN: Mr. Beaton, this is true that we are paying for food and shelter in Europe, but how will we be paid by the union?

Mr. BEATON: That must be paid by the purchase by Europe of something which will go to the Defence Payments Union. However, they cannot do it by buying cars from the United States.

Mr. DEACHMAN: It could not be done simply by sending us Deutsch Marks or anything or by payment of capital goods?

Mr. BEATON: No, when you say capital goods, it would have to be defence goods because they cannot discharge this on their normal imports from North America.

Mr. DEACHMAN: If they must buy capital goods, then they will have to buy those capital goods from the United States or Canada?

Mr. BEATON: Military capital goods?

Mr. DEACHMAN: All right, now, can you see a situation where Germans and French, over the course of the next decade, would be satisfied to engage in an arrangement where they would be put in a position where they had to be major purchasers of capital goods rather than manufacturing their own goods in order to balance the payments.

Mr. BEATON: Well, I think they can do it in all sorts of different ways. I mean the French Navy could make it a habit of refuelling in Canada, or they may sent their aircraft carriers to be refitted in Newport news, instead of having them refitted in Brest, because they have got a surplus with the Union.

Mr. DEACHMAN: Do you think this is very likely?

Mr. BEATON: Why not, from a point of view of the French Navy, it might be a very attractive proposition; the Americans are very good at refitting ships; they are very fast as everybody found out during the war. I mean, I don't know exactly, but this would have to work itself out in many ways. As a matter of fact, someone here, today, put up a very interesting proposition which is that the Germans might find themselves turning over all their pilots to be trained in Canada.

Mr. DEACHMAN: So, the conclusion I want to make is this: I rather think if indeed that places the onus on them to make capital payments, the result will be that they will bargain in order not to do it and the tendency of putting forward a payments union of this kind will be to drive NATO nations apart in an effort to do precisely what the French are doing now, looking at a home-made do-it-yourself project.

Mr. BEATON: I think this is precisely what it is designed to stop. You see if your start building all your own equipment at home, than if other people buy your equipment which you are always trying to sell to others and you succeed in selling them, then, you will find that you have to give it to them on credit and you cannot discharge that credit instead than by buying from them. So, you will find that your policy of your home self-sufficiency is simply forcing you to create credit. You see, this is the whole point of the scheme.

Mr. DEACHMAN: I know what you are driving at, I am simply supposing things that could be done that you don't want to do. However, we could pursue that argument a way further?

Mr. BEATON: Yes, and I think this warrants a great deal of study.

Mr. SMITH: Of course, the balance of payment is not the only way in which we have inbalance of defence expenditures. What do you think of the problem of industrial nationalism, for example: we are having a problem at home now with the Americans and the industry is rather hesitantly withdrawing from the CARIBOUs because of pressure on the part of the United States to build a plane of their own?

Mr. BEATON: I don't know whether this is related to that little scheme of mine but my feeling is that the pressure to build the American planes must be pressure from other people in the United States who realize that if they bought the CARIBOUs from Canada, Canada will have to buy something else from the United States. I think this would undermine the real basis of this

sort of industrial nationalism, it would not remove it but the governments have always backed up the American programmes and they have always cut off the foreign purchases, these governments will find that they have to create credits. This is the very point I was making to your colleague. This is designed to create a fiscal instrument which is there all the time; in the minds of the governments. It is a real fiscal instrument.

Mr. SMITH: Is there not a possibility that it would lead to the unnecessary over-production of arms, of small and less important kinds of arms. I mean, Germany has a huge credit which she can only spend at defence production in the United States. Why can she not buy Garant rifles and trade them with various countries in Africa for raw material?

Mr. BEATON: Well, if you put a couple of French inspectors, they would soon enough spot this for us.

Mr. MACLEAN: Why do you say that this fund should be limited strictly to military expenditures. Supposing Canada had a credit and Germany had a deficit, could not this be adjusted by a large purchase in Canada of raw material by Germany, or wheat, butter, or something like that?

Mr. BEATON: The trouble would be that if Canada has a natural trade surplus with Germany, why should the deficit country just happily discharge this through the use of the payments union and Canada therefore would not achieve her balance of payment earnings, which she counted on and which she has earned through economic efforts. The argument here is that it is a virtue at stake to succeed in selling exports, it is a sign that you are efficient. Well, this is not quite true with defence; with defence, it has become a vice to be self-sufficient and something of a virtue to buy abroad and it is particularly virtuous to station troops abroad. I think there is an element which we should recognize as a group of nations.

Mr. LAMBERT: In your suggestion that Canada should select certain types of activities in the production of defensive weapons or defence material, are you pre-supposing that there is a consultation among the nations so that we don't get a duplication.

Mr. BEATON: I don't think you can get much of a consultation at that stage. If you decide that you want to produce a mine, let us say, or a bobcat to go into service in 1974, you will find that there are bits of paper in all the principal industrial countries of the alliance, on the desks of the army staffs, saying what would be a nicer kind of equipment, or a nicer kind of personnel carrier and what we can do with that. These will all be there; some of these will become projects and some others won't. At this stage it is quite impossible to say what the prospects are for these personnel carriers programme and, basically, what I am saying is, not only will they not encourage anybody else, they certainly won't give them a commitment not to do it, they certainly don't know what the requirements will be in 1974 and really the race is too swift; it is the fellow who backs his own hunch, the fellow who gets the right team to do the job, the one who decides that the thing is right, the one who has his own military behind him, the one who says "we have to work this out, we really know and we are sure", it is that fellow who is going to get the thing ready in time, the right quality, the right performance, the reliability, he is the one that is going to get the market and I really despair of any real meeting of minds to say what requirements are going to exist in 1974. This is a point where one is a nation on specific things but basically, it is every man for himself and the Americans have a big head start.

Mr. SMITH: Is the race to the swift or to the base?

Mr. BEATON: The race is to the fellow who really gets the start at the right time, with the right quality and the right reliability, he has a huge advant-

age to the pick, all the side advantages of other technologies, contributing movement of men, great application, you know—light steel casings, developed missiles being applied to engines, applied all through the whole of technology. There is a great deal to be said in that sphere for a little judicious stealing; I mean, going out and finding the man who has the company. The Americans have done very well on this one, the Arrow team disappeared into the American aircraft industry in no time. Canada is ideally placed for judicious stealing which she has done from Britain very successfully for years and years; as a matter of fact, much of the Arrow team have originally been British and Canada has also done a certain amount of judicious stealing from the Americans.

Mr. LLOYD: What about Sweden in this context, where do they fit?

Mr. BEATON: Well, Sweden, I think, is a marvelous example of just what a country such as Canada, on a bigger scale than Sweden, or Britain on a somewhat bigger scale than Canada, should be doing. Sweden does a weapon development programme which was very well studied and this programme will repay its study very much. They don't have the idea at the end of a line, they have a great sense of self-sufficiency, they don't have any credit from anybody, they have all the advantages of toughness and clarity, they have got a very orthodox hard-headed clear thinking. The Swedes have a development of aircraft which, I am sure, is familiar to many people in this room, they have the LANSON and they have got a new one coming along; they have never succeeded in getting a major export success from these before as they have always been a little late, but remember that we are talking about a country of 7,000,000 people; this is really a very moderate size country. They have had success in a missile programme, they have developed tanks and certain other equipment. They buy very shrewdly; they bought a lot of British equipment and they buy a certain amount of American equipment; they have a certain preference for buying British for various historical reasons, but, also, they have had very close relationship with Rolls Royce on aero-engines, which Canadian industries also have. However, my point is this: they have selected very carefully from all the possible lines of development which they could pursue. They have organized themselves, they have recognized that it was only worth doing a modern weapon if you pile up resources onward. I think they are a very good example of what could be done and should be done by a number of NATO countries, whose energy in this sphere are to some extent stopped by buying, side by side, with this enormous American defence technology which halts everybody and which people find very difficult to live next to, without simply, to a large extent, giving out.

Mr. SMITH: Perhaps, if we were more like the Swedes, we would not be members of NATO?

Mr. BEATON: Well, if we could achieve, as allies, the sort of mentality which has been imposed on the Swedes by the sense of isolation, for not being in the alliance and I might say that this mentality is very noticeable also in Switzerland and Israel. I would say that those are the three countries where you really see results being attained in military terms. I have heard a member of the Swiss General Staff argue that if NATO achieved the same results in terms of troops as per its population, as Switzerland does, we would have 800 divisions.

Mr. ASSELIN: Mr. Beaton, a few moments ago, in reply to a question by Mr. Deachman, you made the statement that if this paying off of debts, you would not be able to do it except with military equipment or military supplies. Why could you not?

Mr. BEATON: Well, I will try to answer clearly; the point will be that in effect, today you have to balance off, today, you have to balance off in terms of ordering things. We have got today great surpluses piling up in one place

and then in another place, it was in the United States for many years and now it is in France or in Germany. Basically, we will have in the end to balance up in our foreign trade and if you don't, you will have to give credit to people. So, there is a natural balance, my point is really that it is unjust and unfair that people should have to use their normal exports, their normal way of making their living economically to pay for their sacrifices for the common cause by keeping a brigade in Germany or whatever it may be or by buying something, saying our Air Force will have a better fighter two years earlier if we bought the American one rather than making one ourselves.

Mr. ASSELIN: It does not have to be normal exports?

Mr. BEATON: Well, it is an awfully hard question to define, is it not. I mean if the Germans came around and said: "All right, we owe you a lot of money, so, will you please give us "X" million tons of wheat instead of buying our wheat from France". But, somebody in Canada might say to themselves "you know, we really had a fighting chance of selling that wheat to another country and we would have made some money, we would have had some cash in our hands, why should we"; look at the gamble that the Canadian wheat farmers put into growing all this wheat, why should that all go on keeping part of the Canadian Brigade in Germany. So, I think there is a genuine element of justice in this and my real theory is that we are not going to get the real military results if we don't create this justice because the real thing that happens is that Canada does not decide to send a brigade.

Mr. GRANGER: Mr. Beaton, is not your plan a kind of NATO common market for military requirements with each nation specializing and producing certain of the requirements and would not this lead to complete interdependence which might be a variance with the national interests?

Mr. BEATON: I see what you mean by common market, but I mean strictly speaking we have a common market now, we are all selling to each other, we haven't got a common tariff but tariffs are not important in this particular scheme. I think it would lead to interdependence and I think that interdependence is inevitable. Remember that as long as you are a sovereign nation you cannot after all fight alone, let us take Suez, for example, that was a scrap which certain members of the alliance got into and certain other members of the alliance did not approve of. It did not matter whether British and French had both their equipment, whether they bought it elsewhere or made it themselves; they had it and they initiated the military operation, of course, to the extent that you rely on others for reserves and additional supplies to back up and, to that extent, you are going to find that you are subject to the others' pressure and that is something which the Americans are trying very hard to avoid. I think the Americans are very frightened of becoming reliant on anybody else, except possibly Canada, but they are very unhappy about becoming reliant upon anybody in Europe. I think this attitude is out-dated, I I think if we are going to see the Communists off, in terms of military development once and for all, I mean if we are going to exploit the fact that we have more than double their wealth, we have got to turn our units into something which generally, in term of its military strength, reflects our value to some extent; we won't achieve that, we won't achieve a happy alliance if the Americans have the monopoly and we won't achieve an exploitation of all these skills and resources which we have elsewhere in the alliance. So, I think we are quite interdependent, I think myself that it is a good thing, I think that we want people to feel less isolated, so that they can cooperate with the rest of the alliance, I think that goes for everybody in the alliance, including the Americans.

Mr. HORNER: Now, I would like to take you back to weaponry; you talked a little while ago about home construction of weaponry and what Canada should

do and what is the role Canada should be playing in this regard. Now, I would like to take you to the other side, for just a moment and ask you what best weapon Canada can purchase or buy in this vastly moving stage that we found ourselves in, in the world today, with regard to obsolescence of weapons and so on.

Mr. BEATON: Before you can answer to that, you have got to say what is Canada's role, militarily; before you can look at the Canadian Armed Forces, you have to look at Canada, at its place in the world, its place in the alliance, its place in the United Nations, its place in the Commonwealth, itssympathies, its interests, its fears and its dangers and then you can say "What do we need". Of course, one of the characteristics of Canada is that it has a very small national defence problem, to the point that we may only keep very small armed forces indeed. The second characteristic of Canada is that it has very large sympathies and enormous interests in the world, I mean, the contrast between Canada and a country like, say, Argentina. Argentina does not get involved psychologically with anything that happens in the world; Canada has its tradition of involvement in the world; as a result of that tradition, Canada is inevitably going to play an important part in the construction of the world system and, with all respect to Argentina, there is not much evidence that she is going to play much part in it. I think Canada has to start by saying "what are we going to get, what kind of armed forces we want" and the next question you then come to is: "how much do we want, how important is our share in the confrontation with Russians in Europe," which is the heart of the East-West security problem, and "what is our share in the intervention forces which we may use as an alliance in the Congo, or somewhere, what should we put at the disposal of the United Nations"? Remember, we may get involved with somebody like India about which we are simply concerned, India could be invaded by the Communists or anybody else. My personal feeling would be, and this is an entirely personal feeling, that Canada should become a leader in the whole technology which is associated with the intervention forces. I think this is what Canada's place is; her place is not primarily in the confrontation which, in any case, is adequately manned now that the Germans are fully armed. Canada should study and master the technique of mobility, which mean air transportability, and its naval back up. For example, if I had an aircraft carrier in the Canadian navy, I would not put it in the anti-submarine role in NATO; I would think of that aircraft carrier as the Americans think of their aircraft carriers in terms of what aircraft carriers are really good for, which is mobile airfields in support of the army and God only knows where. So, to come back to your question, I would start by trying to decide and I know this is a very deep debate inside the Canadian Defence Department. I think if you don't clear your mind about where and what kind of forces you are going to have, then, you are going to have the wrong things. I think, that if Canada would decide to go into this kind of things, this could be the back bone of the Western alliance in certain parts of the world; it would be a back bone of some situations in countries in which Canada has feelings or it will be the start of the world police force; this world police force will consist of national contingents being drawn more and more into a common planning set-up, just like the NATO set-up, run by U-Thant or whoever it may be. I don't know what the structure is going to be but if Canada is got to be in on this, as I think it is her instinct, and I think this is what she is spending her money on, not on national defence, then, I think what she really needs is mobility.

Mr. HORNER: That would take Canada strictly in a conventional force, then?

Mr. BEATON: It would, in fact, I can see no particular role for nuclear weapons if a scrap would develop in Indonesia, for example.

Mr. HORNER: I just say I accept your suggestion, but now, please project your thinking into Canada's role in the nuclear defence. I would like to know what weaponry, should Canada be investing its power into a nuclear field in particular?

Mr. BEATON: You mean a nuclear defensive, a general war, is that right?

Mr. HORNER: No, I mean Canada's purchase of weaponry in the actual nuclear atmosphere; I could mention for example nuclear submarines equipped with polaris missiles; should Canada go into this weaponry, or stay out of it all together?

Mr. BEATON: I see what you mean. Well this, of course, raises a very interesting question of whether Canada should stick to our 1946 decision not to have a national nuclear weapon force, not to develop nuclear weapons. With a conscious decision taken by the Canadian government, Canada could have had a nuclear power well ahead of France and in a comparable time to Britain as, no doubt, most people know; it would have cost some money naturally but Canada took the decision not to; I think that this was probably a very sound decision, I think that we are going to have enough polaris submarines in the alliance, I think that Canada, on the whole, is in a position where the United States must, by the facts of the case, always be committed to the defence of Canada, and this is not something you can say about the defence of Western Europe, although you can be pretty sure the United States are committed and anybody who is responsible for the future of European countries must fear that, in some way, the Americans are going to be fed up with Europe, or that something else may happen. So, I think there would be no objection at all, I think it would be quite a valuable thing for Canada to decide to build a small number of nuclear powered submarines equipped with Polaris as Britain is doing. I think that this would be a useful contribution to the alliance and if you could persuade the Americans that they ought to have that many less American nuclear submarines and there would not be so much waste in the alliance but, broadly speaking, what I think is really interesting, that is the whole prospect of the intervention force and I think this is something in which there might genuinely develop a real Commonwealth effort, not in any formal term, but in a real kind of cooperation that exists in the Commonwealth navies and air forces.

Mr. HORNER: With regards to cost and obsolescence, there has been a great deal of discussions about that; somebody believes that the Army is on its way out, the air force is on its way out and the navy is pretty near to scratch. Now, from the stand point of obsolescence, this is the greatest cost, I think, to defence expenditures; weapons become obsolete before they are done. From that stand point, is not the atomic weapons and the polaris missiles perhaps the cheapest things, in the long run, and won't they be the cheapest in the foreseeable future, from that point of view?

Mr. BEATON: If you want to destroy cities, if you want to make holes in the ground ten miles across, there is no better way to be equipped to do it. However, the question is: "Is the Canadian government going to take into its head, that it wants to make holes in the grounds 10 miles across". The question is how many times the Canadian Government is going to be in a position where it can deter some guy from doing something by the threat of it. I don't think this is possible.

Mr. BREWIN: Mr. Beaton, I wonder if you would like to expand on this suggestion that you expressed for an intervention role for Canada. Is it because there is an urgent need for it in the alliance, or is it because Canada's position makes it particularly easy for her to do it. If you would like to expand on that I would appreciate it because, to me, this is one of the most urgent and important matters that we have discussed and I would like to get your views on it?

Mr. BEATON: Yes, well, in the first place, I don't think Canada has got a say in NATO in Europe to any significant extent which derives from her contribution. I think Canada is making a contribution which is very small and very efficient but I don't think that, politically, Canada can say much; this proxy is really given to those who take the decisions in the European fight and that is the American president and the British, French and German national leaders probably. I don't think that is a serious objection but that is something that should be kept in mind. Secondly, I don't think there is going to be a war in Europe and should there be a war in Europe, it is going to end awfully fast, either in the same way Cuba ended or simply by the terror on both sides to go any further, or else, it is going to lead to the most colossal destruction. On the other hand, I think we have got, all around the world, every kind of unpredictable situations for which we need the capacity to put interceptor forces with good radar equipment; India, for example, I personally regret very much that Britain and the United States are going into India and Canada is not, but my personal feeling is that the Canadian Air Division in Europe would be a great deal better off in India; the free world would be better off if the Canadian Air Division was in India rather than in Germany because we have got plenty in Germany and nothing is going to happen in Germany; everything is going to happen in India. Even if it does not, the effect on the people of India of the fact that when they had fear and uncertainty, they found the Commonwealth comrades with them with an extremely high-performance aircraft division, the best pilots in the business. This just would be a tremendous factor, the Canadian Air Division would transform a situation in India. In this, Canada has a certain freedom of action; somebody from NATO has to be in the Congo to provide a few technicians because there are no neutrals to do the job, so, the Russians are much less disinclined to have Canadians instead of some others and this for obvious reasons. Canada is in the same broad position as Scandinavia for that kind of things and I think this correspond to Canadian sympathies and the Canadian history outlook. I do feel that if Canada concentrated on this, what I call the intervention, she could transform situations. However, there are no prospects for her to transforming situations in Europe, she is just making a solid but relatively small contribution there.

Mr. DEACHMAN: On this question of the Canadian Division being placed in India, are you speaking of the Air Division now stationed in France and Germany?

Mr. BEATON: Yes, I was.

Mr. DEACHMAN: The CF 104 Strike reconnaissance—do you think that what we need now are specifically these CF 104s which are only capable of delivering an atomic warhead for interdiction purposes when it is released by the United States; do you see this as having any useful purposes in India if we pull them out of the European front?

Mr. BEATON: I don't even think it has a useful role in Europe. I think it is absolutely insane that Canada should spend her money on producing a weapon which cannot even, as I am told, deliver conventional nuclear weapons in the European scrap. Now, I am sure the situation is being remedied, not under the impact of Canada herself but under the impact of Mr. McNamara. What we have got to have in Europe is conventional superiority, especially in the air, so, that specific programme is an ideal example of confrontation, where Canada was equipped with something that is really useful to her. Of course, in the intervention role, if you are going into India, you would have a much higher priority to your air interception, probably which the CF 104 was designed originally for, at least the F 104s.

Mr. DEACHMAN: Do I understand you to say that we should be in Europe with a non-nuclear interceptor, is that what you mean?

Mr. BEATON: What I mean is that if the CF 104s are going to be strike aircraft, it should be a strike aircraft equipped with conventional weapons and I understand that it is not. This seems to me absolutely extraordinary. What NATO needs in Europe is a large number of high-performance aircraft, able to strike with conventional weapons. This is a defect to the NATO requirements and it is one which Canada has been going into and apparently went into relatively uncritically. What is needed in Western Europe today, as Mr. McNamara is point out and as he is equipping himself with the Phantom, the MacDonald F4C for the United States Air Force, is strike conventional capability and large quantities of it, so that if anything happens, you can take out the enemy's air force in a highly precise, highly specific, completely conventional way. This is a very precise and excellent option if we are going to have a fight in Europe; that gives you a very nice position in which to bargain without having to kill anybody. I think that if Canada started now and said "what we want in Europe is something we are able to move into India if we have to"; then we would get very different requirements. The question that was put to me "How should Canada be thinking" bears my point, that is, you have got to start by saying "what are we going to be doing, what war are we fighting" and from then on decide on what you want. That dictates to you the kind of weapons you need, the kind of flexibility you need.

Mr. DEACHMAN: In effect, you are saying that Canada should get out of its nuclear weapons in order to be free of the United States tie in order to have the kind of flexibility that would enable us to move our air division from Europe to India, if needed. Is this correct?

Mr. BEATON: Not quite, I think Canada should say, as Britain says when she comes to discuss her NATO obligations, "we have moral or other commitments around the world, we have concerns and we want to be able to fulfill these commitments", "we want to point out to you, Gentlemen, that these are likely to be the urgent concerns of the Free World, so, we want to compromise our requirements as between what is needed for NATO and what is needed for whatever situation is arising in the world, wherever we got interests". I would not be at all surprised that sometime in the next 15 or 20 years, Canada finds herself getting involved in West India or somewhere, and this involves a great deal of studies. However, I don't think this is difficult, I think these requirements can be compromised and if Canada goes to the NATO and say "we have national interests of our own, let us discuss them", the NATO committee will sit down and say: "Right, we will discuss them". Now, if Canada would also say: "Look, we have a non nuclear tradition, don't you think it is quite a good thing for the world, we are the only country in the world which has ever been able to build a nuclear weapon and we have not done it;" "Now, is it now an interesting fact, so, let us discuss our requirements in relation to that fact". NATO is not a high judiciary which operates on the basis of a statute book, it is a political organization which responds very intimately to the sentiments and views and outlooks of its members.

Mr. MATHESON: Sir, accepting your general objectives on the kind of military role for Canada in the future, you mentioned our being able to contribute to this from a production point of view, particularly investing in mobility, in one form or another; Now, don't you think that another general area where we might enjoy large natural advantages in the economic development and also be able to throw our military contribution if we add intercom. I raise this point because I heard criticism to the effect that should not have been involved in the Telstar development, which, in my views, was spectacularly successful. Now, I wonder if you could develop on this, if you can tell us whether or not you think intercom is the kind of things we should do?

Mr. BEATON: I am ashamed to say I don't know, but all I can do is offering you a hunch. I think I should know much more about the structure of the Canadian industry, the firms that could do the work, the people who are interested in it. However, one of the effect of concentrating on a certain sphere is going to generate the development of those industries in Canada, this will hold the good men in Canada and this should be combined with the determination to achieve a powerful place in the world in that particular sphere. I think one should keep these industrial applications very clearly in mind; you have got to think about what is going to challenge the world's market and the placing of a military development project and then, you have got to follow up the military development, you have to get guys who know something, the skills which may be drawn and interested in it, you may get a very bright fellow from Copenhagen, you may get a very bright fellow from Moose Jaw, all the skills you can find are going to work there and the thing grows. That is the basis. I just don't know this specific field but my hunch would be that this would be the kind of field Canada should go in.

The CHAIRMAN: Gentlemen, this is the last meeting of our two weeks' tour of Europe; on your behalf, I want to thank Mr. Beaton, who has come here to give us his views. I should also thank the members of the High Commissioner's office, the Members of the Military Staff who have been making this visit in London not only interesting, but also very agreeable. The Committee now stand adjourned until a call from the chair, probably for a meeting Tuesday morning, in Ottawa, at 1030 hours when we expect to meet the Secretary of Institute for Strategic Studies, of which Mr. Beaton is a distinguished member.

THURSDAY, November 28, 1963.

VERBATIM PROCEEDINGS

The VICE CHAIRMAN: Gentlemen, I see a quorum.

Your Chairman regrets that a pre-existing engagement prevents his being here this morning.

This meeting is of a purely administrative nature; it is called for the purpose, primarily, of approving or discussing the minutes of a steering committee meeting held on Tuesday at 10 a.m.

There are other matters that arise with regard to reports and submissions we have received.

I will read the minutes and the recommendations of the steering committee meeting of Tuesday.

"During the past two weeks the subcommittee has held four meetings prior to today's sittings, and begs leave to recommend as follows:

1. That the Committee, seek, through the Canadian Institute of International Affairs, a number of informative papers respecting defence matters; that reasonable remuneration be paid therefor where required; and that any other incidental expenses incurred, in respect of the acquisition and preparation of this information, be defrayed by the treasury.

2. That arrangements be made for the committee to meet in Washington, D.C., U.S.A., preferably next week, to meet with United States defence officials.

3. That the Clerk of the Committee accompany the committee to the United States of America.

4. That the actual living and travelling expenses of the committee members and staff in attendance during that period be defrayed out of moneys to be provided by the treasury.

5. That the committee obtain, for the use of committee members, four English copies of Helmut Schmidt's book "Defence and Retaliation"."

We will deal with these matters seriatim. First of all, we will deal with the recommendation that the committee seek through the Canadian Institute of International Affairs a number of papers in respect of defence matters.

The subject matter of these papers has been circularized I believe fairly extensively through the committee. These papers would assist us in the preparation of a final report not an interim report. It is felt that efforts should be made to seek these papers. We do not have any assurance that such papers will be forthcoming, but the Chairman has been looking into this matter and the steering committee felt that under the circumstances it would be advisable, if possible, to obtain these papers. This would be done on a long term basis. Is there any discussion in this regard?

Mr. MARTINEAU: Are these papers similar to the pamphlets we have received within the last few days from the Canadian Institute of International Affairs?

The VICE CHAIRMAN: No; those pamphlets were sent to the members of this committee by the institute on a voluntary basis. The papers in question would be specially prepared papers dealing with defence economics.

Mr. SMITH: Mr. Chairman, are you referring to papers that are not now in existence?

The VICE CHAIRMAN: These papers are not now in existence, but would be papers prepared in respect of specific subjects.

Mr. SMITH: Are we proposing to commission certain papers, as it were?

The VICE CHAIRMAN: That is correct.

Mr. MARTINEAU: Has the steering committee any idea that such papers could be produced within a reasonable period of time?

The VICE CHAIRMAN: You have touched upon part of the problem that has arisen. These papers would be available perhaps in February, if that is possible.

Mr. DEACHMAN: What are the subject matters of these papers, Mr. Chairman?

Mr. WINCH: We received a list of the subject matters a few months ago.

The VICE CHAIRMAN: Yes; at the beginning of the sittings of this committee these matters were circularized.

Mr. CHURCHILL: Mr. Chairman, do you anticipate that this committee will be reconstituted when the next session opens?

The VICE CHAIRMAN: I think, Mr. Churchill, that under the circumstances it must be assumed that this committee will be reconstituted. Because of the time available we can only aim at presenting an interim report.

Mr. SMITH: Mr. Chairman, I would suggest that the steering committee make some inquiry regarding the papers or investigations which might be carried out before we make a final decision. I do not know just how your report reads in this regard.

The VICE CHAIRMAN: The recommendation is that the committee seek through the Canadian Institute of International Affairs a number of informative papers respecting defence matters. The adoption of this recommendation would authorize the steering committee to make these investigations. We felt that we should obtain this authorization before we commenced our investigation in this regard.

Mr. SMITH: I do not think we desire papers produced prematurely to the defence committee in a sort of pig in the poke manner. I am not suggesting we should not indicate to these people the subjects in which we are interested, but we should know who will be commissioned to prepare these papers.

Mr. MARTINEAU: Mr. Chairman, I should like to ask whether it would be preferable to have some officer of the institute appear before the steering committee, giving that committee some information in respect of the subjects that might be dealt with so that the committee will be free to question that representative and find out what really can be produced? Before the committee authorizes the steering committee to go ahead and commission papers I think this is an essential prerequisite.

Mr. PATTERSON: Mr. Chairman, is the steering committee of the opinion that the institute can produce something worth while to this committee, covering subjects that have not already been covered?

The VICE CHAIRMAN: From the initial inquiries that have been made by Mr. Sauve, I have the impression he feels these papers might possibly assist us in this regard.

I might say, in reply to Mr. Martineau and Mr. Smith, that a final decision would, of course, be taken by the committee following negotiations with the institute.

Mr. MARTINEAU: My proposal is that a representative of the institute appear before the committee and answer questions pertaining to the proposed commissioning of papers.

Mr. WINCH: There is one difficulty involved, Mr. Chairman. As I understand it there are certain aspects in respect of which the steering committee feels very worth-while information could be obtained. We would have to designate the information, but Mr. Sauve has a list of the names of individuals specializing in these fields who might be able to assist, and who would have to be approached in this regard.

Mr. SMITH: Mr. Chairman, I think this idea is an excellent one in principle because we would be establishing the precedent that committees of the House of Commons are able to employ and obtain outside assistance for their deliberations. As far as I am concerned, I support this suggestion very strongly because we would be establishing this precedent. I think we should be careful to use the proper mechanics in commissioning these reports.

Mr. DEACHMAN: I am wondering why we are confining this suggestion to the institute of international affairs, and whether or not this could be broadened to include other individuals or institutions.

I would also suggest that a plenary session of the committee should have the opportunity of agreeing to these requests before they are made.

The VICE CHAIRMAN: There is no doubt in that regard. Before any definite steps are taken to commission any papers from the institute which, incidentally, would be acting as sort of an agent to collate these papers, the committee must have the opportunity of discussing the pros and cons.

Mr. DEACHMAN: Mr. Chairman, if we wanted to draw upon the skills of an eminent economist, is this recommendation broad enough to permit us to do so?

The VICE CHAIRMAN: I would think so, yes.

Mr. CHURCHILL: Mr. Chairman, I think this idea is premature and will be useless because we do not know that this committee will be reconstituted at the next session. Even if these papers are produced they will be too late to have any effect upon our deliberations or conclusions, if we come to any conclusions. These papers will become available perhaps three months hence, at a time when this committee may not be operative. As I understand the situation, the Minister of National Defence is going to table in the House of Commons a white paper and then make a declaration of policy which may set the pattern for defence for a number of years. If that is done and the government

makes a decision in respect of defence matters, what then will be the position of this committee at the next session? I do not think we can assume that there will be any need for sittings of this committee during the next session.

I think we should postpone consideration of the production of papers from any source.

Mr. SMITH: Mr. Chairman, I think we should obtain some assurance that this committee will be reconstituted.

Mr. MARTINEAU: Perhaps we could invite a representative of the Canadian Institute of International Affairs to appear before this committee. After hearing from such a representative, in the event the committee feels that some useful information could be obtained from this source by the production of papers, then the steering committee could be authorized to seek this information.

Mr. PATTERSON: Mr. Chairman, I think it is worthwhile to consider Mr. Martineau's suggestion because if we go ahead and make arrangements for the production of these papers and we find there is no practical or possible way of taking advantage of them, they will be superfluous.

Mr. GRANGER: Mr. Chairman, my opinion, for what it is worth, is that in view of the fact the production of these papers will take some time it would be better for us to assume now that the committee will be reconstituted so that these papers will be available at that time without a further wastage of time. I think we ought to explore every possible source of information and make arrangements to obtain this information. Having obtained this information, even though it may not be used, we really will have done little or no harm. If we make arrangements to obtain this information at this time, the preparation of these papers will commence and we will be in a position to have them produced much quicker when or if the committee is reconstituted. However, if we wait until the committee is reconstituted before requesting these papers we will lose a great deal of time. I support the recommendation of the steering committee in this regard and suggest that it should be authorized to obtain this information at this time.

The VICE CHAIRMAN: I should like to clear up one possible misconception. The approval of this recommendation will not authorize the production of the papers as such, but will only authorize the steering committee to enter into negotiations in an effort to discover what papers could be produced. That is all the steering committee is asking to be authorized to do at this time.

Mr. GRANGER: Mr. Chairman, I think the preliminary work in this regard should be done.

Mr. DEACHMAN: Mr. Chairman, is it anticipated that anything in regard to the commissioning of papers will be done before the new year?

The VICE CHAIRMAN: I think that is dependent upon the negotiations in the event that this committee authorizes the steering committee to look into the problem.

Mr. MCMILLAN: Mr. Chairman, is it proposed that we inquire into the economics of defence?

The VICE CHAIRMAN: It is anticipated that some of the papers would deal with that subject.

Is there any further discussion in this regard? Are you ready for the question? The recommendation is that the steering committee be authorized to seek, through the institute of international affairs, a number of informative papers respecting defence matters.

Mr. MARTINEAU: The recommendation which you have just outlined is not in accordance with the explanation you have given, Mr. Chairman. If I am interpreting this correctly, the steering committee will be authorized to obtain the papers. You have stated that approval of this recommendation would only authorize the steering committee to enter into negotiations.

Mr. SMITH: Mr. Chairman, in respect of the dictionary meaning of words, would "seek" have the same meaning as "acquire"?

The VICE CHAIRMAN: Perhaps we could amend the recommendation in that way.

Mr. MARTINEAU: Perhaps the recommendation should be; to enter into negotiations with a view of acquiring this information.

Mr. WINCH: Do you mean that the steering committee would then have to come back to this committee to acquire authority to obtain these papers if it felt that desirable?

Mr. MARTINEAU: The committee would have to come back for the authority to proceed.

The VICE CHAIRMAN: I think that is only proper. Would you like to move that amendment, Mr. Martineau?

Mr. MARTINEAU: Yes, I move such an amendment.

The VICE CHAIRMAN: Do you have a seconder for that motion?

Mr. MACLEAN: I second the motion, Mr. Chairman.

The VICE CHAIRMAN: The recommendation as amended would read; that the committee look into the possibility of obtaining, through the Canadian Institute of International Affairs, a number of informative papers. Is the amended motion agreeable to the committee?

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: We shall now consider the second item. This recommendation is the result of a suggestion made by a number of the members of this committee. In view of the fact we were able to discuss and receive representation from a number of NATO powers in Europe in respect of the question of defence, and cannot get a rounded picture until we discuss the situation with the United States defence officials, your steering committee recommends that arrangements be made for this committee to meet in Washington, preferably next week, with United States defence officials. It is hoped that we will be able to meet with the secretary of defence, Mr. McNamara, or designated officials. Is this recommendation agreeable to the committee?

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: Incidentally, gentlemen, we must make arrangements to have such a meeting as early as possible, perhaps on December 9 or 10.

In explanation I should like to point out that the timetable discussed by the steering committee in respect of a preliminary report makes this necessary. The minutes of our meetings held in Europe will be printed by the end of next week. I believe Mr. Sauve will have a copy of these minutes prior to that date, and he proposes to study the minutes and prepare a draft report which will be the subject of a discussion by the steering committee. That draft report will then be submitted to this committee for discussion. It is our hope that an interim report will be available around December 18 or 19, keeping in mind the possible date of a Christmas adjournment, or prorogation, whichever occurs. Therefore, if we are going to hold such a meeting in Washington, we will have to do so within the next ten days.

Mr. SMITH: Mr. Chairman, is it possible for us to leave here, hold the meeting in Washington and return on the same day?

The VICE CHAIRMAN: Mr. Smith, on a portal to portal basis we would have to give ourselves a little more than one day. The actual meeting and briefing in Washington likely could be limited to one day.

Mr. DEACHMAN: Perhaps we could go down one evening, hold the meeting the next day and return that evening.

The VICE CHAIRMAN: I think we will perhaps require a little more time than you have suggested.

Mr. SMITH: Mr. Chairman, I do not think we should be away from the House of Commons for longer than one day on this occasion.

The VICE CHAIRMAN: That is an opinion shared by all members.

Mr. SMITH: I should not like to be absent from the House of Commons for more than one day at this time because of the number of important matters which have to be considered. Mr. Chairman, have we any indication that such a meeting with United States officials will be possible?

The VICE CHAIRMAN: The supervening events in the United States may make such a meeting impossible at this time, but your steering committee cannot enter into any negotiations in this regard without first obtaining the approval of this committee.

Mr. MACLEAN: Mr. Chairman, I think it is essential that the steering committee make an attempt in this regard.

The VICE CHAIRMAN: Is this recommendation agreeable to the committee?

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: In the event that such a meeting is possible, the next two recommendations are consequential. That is, that the Clerk of the committee accompany the committee to the United States, and that the actual living and travelling expenses of the committee and staff in attendance during that period be defrayed out of moneys to be provided by the treasury.

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: Four copies of the book by Helmut Schmidt have been obtained. These books have been distributed to different members of this committee. Your steering committee has recommended that the Clerk of our committee be remunerated in this regard. I believe some of you have received copies of this book.

Mr. WINCH: Mr. Chairman, I have one of the copies.

Mr. MACLEAN: I also have a copy of this book.

The VICE CHAIRMAN: Is the fifth recommendation agreeable to the committee?

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: Is the report of your steering committee as amended agreed upon?

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: You will recall that Commodore Plomer was asked at a previous meeting to make a review of the Mainguy report. Commodore Plomer has now completed this review. Copies of this review have been distributed to members of this committee. Does the committee feel that this review should be included in the Minutes of Proceedings and Evidence of this committee as an exhibit or an appendix?

Mr. WINCH: I would suggest it be included as an appendix.

The VICE CHAIRMAN: You are suggesting it be included as an appendix and printed?

Mr. WINCH: Yes. Mr. Chairman, as a result of letters which I have received I feel there is vast interest in the work of this committee, and I think our Minutes of Proceedings and Evidence should contain as much information as possible.

Mr. DEACHMAN: Mr. Chairman, a number of reports of one kind and another have been submitted to us. I am sure we will receive more in the future. The cost of printing is quite high and I suggest that unless we feel there

is real value in having a particular paper included in the report for circulation, these submissions should not be printed but placed among the committees papers. If we do otherwise we will be placing ourselves in the position of printing all kinds of submissions, creating a magazine rather than a report of a working committee.

The VICE CHAIRMAN: Mr. Deachman, that might well be discussed in respect of other papers we have received.

Mr. SMITH: Mr. Chairman, we asked Commodore Plomer to prepare this review.

The VICE CHAIRMAN: Members of this committee will recall that Commodore Plomer was requested to prepare this review. This review is different from other submissions in that respect, and in that respect only. Is it agreed, therefore, that the review of the Mainguy report prepared by Commodore James Plomer be printed in the Minutes of Proceedings and Evidence as Exhibit No. 7.

Some hon. MEMBERS: Agreed.

The VICE CHAIRMAN: Gentlemen, within the last few days you have all received a submission made to the Special Committee on Defence by the Voice of Women of Canada, as well as a brief submitted by the Canadian Peace Research Institution. These submissions are in the nature of voluntary submissions. Should these submissions be included in our Minutes of Proceedings and Evidence? Mr. Deachman, I think your remarks are pertinent at this time.

Mr. WINCH: Mr. Chairman, one of those briefs is very lengthy.

The VICE CHAIRMAN: Yes. My own view is that these submissions be acknowledged, but not become part of the Minutes of Proceedings and Evidence of this committee, otherwise we may be committing ourselves in this regard. Would you accede to this suggestion, that briefs of this type be identified by an exhibit number but not printed in our Minutes of Proceedings and Evidence?

Mr. SMITH: Mr. Chairman, perhaps copies of those briefs could be placed in the parliamentary library and a cross reference made, making them available to future researchers?

The VICE CHAIRMAN: I think perhaps your suggestion should be discussed with the librarian.

Mr. CHURCHILL: Mr. Chairman, I think it is important to mark these submissions as exhibits so that we will have a list of the available documents.

The VICE CHAIRMAN: Is it agreeable that the submission to the special committee on defence by the Voice of Women of Canada be identified as Exhibit No 8 and that the brief on Research and Defence submitted by the Canadian Peace Research Institution be identified as Exhibit No 9?

Some hon. MEMBERS: Agreed.

Mr. DEACHMAN: Mr. Chairman, is there a list of the papers and documents submitted to this committee anywhere in our Minutes of Proceedings and Evidence?

Mr. WINCH: Such a list has been prepared and included in the proceedings of other committees on past occasions.

The VICE CHAIRMAN: Yes, this procedure has been followed in the past.

Mr. DEACHMAN: Perhaps we can expect that such a list will be prepared in this case?

The VICE CHAIRMAN: I am informed that during the course of the compilation of the records of this committee such a list will be prepared.

We have now completed all the items on the formal agenda, has any member any further question to ask at this time?

Mr. DEACHMAN: No, unless we want a Christmas party for our children.

The VICE CHAIRMAN: Gentlemen, thank you for attending this meeting.

We now stand adjourned.

APPENDIX "A"

1962 REVIEW OF THE 'MAINGUY REPORT'

(Prepared by Commodore James Plomer (Retired))

CONTENTS

1. INTRODUCTION.
2. GENERAL EFFECTS OF LACK OF FULL IMPLEMENTATION.
3. INDIVIDUAL ITEMS NOT IMPLEMENTED IN WHOLE OR IN PART.
4. CONCLUSION.

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INTRODUCTION

One of the fundamentals of democracy is that opportunity waits for every man possessing the abilities and the degrees of good-fortune to reach the highest offices in the land. This applies equally to industry. Apart from this being the birthright of every Canadian, it is one of the strengths of the Western World as it is a weakness in a dictatorship.

Yet, for men reared in a democratic country military discipline does come easily if it is just, efficient, and dedicated to these beliefs and the nation's survival, because it is the unspoken belief of most, if not all, that they are ready to defend these principles as well as their homeland. Not only this the Canadian serviceman is a volunteer and proud of it, and just and foremost a citizen. In giving his loyalities to a service he must also receive the reciprocal loyalities and respect of those with authority, for without this, leadership fades into administrative repression.

In a warship, particularly the small units of which the R.C.N. is composed (except for the carrier) officers and men belong to a small community living at close quarters. Unlike the services all go into battle together cooks, stewards, artisans as well as those with purely military skills. All have a part to play in "action and share the consequence of success or disaster". It is a great bond. In the close daily association of shipboard life familiarity inevitably breeds familiarity, and the strengths or deficiences of any individual, be he officer or man, cannot long remain hidden. The consequence, that personal respect of subordinate for officer or petty-officer, which can never be governed by military regulation grows or diminishes according to the worth of the individual. The highest accolade is to be respected and liked. The lowest to be despised and hated. Neither must it be forgotten that good leadership can be found in many varying personalities.

Morale of a fleet is the general effect of all ships. It can be high in one ship, low in the next; good in one department of a ship, poor in another. Morale can be poor in one ship for reasons outside the control of any authority within the ship itself. Most experienced officers can spot low morale within a few minutes of going aboard a ship though the reasons may be harder to discover. But it will never be learnt by reading the reports of a commanding officer who being human would be the last to claim that morale was bad under his command, the present basis of assessing this in the R.C.N.

The officers and men of the R.C.N. as a group are as courageous and resourceful as can be found anywhere. That is not hard to prove. If their morale is low it is not their fault. It never has been, and if it was they would fight fiercely whatever the state of ships and equipment for they are Canadians. They have done this before with Ross rifles.

The atmosphere aboard a taut, efficient ship is the smart unobtrusive way people go about their business. The modern ship requires many skills. All demand initiative, intelligence, and aptitude—to a high degree. Ships have changed radically in the last two decades. Higher and higher standards have been demanded of the enlisted personnel, and largely achieved, to meet their complexity of many groups, large and small who must operate as a single team to produce an effective unit.

A good description of this requirement comes from a military source, "To-day it is certain that barrack-square methods can no longer win battles . . . It is equally certain that barrack-square psychology will not: have we realized that as clearly?"

It is the action of the individual or small group that more and more decides the course of the modern (infantry) battle—" also obviously sea warfare under the condtions of World War II, and more so to-day. It was Field-Marshal Wavell who said this . . . in 1933.

The Mainguy Report was essentially an investigation of a large scale breakdown of confidence in the leadership of the Navy. Unavoidably it also covers areas of administration.

This paper is offered as a 1963 supplement to the Mainguy Report. No claims are made to producing a document of such notable qualities. It is written without apology to fill a serious need. PART I that follows deals with the general effects. PART II deals with the source of the detailed findings and recommendations.

NOTE: In considering any matters involving personnel in the R.C.N. it is a safe generality to say that the West Coast has always had better morale, a more benign climate, a better housing situation and lower rents are big factors.

PART II

GENERAL EFFECTS

The Implementation of "The Mainguy Report."

It was well known within the Navy that the report was received at that time by those in authority with open hostility. It was not long before it became apparent that it was unfortunate that the R.C.N. was given a completely free hand to deal with this.

A special meeting was called by Naval Board on the 25th of October, 1949. They deliberated for three and a half hours. The recommendations checked off and direction given on the degree of implementation already in hand recorded. These matters were according to the minutes never formally discussed again. But before discussing the degree of implementation of individual items one must examine the general effects before listing the particulars.

No more fundamental reason could be given for the 'incidents' or 'mutinees' than that there was a lack of confidence in the leadership of the R.C.N. There was certainly a small percentage of malcontents among them, but this does not alter the fact that as a group these men represened normal honest citizens from every province in Canada. That they should have taken the steps they did was wrong, but this told of an anger and frustration that had produced a reckless state of mind. One such incident would have proved nothing, but three ships, preceded by the cruiser Ontario, and followed by the frigate Swansea, five in all, was so widespread as to prove that there was a profound discontent. There were also rumblings in other areas.

The causes are clearly expressed in the Report itself and need no repetition here, beyond summarizing that this unusual crisis in modern naval history represented a serious lack of confidence in the integrity of a system, of the quality of the leadership and administration, and a resentment at the lack of a national background essential in any service or organization. The proper outcome should have been to start removing this mistrust by an affirmation of principles in policy and belief, followed by the administrative steps to make them reality—but only after long and vigorous re-appraisals.

But there were no announcements to the fleet of new far reaching policies. No standards of responsibility laid down as for instance Admiral Arleigh Burke's magnificent words which are included in full, as Appendix I of this review. No formal reproofs were ever made to those directly responsible. But the men in the Swansea, well known as an unhappy ship at the time, were ruthlessly dealt with—unavoidably, otherwise the system would have broken down completely.

It was inevitable that many junior officers and non-commissioned officers followed the patterns of leadership imposed by their superiors. Also at the time there was a percentage in both categories that had been unwisely selected or promoted. Along the recommendations carried out was the opening of the lead-

ership course of six weeks for these two groups at Cornwallis. This was good but it is symptomatic that no standards or requirements for this course were given by Naval Board. While it is always desirable that those on the job should have as free a hand as possible, this lack of concern and even interest on a naval policy was lamentable.

These examples illustrate the pattern of what has followed since. The men were at fault, junior officers and chiefs and petty officers next. But who were really responsible? Where does the need for new standards lie?

In any other western nation enjoying our status more drastic steps would certainly have been taken. Fresh thinking on new policies and a new outlook would have been insisted on. As it is the same attitude has remained modified by fear of more incidents, but hardened in other respects for the same people have continued to hold power, unchecked. Ruled they have, but they have never regained the respect and prestige that must be theirs in an effective navy.

There have been good dividends from these leadership courses. Fortunately they have had some exceedingly competent officers in charge. In consequence this subject, more involved than it may appear, has been given much careful thought and discussion by those who have attended. To-day the standards of this essential military quality were never higher among the younger officers, chief and petty officers. All three groups contain many exceptionally able people of high integrity. But they can only look to a group for an inspiration and a higher direction that cannot reach back to them. A group that lacks the spark of leadership, or even the desire to communicate. That has not always provided effective fighting equipment, has little concern for their welfare, is unable to provide the number of skilled technicians, and continues to over commit the service beyong its capacity.

Dealing in these all important subjects of human problems and principles cannot be substantiated as easily as the breakdown of mechanical equipment. Poor morale is always difficult to prove. As the Mainguy Report demonstrates nobody worried about morale or knew the true state of it—until the mutinees. But I do know that having been aboard many ships in those two years, having spoken to many officers and men both serving and who have left, I know the feelings of many. The mail and phone calls I have received since the article in Macleans appeared has proved to me that there is an intelligent and widespread concern, that there is much to be remedied.

As a matter of substantiation. If the end product of a navy is the material state of its ships—if they are poor and their weapons are faulty the cause must go back to deficiencies in leadership and administration. Deficiencies of this kind can hardly lead to good morale. But an indication can be found in another area.

The reputation of a service soon finds its way around the public. Why then is it so hard to recruit officers for one of the most interesting professions there are? Ask the ex-UNTD cadets? I have spoken to many. There is a tremendous effort being given to recruiting officers. The statistics in appendix 4 in comparison with Army and Air Force who need larger numbers, speaks for itself. (See appendices 4 & 5).

The tragedy of the R.C.N. is not alone the great sums of money wasted, it is also the waste of this great human potential of officers and men who have been more than willing, eager to give their best to the nation in maritime defence.

III

INDIVIDUAL ITEMS OF THE MAINGUY REPORT NOT IMPLEMENTED IN WHOLE OR IN PART

The item and page given is from the Report itself for quick reference.

ITEM 11 (Page 25) Too frequent changes in Officers and Crew.

This is a problem in all navies, in the R.C.N. it is still excessive. It is costly as it breaks up the team spirit, and gives a ship a feeling of instability, to say nothing of individuals having to become proficient on unfamiliar equipment. The causes are over-commitment beyond the number of skilled personnel and poor management.

NOTE: The new construction programme of Mackenzie class ships joining the fleet is an example. One can pay off three of the old frigates, have plenty of ment and still have an insufficient number of skilled electronic technicians because of the far more complicated equipment.

ITEM 18 (Page 31) Officers & Petty Officers Lack of Experience and Knowledge.

This has been largely overcome except at top-level, here it is even more important. As pointed out in the introduction all trades go to sea whatever the branch. Among officers in every branch periods of sea, going are obligatory for promotion by regulation. It is not only a matter of respect by subordinates, but essential in order that the individual can exercise the proper judgment in policy matters. It can be costly.

ITEM 19 (Page 32) Artificial Distance between Officers and Men.

This is still evident. At more junior levels it has greatly improved, but as time has moved on there is an artificial distance between senior officers and junior officers that is most disturbing.

ITEM 22 (Page 33) Absence of Canadian Identification in Navy.

This it is interesting to note was mainly the fierce belief of the enlisted men. It sprang from two causes, patriotic ones and a dislike of artificial affectations. It is my opinion that this lack of national identity and with it motivation over and above the service itself has been responsible for many shortcomings for this is still basically the attitude of many at senior levels —often with sincerity. Unfortunately a service that only operates in its own interests reaps a harvest of the very ills we suffer from to-day. The "Old Navy" produced few men of originality, it has never been encouraged since. This is the basic quality required to produce a navy with a truly Canadian identity—neither British nor American but not so vain as not to learn from both these great navies, or the other two services, but able to develop, invent and adopt to our own particular needs. This must never become—difference for the sake of difference.

ITEM 23 (Page 33) Absence of Canadian Traditions.

This still holds good. They are beginning, but the suffocating restrictions of the precednig paragraph apply equally to this item.

A & B (Page 33) Navy's Growing Pains and Inadequate Complement.

This has continued. The naval authorities have always undertaken commitments with insufficient resources or the inability to make full use of the resources available. Those that have tried zealously and at many levels to bring reforms have not been listened to. It has been obvious for some years now that the R.C.N. must:—

(a) Either reduce commitments in the number of ships and extent of sea-time or ask for a large complement. The poor state of the fleet is partly due to this.

(b) Investigate more vigorously every way of using less men by better organization, labour saving devices, and the design of every piece of sea-going equipment for ease of maintenance. Work has been done in many areas, but not sufficiently.

G. (Page 38) Selection of Officers.

This has never really improved over the years. Many examples can be given. This is one of the most important areas in need of reform. The capabilities of an individual officer must be the sole criteria, not the rites of clubdom, or certainly lives will be endangered at sea particularly in time of war. It is *absolutely essential* that senior officers must have the respect and confidence of the rest of the navy—serviceman and civilian alike. They must also be accountable for their actions.

H. (Page 39) Reserve Officers Training.

Both problems—unchanged.

I. (Page 39) Relation between Petty Officers and Officers.

Much improved. The main difficulty now is too many officers in the ships who inevitably overlap onto the chief petty officers responsibilities.

M. (Page 40) Headquarters Staff.

These comments are still valid. More higher grade civil servants should be employed for the sake of continuity. Higher standards of staff work and methods of presentation are long overdue. Much could be learnt from the R.C.A.F.

SECTION II

RECOMMENDATION OF "MAINGUY REPORT"

9. (Page 47) Confidential Reports (Officers)

It is the complaint of many that instead of having unfavourable remarks underlined in red, they are damned with faint praise and wonder why they are not promoted. This practice certainly bred and underhandedness that is not worthy of the navy. All reports should be accessible to the officer concerned, as they are in the Civil Service, and the United States Navy. A lack of frankness is better than deceit.

11. (Page 47) Living Conditions in Ships.

The Tribals—seven ships—were never modernized in this respect. It is of course too late now. Bonaventure was purchased after the Mainguy Report with sub-standard accommodation.

12. (Page 47) Married-quarters.

Ask any sailor about the shortage in Halifax.

13. (Page 48) Administration Generally.

See also (M. Page 40—Headquarters).

The infiltration of Civil Servants of higher rank has been but a token when we consider the expansion of the navy since 1949. (See Appendix *III*). The second paragraph is also important. Office shortages and the selection of officers of limited qualification are another bar to effective staff-work and planning.

14. (Page 48) Announcement of Policy.

The Crows-Nest is a valuable periodical and well edited, but the amount of information on policy matters, personnel or material, are still fragmentary

compared say to the United States Navy. Indeed personnel policies are a mystery to most officers. Official monthly or quarterly bulletins in these matters should have been part of the implementation of the report.

This is also the reason it is necessary to use U.S.N. policy documents in the Appendix. There are no appropriate R.C.N. ones.

20. (Page 49) Pay for Good Conduct Badges.

Attempts have been made to get this, but it has not been practicable, nor tri-service pay regulations.

23. (Page 50) Ships Routine.

The last two sentences are pertinent, I have been given to understand that in the past few months abolition of unnecessary flummery is all of a sudden making progress. This is encouraging. Enquiries into working methods need far greater support from command and Board level if really worthwhile progress is to be achieved.

24. (Page 51) Officer-Man Relationships.

As has been pointed out already genuine progress has been made at the rating level. The real gap which existed just as strongly at the time of the "Incidents" was between "Old Navy" and "Young Navy". This is if anything worse to-day.

From what I have already written and said many of the ills described in this, perhaps the most important section of the Report, are as deeply ingrained to-day. This in many ways is the heart of the problem from which stem most of the difficulties already discussed.

25. (Page 52) Training in the Humanities.

This is a direct outcome of the preceding item. People are the one indispensible factor of any service. How much has been done about this? What was the attitude of Naval Board? In 1949 Naval Board decided ". . . .it is impossible to compete with increased professional training as well as purely academic instruction while the present vintage of officers exists." And from the last paragraph on this subject: "Naval instructors are available on the coasts to undertake the teaching of History and English to any officers and men who may desire it, and had time for such extra-curricular work."

Comment is superfluous.

29. (Page 54) Recreational Facilities Ashore.

Certainly in the Halifax area this has been pursued half heartedly with the exception of the Air Station H.M.C.S. Shearwater, which has even sparked activity in the rest of the command.

The conclusions of the Mainguy Report are also still worth re-reading. It should also be remembered that the Mainguy Report was considered with far more interest and respected by other Navies than by our own. Ignoring its impatience and not taking heed of its content has been expensive. It is over a decade since it was published, this has not diminished its value, but many of the navy problems have grown deeper in that time.

CONCLUSION.

Who is the best judge of morale in the Navy? Only the men themselves, the officers at working level and the Chief and petty officers, as well as the officers and men who have left because of an honest frustration. For unpalatable as it may be, inferior direction has produced a waste of money and human effort in the R.C.N. that is tragic. But for this with officers and men second to none, we should have had and it must be repeated, man for man, ship for ship the finest navy. Every year that the essential remedies have been delayed has

made this cry realistic goal harder to achieve. I believe Canada needs a Navy, and I also believe we have the capability as a nation of having the very best of Navies, tough, united and enduring, efficient and versatile: but it will not be easy.

Finally I do not make any claims of omniscience. Many of the points made are arguable as in all matters dealing with people and are inevitably based on certain standards of value.

As previously stated these should not be grounds for wholesale reform in themselves—if they are accepted, but sufficient to establish the need for a Royal Commission of necessity consulting with experts of other Navies to study the requirements and remedial steps necessary to provide our Nation with the maritime defences we properly deserve.

GENERAL ORDER
No. 21

NAVY DEPARTMENT
Washington, D.C., 17 May 1958

NAVAL LEADERSHIP

Part—Discussion

1. The Naval profession is an honourable one, which has traditionally commanded the respect and affection of our country. Together with our sister services we serve and protect free men everywhere. To maintain the support and respect of society, as well as to meet the requirements of his own conscience, every Naval leader must be in himself an example of our military ideals.

2. The United States Navy has long been distinguished for the high quality of its officers and men. We must never let this quality diminish. Our challenge in this time of troubles and opportunity is to develop and improve our Naval leadership. The more powerful the weapons that science gives us, the more important the character and will of the men behind them. As these develop, so does the strength of the Navy, the Nation, and the Free World.

3. The U.S. Fighting Man's Code has well expressed the essence of our problems:

> War has been defined as 'a contest of wills.' A trained hand holds the weapon. But the will, the character, the spirit of the individual—these control the hand. More than ever, in the war for the minds of men, moral character, will, spirit are important.

4. By Naval leadership is meant the art of accomplishing the Navy's mission through people. It is the sum of those qualities of intellect, of human understanding and of moral character that enable a man to inspire and to manage a group of people successfully. Effective leadership, therefore, is based on personal example, good management practices, and moral responsibility. The term leadership as used in this order shall include all three of these elements.

5. The objective of this general order is to reemphasize and revitalize Naval leadership in all its aspects: inspirational, technical, and moral. Combat readiness requires that all persons in authority observe in themselves the standards of moral behaviour and devotion to duty laid down in Navy Regulations. The Navy must also develop and use new concepts of management and executive development to ensure efficiency and the best use of people. The key to successful Naval leadership is personal attention and supervision based on moral responsibility.

Part II—Organization

1. The Chief of Naval Operations, the Chief of Naval Personnel, the Commandant of the Marine Corps and the Chief of Industrial Relations shall, under the Secretary of the Navy, be directly responsible for maintaining leadership standards and conducting leadership training of Naval, Marine Corps, and civilian personnel, respectively. The Assistant Secretary of the Navy (P&RF) shall coordinate the three programs to provide a useful interchange of ideas and materials.

Part III—Action

1. Every command in the Operating Forces and the Shore Establishment, as well as every major office or bureau of the Navy Department shall review, on a continuing basis, its standards of personal leadership to ensure that those in responsible positions are discharging their duties in accordance with Article 0702A and 1210 of Navy Regulations, 1948. This will include command attention to:

a. The personal example of behaviour and performance set by officers.

b. The moral atmosphere of the command.

c. The current standards of personal supervision of men, both in regard to management effectiveness and the development of moral responsibility.

2. To achieve the objectives outlined above, every command in the Operating Forces and the Shore Establishment shall integrate into their training programs, on a continuing basis, both the technical and moral principles and practices of leadership.

3. The Naval Inspector General shall regularly report to the appropriate commanders evidence of leadership that is both markedly superior to accepted Naval standards or decidedly inferior. Commanders receiving such favourable reports shall make appropriate notations on the record of the officer or officers responsible. In the event that unfavourable reports are received from the Naval Inspector, corrective action shall be initiated and completed.

4. The Chief of Naval Personnel, the Commandant of the Marine Corps and the Chief of Industrial Relations shall issue directives to carry out the intent and to achieve the objectives of this general order. These directives shall be specific and forceful to ensure that leadership standards and training are a matter of continuing concern and importance to every person in authority in the Naval Establishment.

THOMAS S. GATES
Secretary of the Navy.

APPENDIX II

FOREWORD

Rear Admiral Arleigh Burke's study in its original form was reproduced and distributed to all Commanders in Chief, Fleet Commanders, and Type Commanders. The study appeared in its condensed form in the October 1950 issue of the *Naval Training Bulletin*. The timely importance of the subject was immediately proved by the numerous requests for additional copies. Aside from this, however, the decision to reprint the article in this booklet form is in keeping with the policy of the Bureau of Naval Personnel—the dissemination of training information to as many naval personnel as possible.

Rear Admiral Burke's study carries a message which is as important to the top level command as it is to the petty officer. If you are looking for the answers to the questions of what discipline is, what the factors are which contribute to the break-down of discipline, and what methods can be used to combat these break-downs, then the following pages will be of interest to you.

J. W. ROPER,
Vice Admiral, USN,
Chief of Naval Personnel.

PART I—GENERAL DISCIPLINE IN THE NAVY

Definition

A well disciplined organization is one whose members work with enthusiasm, willingness, and zest as individuals and as a group to fulfill the mission of the organization with expectation of success.

Effect of Lack of Discipline

Lack of discipline results in loss of smooth, determined operating action and combat efficiency. Examples of the results of lack of discipline may be seen in the Italians at Adowa, the Spanish fleet in the Spanish-American War, the Russian army in World War I, and, with less disastrous outcome, the peacetime disaffections of the British Navy at Invergordon after World War I, the recent unrest in the Royal Canadian Navy, and the strikes to go home in the U.S. Army after World War II. The underlying cause in each case was the deterioration of the whole organization to such a degree that the local authorities could not, or would not because of their own degeneration, correct the local situation early enough to prevent widespread loss of authority. The United States Navy has never had an instance of this kind at any time in its history.

Measures of Discipline

Besides the large criterion of combat ability, there are many lesser criteria which in the aggregate become important measures of discipline: (1) A dignified pride and self-respect—pride in the Navy, in the unit, and in oneself; (2) A willingness to work for and to make personal sacrifices to the group good; (3) A smart appearance—a sloppy ship or a slovenly man will be so in action; (4) A respect for fellow men exemplified in courtesy and consideration; (5) Optimistic cheerfulness, liveliness, and exhilaration.

Discipline and Command

Discipline is a function of command. Juniors as well as seniors must be made responsible for and be cognizant of their responsibility. Commanders cannot delegate or reassign their own responsibility. Morale problems cannot be turned over to the chaplain or the dispensing of justice to the legal expert.

Specialists must be naval officers first and specialists second, and work for the commanding officer rather than function separately. Command must have the authority necessary for the exercise of its responsibility.

Factors Affecting Discipline or Morale

In every case of breakdown of discipline the following four major factors have been present: (1) Lack of information—subordinates were not kept informed of problems or of reasons why the organization was required to take the action it did take. (2) Lack of interest—seniors had little interest in or knowledge of the problems of their juniors or if they did the juniors were left unaware that they did; (3) Slackness in command; (4) Instability. Senseless transfers of personnel, changes in operating schedules or in daily routine. The organization as a whole and as individuals felt insecure and uncertain of the future.

There were other important factors such as operating conditions, food, living conditions; all of which had an effect on discipline, but each of the above four major factors were defective in all major disaffections. It is worth while to examine these and other factors in detail to determine their status in this Navy of ours.

Information to the Navy. There are two incentives which cause any young man to choose a certain profession as a lifetime career, and these same incentives are the cause of his satisfaction with his choice as his career develops. The first is his belief that the profession has honor and a future. The other incentive is that a man must feel that if he does his duty well and honorably, and demonstrates his ability, he can progress to a reasonable degree of success within the organization.

In the British Navy there was a general let-down an anticlimax following the first world war. The British government needed to save money to stay solvent. The British Fleet was sent on dangerous, unpleasant duty around Russia. British seamen were paid too little in proportion to the civilian rates of pay. There were rumblings of dissatisfaction before, but when a pay cut was suddenly announced, the British Fleet at Invergordon mutinied.

The British Admiralty had never bothered to explain to the Navy the problems which confronted the government and the Navy. The bluejackets knew only what they read in the news, and the news was full of doubt as to the need of a Navy at all in the future. There was comment that the Navy would be practically disbanded. Uncertainty developed in the lower decks—and uncertainly is the most fruitful cause of unrest. Factual timely information issued by the Admiralty might have prevented the trouble from developing, but nobody put out the information, and even the senior officers did not know the facts.

There is great need in our own Navy now for factual information. Our officers and men get detailed and excellent information on how to make the next rate, but they get very little assurance (or didn't until recently) as to the future of the Navy. They read, absorb, and sometimes believe the stories that Navies are no longer needed, that the Navy is on the second team, etc. They have not had made available to them the basic facts which would disprove the specious arguments against their service, and as a result they have started to be less proud of their Navy. Information must be fed continuously to be effective; it must be given by every medium available; and it must be given by each senior to his subordinates. All should know in general that there is an honorable place—a necessary place—in the national security structure for a Navy, and that without an effective, hard fighting Navy, no war can be won. It is the job of all officers in top billets in the Navy to explain in general the plans and the future of the Navy to their service. Later, when the situation permits, it would be desirable if the senior officers were assisted in this duty

by a very few qualified personnel, but there is danger in establishing an office for this purpose too soon. For the dissemination of such information can be effective only if it is accomplished by many people. As an example, every issue of every Navy publication should have some article in it about the future of the Navy as a whole organization. Many do now. They should be encouraged.

There is a converse to this lack of information being passed down. Unless there is dope coming down, little goes up. Information must be exchanged.

If seniors do not inform their juniors of items of interest, juniors will not feel a strong compulsion to inform their seniors of items of possible interest. No commander can command even a division well unless he is informed of what is going on within his command. He must have the feel of the pulse of his crew—which he can get only if his people confide in him.

Interest of Seniors in Subordinates. The case history of the recent "incidents" in ships of the Royal Canadian Navy will serve as an example of apparent lack of interest of seniors in the work and the problems of their juniors. There was a noticeable lack of human understanding between officers and enlisted men. Men were reprimanded for work badly done but rarely commended for work well done. Captains withdrew from their officers, and flag officers had little knowledge of what was happening in the ships. There was little instruction of young officers in practical leadership. There was no recognized process for the airing of grievances. There was lack of cooperation, of frankness and of communications among leading hands, petty officers, officers and their superiors. An absence of confidence between officers and leading petty officers, between petty officers and nonrated men and between junior and senior officers existed. Officers did not exercise close supervision over the duties of their divisions. The seniors did not know what was going on in the lower decks and consequently took no remedial steps which would have prevented a serious situation from occurring.

In short, the officers did not know what was going on and apparently didn't care. The men lost faith and confidence and a series of "incidents" resulted.

Our Navy has always been free of this type of disorder and one of the reasons is that all naval officers know that their most important duty is the handling of men. A successful Navy requires a unique and close relationship between officer and man. The officers have been thoroughly conversant in that relationship and were therefore well prepared to fulfill their responsibilities to their subordinates.

But officers are not paying quite the attention to this paramount duty they did before and during the war.

The results showed up in a survey made by BuPers of the opinions of separatees about the Navy and were confirmed by the large number of people who wanted to get out as a result of AlNav 117 (27 December 1949). A surprisingly large number, both petty officers and nonrated men, felt that the officers and, to a lesser extent, their senior petty officers, were not interested in their personal problems or welfare. They also felt that their jobs were not very important and that their seniors did not recognize their qualifications—or for that matter their minor shortcomings.

These men leaving the Navy have complained that their officers did not make adequate use of their skills and training. Officers were not aware of the men's capabilities and potentialities, what contributions they could make to the Navy or to their ship. They felt that the officers made no effort to identify their men with their ship or with the Navy.

That is an indictment whether the men were right or not. That's the way they felt—and that's wrong.

The cause for this difficulty starts at the top with the very senior officers. These officers are commencing to lose the personal touch with their juniors. There is a good reason for it. Few of them can be assigned to duty at sea these days. Those that are are swamped with masses of paper work and conferences, so that there is little time left over for that important function of keeping acquainted with what their subordinates are doing and how they are doing it. The more responsible the position that an officer holds the more important it is that he direct and supervise the work of his subordinates, and seemingly the less time he has available to accomplish this priority task. If the situation is not corrected there will be a gradual lowering of effectiveness as juniors rise to more important positions under the tutelage of too busy seniors.

There is much comment that the younger officers and the petty officers are inexperienced and lack ability in their divisional duties. This is true. But they will get that experience only under the direction of their seniors, and we are back at the starting point again—that the seniors don't have the time to exercise proper supervision. Seniors could well devote more effort to delineating to juniors, especially the "J.O.'s," exactly what is required of them. Too often these enthusiastic young men are simply told to comply with the mass of directives from the multiple "higher authorities" without adequate guidance or counsel. The lads end up confused, frustrated, overworked, and disheartened. From that position it is a gentle down-hill slide to lack of pride and loss of ambition. The situation is gradually improving, but it will not improve at a high enough rate until more emphasis is placed on the handling of men and less on the volume of paper scanned.

Junior officers and petty officers have a tendency to be too soft, too lenient with minor infractions of discipline and thereby penalize the good man while favoring the poor ones. This eventually becomes apparent to the officers who then are apt to become uncertain of themselves and become too arbitrary. In either case they lose the confidence of their men.

Inexperienced officers also apparently have a tendency not to follow through on reports and orders. This allows the poor man "to get away with it" and is discouraging to the good men. There is not enough checking.

There are far too many inexperienced commanders of stations and ships (some of them rather senior) who use courts martial to correct defects which should have been corrected by direct personal action of the division officers or the captain himself. Direct personal action early in the game will save many a court and will greatly increase the effectiveness of any command; but it does require knowledge of incipient trouble before it occurs, and it does necessitate a lot of time spent with subordinates.

There is a small minority of youngsters who take undue advantage of their rank and this quite naturally causes resentment. No man takes advantage of his rank unless he is unsure of himself and uncertain as to the respect he would command without his artificial means.

Of course the leadership supervision and guidance the junior officers and petty officers give, day in and day out, are the most important factors in achieving a high esprit de corps. The division officer is the core of the Navy's spirit. This is the key to much of the disciplinary trouble of the present Navy. Much of the criticism of present morale, or lack of it, is leveled at the division officer, and rightly so, and most of it is based on this officer's lack of understanding of his men. He must know them as individuals and make them realize and appreciate that he knows them. All this has been said frequently and in many ways, but it is believed that one element of this problem is frequently overlooked. Has the division officer the means and time available to adequately supervise, guide, and counsel his men in the manner required to develop that feeling of mutual respect and understanding so important in the foundation of a high esprit de corps (and high standard of discipline)?

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Most of the present mass of directives, orders, instructions, etc., from the many offices and bureaus in the Navy Department, fleet, type, and unit commanders, and other sources, ultimately fall upon this one individual (the division officer) for execution. If he is conscientiously carrying out each and every such order and directive, standing his watches, supervising his maintenance and upkeep work, making the required inspections, and otherwise carrying out his prescribed duties and responsibilities, he finds that the 24-hour day is just not long enough. The result is that some of his duties have to be performed hurriedly or not at all if he is to cover the essentials. The average division officer, under these conditions, directs most of his attention and efforts to those tasks whose results are most immediately apparent to his seniors, or, in other words, to those tasks which, if omitted or neglected, would cause immediate repercussions. In this process the supervision, guidance, knowledge and understanding of the men of his division are often neglected.

The solution to this problem lies in a more proper understanding of the relative importance of the division officer's various duties, both by his seniors in his own command and by himself. It requires proper appreciation on the part of the many officers responsible for issuance of orders, directives, instructions, etc., regarding how and by whom they ultimately will be carried out, with respect to their effect on the overall workload of the individuals and units affected. This would confirm the necessity for a reduction in "paper work" and nonessential directives.

Correction of the tendency to neglect interest in subordinates is not something that can be accomplished overnight. It is being effected gradually by many people who are cognizant of the defect. A large number of people working at the job would speed up the process.

It is important to emphasize that only by knowing subordinates is it possible to evaluate their talents and limitations. Only by knowing men can they be properly placed. There must be continuous concern about men, and not concern just when they get into trouble or are about to ship over or go out.

The atmosphere of a Navy or a ship is created by the attitude of the officers. Officers are obligated to insure that each of their subordinates knows that the senior officers, and the Navy, do care about men as individuals. Each person in the Navy must have assurance that his progress, his training, his career, and his performance of duty are of concern to the Navy.

Slackness in Command. All major catastrophies in the loss of discipline in all organizations have been preceded by a general slackness in the command. The old saying that a taut ship is a happy ship is still true. The reason is that on a taut ship the officers and the men know where they stand and what is expected of them. There can be complete dependence on one's associates, for lack of reliability will be brought up with a round turn. On such ships, all men do a day's work, not just the conscientious ones. There are no soft billets in a taut outfit. The officers and the men are on the job and require others to be on the job. Chiselers and transgressors are promptly punished while their offences are still minor.

Sure and everybody knows that's true too, but the majority of the separatees in the same survey by BuPers stated that the little things, the seemingly minor details that go to make a happy ship or an efficient one were apparently a haphazard matter. There was a lot of "made work." The men complained that ships were slack; they felt that the Navy was a lazy man's way of living and working. They felt that their work had little significance, and they got no satisfaction of accomplishment. Some of this is due to lack of information, to lack of explanation, but a great deal of it must be due to general slackness also.

There are a number of contributory causes for slackness in command—inexperience or lack of interest on the part of officers, the indifference of old-

timers, both officer and enlisted, who are merely passing the time until retirement, laziness on the part of young men who want to ride and produce as little as possible in the process. All can be corrected by tautening up the units.

Tautness requires absolute fairness above all else. Commanders must distinguish between good and bad men and take action accordingly. This means that men who fail must be punished promptly at mast and that each man's record must reflect his conduct and ability. It means that commanding officers must tackle the onerous problem of the relative fitness of officers, so that officers' fitness reports reflect faithfully the worth of the officer. There must be a clear differentiation between the excellent and the poor, or again the conscientious man is penalized and the poor man is favored.

Slackness in command requires eventual drastic action.

Instability. Instability is always a contributing factor in serious cases of lack of discipline. The personnel instability in our fleets after the war was therefore a serious concern to the Navy. If command attention had not been exercised carefully the discipline of the Navy would have suffered much more than it did.

There are many times when transfers are most desirable or are unavoidable. The Navy, especially BuFers, has done well in reducing unnecessary transfers, but there are still too many men—and officers—being shifted. It takes time for a man to become acquainted with his job and time for a unit to shake down after receiving new men. Unless through foresight and careful planning, the Navy can get some reasonable permanency of personnel on its ships and stations it will always be in a state of turmoil.

The man hours lost to the Navy by men in transit is appalling. Here again, BuPers is making valiant efforts to reduce time in receiving stations, time enroute, and time waiting for ships. Until all commanders and all ships and stations do their best, there will be this great loss in manpower utilization.

There should be great improvements due to long enlistments. Short enlistments preclude permanency of personnel—and seem to discourage men from selecting the Navy as a career.

BuPers is trying to put through a plan for scheduled sea-shore rotation which will reduce the justified complaints of unfairness and favoritism. That Bureau is having difficulty in resisting the continual pressure, mostly from senior officers, to give special and unjust consideration to their own people, especially Stewards, Yeomen, and similar ratings. A definite schedule of ship-shore rotation would be advantageous to the Navy and permit its personnel to make some sort of personal plans.

The present high rate of reenlistments will do much to eliminate the instability and rapid turnover due to the necessary training and schooling of new recruits. A high percentage of the manpower in the Navy is being used to train new men. The reduction in the number of trainees as well as in the number of instructors and administrators necessary for elementary training will relieve some of the instability due to transfers.

One of the basic causes in both the British mutiny at Invergordon and the "incidents" in the Canadian Navy was instability in the operating schedules. Ships either had no schedule or the schedules that they did have were changed frequently and without time to permit the officers and men to adjust their personal plans without inconvenience.

Frequent sudden changes in the operating schedules of ships after the war in the United States Navy was also one of the major sources of discontent. Even though the necessity of such changes was explained, the operating personnel could not understand why adequate planning and foresight could not have made most of the changes unnecessary.

Naturally, the exigencies of the service preclude the maintenance of a rigid schedule. Changes will frequently be necessary and unavoidable. On the

other hand there is still insufficient realization among the shore based planners of the great inconvenience caused to many people when schedules are abruptly changed. It speaks well for the discipline and loyalty of naval personnel that these changes are accepted without serious consequences. Nevertheless unnecessary changes are an additional strain to discipline and usually result in some men being AOL because they are not big enough to change their own plans to fit those of their units.

Stability of promotion and advancement has also been a cross under which the discipline of organizations has broken. The Bureau of Personnel is busily engaged in preparing career guidance plans for all Navy people. Heretofore written advancement examinations have been the most important factor in evaluating the relative worth of individuals, with some attention being given to the evaluation of the man's work on the job. Written tests, however, are only one measure of a man's effectiveness. They do not necessarily give a man's true aptitudes, qualifications, or achievements. BuPers is evaluating the performance of Chief Musicians and Musicians First Class with ten years' service in the spring, a work which will assist in the determination of the relative fitness of men for promotion. If this project is successful, evaluation centers will be established for all rates. These centers, it is hoped, will fulfill the need for obtaining accuracy and comprehensiveness in all of the qualifications. The record of capabilities of the men who are evaluated in these evaluation centers will also be of considerable assistance in the proper detailing of personnel and in the selection of personnel for commissions in the event of another emergency. This situational testing to determine actual qualifications will do much to insure that the best men available are promoted and thereby give to all personnel the necessary confidence that true worth will determine advancement.

BuPers has also recently instituted a system of fitness reports for chief petty officers and petty officers first class in order that a continuous and comprehensive record may be obtained on performance of duty of each of these key people. These, like any other system in which men mark other men, will be valuable in proportion to the conscientiousness with which the marking seniors act. Here again, it is necessary that rigid adherence to high standards be maintained to assure that the men who actually reach those high standards are not discriminated against by less qualified men receiving high marks which they do not justly deserve.

In a peacetime Navy it is important for each man in each rate to have some prospect of promotion even though that prospect may involve tough competition. BuPers has arranged for a steady flow of promotions for each rate. With so many reenlistments and with more and more people making the Navy their career it is essential that each man be confident that as his qualifications increase he will be advanced accordingly.

The officer promotion system was well established before the war. Since the war it has not been possible to reinstitute the entire system with the same degree of efficiency that previously existed, due to the much larger number of officers and the wide variation in their educational qualifications and experience. Nevertheless much progress has been made in the attempts to insure fair competition and adequate opportunity for advancement. In addition, the personnel acts prescribe the procedures required for promotion in considerable detail.

Officers must have confidence in the promotion system or discipline will be jeopardized. Unless the best officers are promoted, faith of other officers and enlisted men in the integrity of the system will be shaken. It is essential that officers be promoted who will be best qualified to lead in battle. They must have other qualifications, such as good administrative and technical ability and a wide array of knowledge also, but the rest of the Navy must have absolute confidence in those selected. Should the less qualified personnel be selected there will come

a time in battle in which the Navy will fail because of its leadership. Like begets like, and inadequate personnel, once they have moved up sufficiently to be on a selection board, will themselves be apt to select other inadequate personnel.

Standards must be very high, they must be attainable, they must be equitable, they must be well-known, and they must be maintained with integrity. Otherwise the officer corps will decay and decay rapidly, and there will be no effective combat Navy if this happens.

Other Factors Important to Discipline

In addition to the four factors discussed above, there are others which, although they lack the critical nature of these four, are nevertheless important to discipline. Five factors of this sort are touched upon briefly below.

Increase in Navy Ashore. Instead of the 65 percent of naval personnel serving at sea, as was the situation before the war, 65 percent are actually billeted ashore now. Before the war there were very few small shore stations as compared to the multitude in existence now. These two changes have resulted in a relatively large number of less experienced commanding officers administering men. While there is nothing that can be done about the changes mentioned above, a great deal can and should be done in the way of stressing to officers ashore the fact that they have a most difficult job and a primary responsibility to insure that the discipline, spirit, and effectiveness of their commands meet the high standards which the Navy must maintain.

Shore Patrol. Untrained shore patrolmen cannot handle minor infractions satisfactorily. Personnel assigned to shore patrol duty should be specially trained.

Fleet Employment. It may be that we have too much concentration on grand exercises and not enough on training of individual ships and units; and too much emphasis on reporting exercises and too little on improving performance.

Marriage and Discipline. Early marriages in the case of naval personnel sometimes result in worry, frustration, and despondency. They cause a divided loyalty between family and the Navy which often leads to serious derelictions. Assistance with personal problems of this sort is the responsibility of the division officer, whose duty it is to inspire the trust and confidence that lead his men to consult him.

Creative Comfort. This is not a Bureau problem but a command responsibility. It is not as satisfactorily handled as is commonly believed. Much more can be done by many commands to provide good food, messing facilities, living quarters, and general environment.

PART II—Disciplinary Cases

Uniform Code of Military Justice

It has always been highly desirable to reduce the number of courts martial for a number of obvious reasons. Upon the placing in effect of the Uniform Code of Military Justice what was formerly desirable becomes a matter of absolute necessity. One of the effects of the new Code will be a formidable increase in the amount of time and paper work involved in connection with courts martial. Without a decrease in the number of cases, the workload will become prohibitive.

Reason for Delinquency

The major reason for the increase in the number of courts martial over prewar days is the decrease in the amount of "command attention" being exercised as compared with those days. Commanding officers are using courts martial as a corrective device more frequently than in prewar days. They apparently fail to realize that a large number of courts being given is actually a reflection upon the officers' command ability.

What Can Be Done

(1) Discipline can be tautened. When this is correctly done, less punishment will be required. (2) Studies should be conducted on a continuing basis to determine the types of individuals who get into trouble. Results of such studies would be used by recruiting officers to screen out troublesome types before they get into the service. (3) The provisions of AlNav 89 should be used far more than is now the case to rid the Navy of those undesirables and misfits who succeed in getting into the Navy in spite of the best efforts of the recruiting officers.

PERSONNEL AT NAVAL HEADQUARTERS EARNING $7000. or MORE—BY BRANCH AND CLASSIFICATION

	A.O.3	A.O.4	A.O.5	A.O.6	CDR A.O.7	Capt. A.O.8	Architect 3	Architect 5	Editor 3	Eng 2	Eng 3	Eng 4	Eng 5	Eng 6	Eng 7	Solicitor 2	Statistician 4	T.O. 5	T.O. 6	T.O. 7	Cdr. T.O. 8	T.O. 9	Capt. T.O.	Total
N/COMPT	2	1			1								1					1		4	1			11
Nav Sec			1																2	1		1		5
V/CNS		1							1									1		1				4
DGNS	6	2	4			1												2	1					16
DPP				1																				1
CNP	1	1															1							3
A/DMST (Cat)																		2	4					6
DNPA	1	1	1																					3
DGSF							1	1				1	3	1		1		6	4		1	1		20
DESNS													1							1			1	3
HMCS Gloucester											1													1
ACNTS						1															1			2
DG AIR				1							1		2					2	1	1				8
DG Ships										1	14	11	3	5				8	6	1			1	50
DGFE				1					1	3	8	3	5	1				9	5	3		1		40
TOTAL	10	6	6	3	1	2	1	1	2	4	24	15	15	7		1	1	29	24	12	4	3	2	173

APPENDIX 4

RCN OFFICER STRENGTH DATA

	OFFICER STRENGTH	NO. OF OFFICERS AUTHORIZED	CADETS (ROTP, VENTURE CTP MEDICAL) RECRUITED	TARGET
31 MARCH 1952	2123	2031	96	177
1953	2253	2526	131	177
1954	2339	2542	284	329
1955	2389	2681	170	298
1956	2482	2863	168	303
1957	2520	2925	161	308
1958	2522	2925	222	304
1959	2572	2925	237	352
1960	2583	2925	247	342
1961	2574	2925	233	272
1962	2562+	2864		

+ Includes 75 Officers extended over retiring age.

NAVAL PERSONNEL STATISTICS
July 16, 1962

APPENDIX V

ANNEX "B"

CONFIDENTIAL

NUMBER OF ROTP GRADUATES ELIGIBLE
AND
NUMBER EXERCISING RELEASE OPTION
(Cumulative to 31 May 62)

Service	Eligible for Release	Opted Out	Remained in Service	% Exercising Release Option
RCN				
University	51	23	28	45%
Canservcol	105	27	78	26%
Total	156	50	106	32%
CA(R)				
University	248	96	152	39%
Canservcol	194	42	152	22%
Total	442	138	304	30%
RCAF (Air)				
University	105	29	76	28%
Canservcol	144	26	118	18%
Total	249	55	194	22%
RCAF (Tech & Others)				
University	222	106	116	49%
Canservcol	80	13	67	16%
Total	302	119	183	39%
RCAF (Comb)				
University	327	135	192	41%
Canservcol	224	39	185	17%
Total	551	174	377	31%
All Services				
University	626	254	372	40%
Canservcol	523	108	415	21%
Total	1149	362	787	31%

NOTE: Not included in the above figures are 47 graduates who were released prior to completing three years of service.

HOUSE OF COMMONS

First Session—Twenty-sixth Parliament

1963

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. MAURICE SAUVÉ

PROCEEDINGS

No. 22

TUESDAY, DECEMBER 17, 1963
WEDNESDAY, DECEMBER 18, 1963

INCLUDING THE THIRD REPORT TO THE HOUSE

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

29653-3—1

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. Maurice Sauvé

Vice-Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (*Notre-Dame-de-Grâce*),
Béchard,
Brewin,
Churchill,
Deachman,
Granger,
Groos,
Hahn,
Horner (*Acadia*),
Laniel,
Lessard (*Lac-Saint-Jean*),
Lloyd,
MacInnis,
MacLean,
MacRae,
Martineau,
Matheson,
McMillan,
Patterson,
Smith,
Temple,
Winch.

Quorum—13

E. W. Innes,
Clerk of Committee.

REPORT TO THE HOUSE

December 20, 1963.

The Special Committee on Defence has the honour to present the following as its

THIRD REPORT

Your Committee, pursuant to its Order of Reference of June 7, 1963, submits its findings, observations and recommendations to the House of Commons in the annexed document.

* * * * * * * * *

A copy of the Committee's Minutes of Proceedings and Evidence (Issues Nos. 1 to 22, inclusive) is tabled herewith.

Respectfully submitted,

MAURICE SAUVÉ,
Chairman.

29653-3—1½

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CHAPTER I—THE SPECIAL COMMITTEE ON DEFENCE

1. On June 7, 1963, the House of Commons appointed a Special Committee on Defence by adopting the following resolution:

> "That a Special Committee be appointed to consider matters relating to defence and to report from time to time its observations and opinions thereon; that the Committee have power to send for persons, papers and records and to examine witnesses; that it be empowered to adjourn from place to place; that Standing Order No. 67 be suspended in relation to the Committee; and that the Committee consist of 24 members to be designated by the House at a later date.

2. On June 10, the House of Commons designated the 24 members of the Committee:

> Messrs. Asselin (Notre-Dame-de-Grâce), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (Lac-Saint-Jean), Lloyd, McInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch.

During the course of its sittings the following members have also been appointed to the Committee: Messrs. Nielsen, McNulty, Plourde, MacRae and Horner (Acadia); the latter two presently serving on the Committee.

To prepare its sittings, the Committee appointed a Steering Subcommittee comprised of Messrs. Sauvé (Chairman), Lambert (Vice Chairman), Lessard (Lac-Saint-Jean), MacLean (Queens), Temple and Winch.

3. The Special Committee on Defence held meetings, to receive information, from June 18, 1963, until December 11, 1963.

Meetings:	In Canada — 29,	including a meeting at NORAD Northern Region Headquarters at North Bay
	In U.S.A. — 2,	at NORAD Headquarters, Colorado Springs; and at Washington
	In Europe — 14,	including visits to the 4th Infantry Brigade and to No. 3 Wing, 1 Air Division, R.C.A.F.
	TOTAL: 45	

4. As the Committee undertook a detailed study of matters relating to defence in Canada, it was deemed advisable to call certain witnesses. These were:

> Honourable Paul Martin, Secretary of State for External Affairs; Honourable Paul T. Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; Honourable Charles M. Drury, Minister of Defence Production; Air Chief Marshal F. R. Miller, Chairman of Chiefs of Staff Committee; Vice Admiral H. S. Rayner, Chief of Naval Staff; Lt. Gen. G. Walsh, Chief of the General Staff; Air Marshal C. R. Dunlap, Chief of the Air Staff; Dr. A. H. Zimmerman, Chairman, Defence Research Board; Dr. J. E. Keyston, Vice Chairman, Defence Research Board; and Dr. G. S. Field, Chief Scientist.

Persons from outside the public service who have made contributions to the Committee's studies were:

Doctors D. B. Scott, L. E. Trainor and J. T. Sample, all from the University of Alberta; General Charles Foulkes (Retired); Lt. Gen. Guy Simonds (Retired); Commodore James Plomer (Retired); and Mr. John Gellner.

5. On Wednesday, July 17, 1963, the Committee visited NORAD Headquarters in Colorado Springs, U.S.A. and heard General John K. Gerhart, U.S.A.F., Commander in Chief, NORAD: and Air Marshal C. Roy Slemon, R.C.A.F., Deputy Commander; assisted by Brig. Gen. L. W. Stocking, U.S.A.F.; Col. J. W. Bothwell, U.S.A.F.; Air Vice Marshal M. D. Lister, R.C.A.F.; Wing Commander V. Rolfe, R.C.A.F.; Lt. Col. J. L. Pilant, U.S. Army; Commander A. M. Smith, U.S.N.; Lt. Col. J. L. Beck, U.S.A.F.; Sqd. Ldr. S. E. Collins, R.C.A.F.; Mr. G. Salsky.

6. On Thursday, November 7, 1963, the Committee visited NORAD northern Region Headquarters and the BOMARC Base at North Bay, Ontario and the 414 Squadron. There, we heard: Air Vice Marshal M. M. Hendrick, Air Officer Commanding, Air Defence Command; Air Vice Marshal J. B. Harvey, Commander, Northern NORAD Region; assisted by Air Commodore M. E. Pollard, Col. T. H. Besson, Group Captain G. B. Murray, Wing Commander A. G. Lawrence, Wing Commander J. MacKay, Squadron Leader H. J. Tennant, Squadron Leader D. S. Terrell, Flight Lieutenant R. M. Taylor.

7. Because Canada's contribution to NATO represents a substantial proportion of the Canadian Defence Budget, the Committee concluded that it could not arrive at a true appreciation of the role of Canadian forces in Europe without some direct knowledge of the defence policies of some of the leading members and direct contact with the heads of NATO and SHAPE. Furthermore, it was evident to the Committee that military strategy had changed considerably over the years and that contacts with European leaders and scholars would give the Committee a better understanding of all aspects of defence.

8. The Committee left Canada on November 10, returning November 24, 1963. Meetings were held in France, Germany, Denmark and the United Kingdom. It heard 44 witnesses in the course of 14 meetings. They were:

Rt. Hon. George Drew, Canadian High Commissioner to the United Kingdom; Commodore F. B. Caldwell; Air Commodore W. P. Gouin; P. E. Haddon; Col. G. R. Hale; R. S. Thain; all of Canadian Joint Staffs (London).

Mr. Leonard Beaton; Institute of Strategic Studies; Professor Michael Howard and Col. Gwynne-Jones.

Air Vice Marshal D. A. R. Bradshaw, Commanding Officer, 1 Air Division; Group Captain D. C. Laubman, Commanding Officer 3 (F) Wing; Brigadier M. R. Dare; Colonel W. C. Dick; Lt. Col. C. D. Simpson; Major Crowe and Captain W. H. Moorhouse, all of 4 C.I.B.G. Mr. Dirk U. Stikker, Secretary-General of NATO; Mr. George Ignatieff, Canada's permanent representative to NATO council; Air Vice-Marshal R. A. Cameron, R.C.A.F., Military Advisor; General L. L. Lemnitzer, Supreme Allied Commander—Europe; Colonel Olan and Colonel Dolan, both from SHAPE; Mr. Pierre Dupuy, Canadian Ambassador to France; Brig. General N. V. Hinh, of the French Republic; General Pierre Gallois; Mr. André Moynet, Chairman of Defence Committee of the French National Assembly; Mr. J. G. Halstead, of the Canadian Embassy in Paris.

Herr Franz Krapf, Head of Political Division II; Dr. Dirk Oncken and Dr. Hans Arnold, both of Political Division II, from German Foreign Ministry.

Col. iG. Jähne, Col. iG. Hopfgarten, and Lt. Col. iG. Neubert, from the German Defence Ministry; Herr Fritz Erler, Deputy Chairman, Socialist Democratic party, Republic of Germany; Mr. Victor Gram, Danish Minister of Defence; Mr. Paul Fischer, Under-Secretary of State for Foreign Affairs; Maj. Gen. S. B. R. Helsø, Chief of Danish Defence Staff; and also Maj. Gen. Blixenkrone-Møller, Army; Maj. Gen. Ziegler, RDAF; Capt. J. Petersen, RDN; Lt. Col. P. Brüner, and Capt. M. Petersen of the Danish Defence Staff; Mr. P. W. Frellesvig, Head of NATO Branch; and Mr. M. Frederiksen, Head of Department, Ministry of Defence.

9. The Committee visited Washington, U.S.A. on Wednesday, December 11, 1963, in order to discuss mutual defence problems and related matters with senior United States Defence and State Department Officials.

The following persons were heard:

Mr. W. P. Bundy, Assistant Secretary of Defence (International Security Affairs), U.S.A.; Mr. J. C. Kitchen, Deputy Assistant Secretary for Politico Military Affairs, Department of State, U.S.A.; and Mr. Henry S. Rowen, Deputy Assistant Secretary of Defence (Planning and National Security Council Affairs), U.S.A.

Briefings were also given by

His Excellency Charles S. A. Ritchie, Canadian Ambassador to the U.S.A.; Brigadier Bennett, Acting Chairman of the Canadian Joint Staff (Washington); Mr. D. Gilchrist, Director of the Washington Office of the Department of Defence Production.

10. On August 1st, 1963, the Committee invited groups and individuals to make known their views on matters relating to defence. That decision read as follows:

The Committee will be pleased to receive written papers or submissions with respect to defence and defence matters. Persons or organizations wishing to make such written representations are requested to send forty copies in English, where possible, and fifteen copies in French of their statements to the Clerk of the Special Committee on Defence, House of Commons, Ottawa. These submissions are to be accompanied by a brief outline of the background and qualifications of the persons or groups making such presentations.

11. The following briefs were received:

1. Document prepared by Physicists from University of Alberta—tabled October 17, 1963—(Exhibit No. 5)—(Printed as Appendix to Committee Proceedings No. 14).
2. Review of Mainguy Report by Commodore James Plomer—tabled November 28, 1963—(Exhibit No. 7)—(Printed as Appendix to Proceedings No. 21).
3. Prepared Statement to Defence Committee by the Voice of Women, Canada—tabled November 28, 1963—(Exhibit No. 8).
4. Brief on Research and Defence, with Appendices, by Canadian Peace Research Institute—tabled November 28, 1963—(Exhibit No. 9).

12. This is the first time that the House of Commons has appointed a Special Committee on Defence with specific powers to examine all aspects of Defence Policy. It is true that, since 1941, the House appointed many Special Committees to consider defence expenditures:

Special Committee on War Expenditures	—1941
Special Committee on War Expenditures	—1942
Special Committee on War Expenditures	—1943
Special Committee on War Expenditures	—1944
Special Committee on War Expenditures and Economies	—1945
Special Committee on War Expenditures and Economies	—1946
Special Committee on Defence Expenditures (2nd Session)	—1951
Special Committee on Defence Expenditures	—1952
Special Committee on Defence Expenditures	—1953
Standing Committee on Estimates (Defence Expenditures)	—1958
Special Committee on Defence Expenditures	—1960

13. The Committee considered that it should examine the future defence policy rather than to review in detail the past. It must be remembered that between the time policy is decided upon and it is put into effect there is necessarily a lapse of time. This is especially so when a new direction is given to such policy, which may involve the planning and acquisition of new and complicated equipment, as well as the retraining of personnel.

14. The Committee was appointed at a time when Canada, in the light of new strategic concepts, must reconsider the part that its armed forces will be called upon to play for the defence of our country and of the free world in the framework of her alliances and her international commitments.

15. The Committee has been provided with advice and assistance by personnel from the Public Service on an *ad hoc* basis. This procedure is not wholly satisfactory. The wide scope of the study and the complexities of the problems of Defence emphasize the necessity of a continuing technical assistance, responsible to the Committee.

16. This interim report is submitted at this time so that the Government may have the Committee's present recommendations before the Government brings down its proposed White Paper on Defence.

17. The Committee is now in a position to make some recommendations and to draw up a list of the important matters which it wishes still to examine, reserving the right to study other problems besides those mentioned in this interim report.

18. The Committee therefore recommends:

(*a*) That this Special Committee on Defence, which shall cease to exist at the end of the present session be reconstituted early in the next session and that, as far as possible, the present members of this Committee be reappointed thereto.

(*b*) That the Minutes of Proceedings and Evidence of this Committee be referred by the House to the Committee when it is reconstituted in the next session.

(c) That upon the completion of the work by the above-mentioned Special Committee, the House of Commons set up a Standing Committee on Defence, of similar composition to the Special Committee.

(*d*) That the proposed Standing Committee on Defence be provided with a technical secretariat.

CHAPTER II—THE SERVICES

19. At the many meetings of the Committee, a number of questions were raised regarding Canadian armed services, some of which are referred to here and the others in succeeding chapters of this report.

20. The Minister and Associate Minister of National Defence, the Naval, Army and Air Force Chiefs of Staff, and the Chairman of Defence Research Board, provided detailed evidence concerning their respective services' military and civilian establishment and distribution. A summary as of date of evidence is as follows:

NAVY

Service personnel	21,593
Civilian personnel	12,297

Naval Strength

1 aircraft carrier with a squadron of Tracker Aircraft and a squadron of helicopters
18 destroyer escorts (*St. Laurent, Restigouche* or *Mackenzie* classes)
8 Tribal class destroyer escorts
17 frigates
10 minesweepers
3 Royal Navy submarines (on loan)
1 submarine
1 fleet replenishment ship
2 maintenance repair ships
4 squadrons of aircraft (shore-based)

Organization (East Coast)

The Atlantic Command with headquarters in Halifax and operating under the Flag Officer is comprised of—

Fleet establishments
Support facilities

On the East Coast we have:

1 aircraft carrier with a squadron of Tracker Aircraft and a squadron of helicopters embarked
11 destroyer escorts of the *St. Laurent, Restigouche* and *Mackenzie* classes
8 Tribal class destroyer escorts
10 frigates
6 minesweepers
3 Royal Navy submarines on loan
1 fleet replenishment ship
1 maintenance repair ship
3 squadrons of aircraft shore-based at naval air station Dartmouth

The Atlantic Command is an Area Command, the Flag Officer having responsibility for all naval activities in a wide geographic area. Approximately two thirds of the R.C.N. is serving on the Atlantic Coast.

Organization (West Coast)

The Pacific Command with headquarters at Esquimalt, B.C., operating under the Flag Officer is comprised of—

Fleet establishments
Support facilities

On the West Coast we have:

7 destroyer escorts of the *St. Laurent* and *Mackenzie* classes
7 frigates
4 minesweepers
1 submarine
1 maintenance repair ship
1 squadron of aircraft shore-based at Patricia Bay

The Pacific Command is an Area Command, the Flag Officer having responsibility for all naval activities in a wide geographic area. Approximately one third of the R.C.N. is serving on the Pacific Coast.

R.C.N. Reserve Division

In Hamilton, Ontario, there is also a Commanding Officer, Naval Division who is in charge of all 21 reserve divisions across the country.

Associated with the navy divisions are seventeen University Navy Training Divisions.

ARMY

Service personnel	49,381
Civilian personnel	16,980

Organization

Western Command Headquarters, Edmonton, Alta.
Central Command Headquarters, Oakville, Ont.
Quebec Command Headquarters, Montreal
Eastern Command Headquarters, Halifax, N.S.

Major Establishments

1 Canadian Infantry Brigade Group, Calgary, Alta. 2 Canadian Infantry Brigade Group, Camp Petawawa, Ont. 3 Canadian Infantry Brigade Group, Camp Gagetown, N.B.	20,500
4 Canadian Infantry Brigade Group, Soest, Germany	6,000
United Nations Police Force	1,329

AIR FORCE

Service personnel	52,272
Civilian personnel	15,249

Militia and Reserve

Army	53,763
Navy	3,405
Air Force	2,307

(As of September 30th, 1963)

TOTAL FOR ALL SERVICES—

Service personnel	123,246
Civilian personnel including DRB, Administration and Inspection Service	49,078

21. The Chiefs of Staffs and other witnesses discussed varying degrees of integration and co-ordination of the Armed Forces. This ranged from the concept of a single defence force under one command to the consolidation of the three services—the Navy, the Army and the Air Force—under a single general staff with joint facilities for the three services in several sectors.

The question of integration and co-ordination is influenced, not only by the future role of the three services, but by the degree of efficiency, both military and economic, of the separate services as well as the potential morale and esprit de corps of a single defence force. One form of combined services frequently mentioned was the United States Marine Corps, the study of whose organization would be useful.

22. The Committee was advised that the organization of the Army is to be examined by Maj. Gen. Jean Victor Allard. The Committee was also advised that a number of other defence problems were being studied by a temporary working group under Dr. R. J. Sutherland, of the Defence Research Board. Some doubt has arisen within the Committee as to whether the numbers of servicemen and civilians in their support, in each of the services, are properly apportioned to the tasks assigned to each service. The Committee desires to study this problem in greater detail.

23. On December 5, 1963, the Minister of National Defence announced substantial reductions in the strength of the reserve forces, whose traditional function has been to provide a peacetime cadre for mobilization of the armed forces in time of national emergency. No indication was given as to any major reduction in regular forces. The current role of the militia is primarily in the field of survival operations. No detail was furnished as to the effect on survival operations in Canada resulting from the reduction of the militia. Before the Committee, questions were raised as to the relative value of educating the general public on survival measures, as against the organization of military cadres for survival operations.

24. Commodore James Plomer (retired) appeared before the Committee and was examined. He repeated charges that he had made earlier in the press concerning Naval administration and policy. Vice Admiral H. S. Rayner again appeared before the Committee and gave evidence in relation thereto.

25. The question of compulsory military or national service was discussed briefly, especially during the testimony of Lt. Gen. G. Simonds, who expressed himself in favour of such service.

26. This Committee recommends:

(*a*) That since the Committee was not in a position to make the detailed study required by the nature of Commodore Plomer's allegations, an independent committee of inquiry should review the whole matter in the interests of all concerned.

(*b*) That more effective reviews be made of organization, manpower management and utilization to achieve greater efficiency.

27. In order to follow up the second chapter, further time is required to study the following matters:

(*a*) Integration and co-ordination of the armed services.

(*b*) Role of the Militia and other reserves.

(*c*) Compulsory military service.

(*d*) Manpower management.

(*e*) Service Colleges.

(*f*) Civil defence.

CHAPTER III—DEFENCE BUDGET

28. At a time when the Federal government finds it hard to meet constantly increasing budget requirements, it is vital to consider defence expenditures in detail.

29. The Chiefs of Staff of each of the armed services have supplied the relevant information concerning appropriations for their respective services and budget expenditure allotments. A useful summary of that information produced by the Canadian Tax Foundation, in its publication "The NATIONAL FINANCES—1963-64", follows:

30. Defence Expenditures

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Fiscal Year	Defence Budgetary Expenditure	Total Budgetary Expenditure	Defence as a % of total
			%
1960	1,537.9	5,702.0	26.9
1961	1,542.1	5,958.1	25.9
1962	1,654.9	6,520.6	25.4
1963	1,610.6	6,570.3	24.5
1964	1,639.0	6,845.0	23.9

31. Budgetary Expenditure by Major Categories

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Item	1960	1961	1962	1963	1964
Procurement of equipment	292.5	285.0	320.8	258.4	296.5
Construction	87.8	78.8	84.8	78.2	49.4
Military personnel costs	545.3	565.8	619.9	631.2	623.6
Operations and maintenance costs	586.8	577.5	596.2	605.1	629.7
Contributions to infrastructure and NATO budgets	17.4	14.2	11.1	14.5	15.0
Industrial applied research	—	—	—	1.2	5.3
Research satellite program	—	—	—	—	.8
Total cash disbursements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Deduct:					
Expenditure from special accounts	14.9	3.8	6.7	13.7	29.5
Total budgetary expenditure	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

32. Budgetary Expenditure by Service

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Item	1960	1961	1962	1963	1964
Navy	255.8	245.5	272.0	269.4	291.4
Army	400.8	402.3	442.4	443.0	444.9
Air Force	743.3	755.4	788.1	713.9	692.3
Defence Research and Development	39.2	41.9	40.4	41.1	51.2
Mutual Aid and NATO Infrastructure	18.4	14.6	11.1	25.0	32.1
Other	72.3	61.6	78.8	96.2	108.4
Total cash disbursements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Deduct:					
Expenditure from Special Accounts	14.9	3.8	6.7	13.7	29.5
Total budgetary expenditure	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

33. Distribution of National Defence Dollar

For Fiscal Years ending 31st March 1960 to 1964

(Per Cent)

Item	1960	1961	1962	1963	1964
Equipment	19.1	18.8	19.6	16.3	18.3
Construction	5.7	5.2	5.2	4.9	3.1
Military personnel costs	35.7	37.3	38.0	39.7	38.5
Operations and maintenance costs	38.4	38.1	36.5	38.1	38.9
Infrastructure and NATO	1.1	.9	.7	.9	.9
Industrial applied research	—	—	—	.1	.3
Research satellite program	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0

34. Estimated Expenditure on Equipment and Construction by Service

For Fiscal Year ending 31st March 1964

($ million)

	Air Force	Navy	Army	Defence Research	Other	Total
Aircraft and Engines	105.5	11.2	—	—	17.0	133.7
Ammunition and Bombs	4.1	3.5	11.0	—	—	18.6
Electronic and Communication Equipment	21.9	14.5	5.8	—	—	42.2
Ships	—	38.5	—	—	—	38.5
Armament Equipment	.5	5.7	2.8	—	—	9.0
Mechanical Equipment, including Transport	2.8	.8	13.9	—	—	17.5
Special Training Equipment	3.8	1.5	.1	—	—	5.4
Miscellaneous Equipment	4.5	1.5	4.2	—	—	10.2
Other	—	—	2.1	19.0	.3	21.4
Total Equipment	143.1	77.2	39.9	19.0	17.3	296.5
Construction of Buildings and Works	25.4	3.3	18.0	1.5	—	48.2
Purchase of Real Property	.6	.2	.3	—	—	1.1
Total Construction and Real Property	26.0	3.5	18.4	1.5	—	49.4
Grand Total	169.1	80.7	58.3	20.5	17.3	345.9

35. The military budget of Canada is often compared to military expenditures in the United States, the United Kingdom, France, Germany and Italy, the main NATO countries. Here are some interesting statistics compiled by The Institute for Strategic Studies in a paper published in November 1963 and entitled "The Military Balance 1963-1964".

36. Comparisons on Defence Expenditure

Country	As percentage of Gross National Product			1963 Defence Budgets		1963 Defence Expenditure
	1953	1958	1962	Actual	Increase or decrease compared with 1962 Budget	Per Head of Population
				(Million $)	(Million $)	(dollars)
Belgium	4.9	3.6	3.4	444	+ 88	48
Canada	9.0	6.0	5.1	1,480	− 109	78
Denmark	3.7	3.3	3.5	225	+ 45	48
France	11.0	8.0	7.8	4,062	+ 531	79
Germany	5.0	3.8	6.0	4,607	+ 857	83
Greece	6.1	5.8	4.5	167	− 3	21
Italy	4.6	4.3	4.0	1,510	+ 255	30
Luxembourg	3.2	2.1	1.6	7	—	22
Netherlands	6.2	5.0	5.0	618	+ 63	51
Norway	5.7	4.0	4.2	197	+ 6	54
Portugal	4.5	4.5	8.9	176	+ 18	18
Turkey	5.4	5.4	5.0	235	− 52	8
United Kingdom	11.3	7.8	7.4	5,146	+ 327	96
United States	14.8	11.1	10.7	52,400	+ 400	276
				71,274	+2,418	

37. The concept of the gross national product was the main basis for comparison and in 1962 the United States earmarked 10.7% of their gross national product to defence; France, 7.8%; the United Kingdom, 7.4%; Germany 6%; Italy, 4%; and Canada, 5.1%.

It might appear from the above comparative figures that Canada's effort is not as great as that of her main NATO allies. However, such a means of comparison is not satisfactory. The Secretariat of NATO will publish shortly statistics based on per capita defence expenditures for each NATO member country and on other criteria such as the total amount of taxes paid per capita at all levels of government. Such a basis may permit a more equitable appraisal of Canada's effort.

38. It is interesting to note, from the above table, that Canada spends $78.00 per capita while France spends $79.00 per capita; Italy, $30.00 and the United Kingdom, $96.00. Canada's international responsibilities should not be compared, of course, with those of the United States and the United Kingdom whose interests in all parts of the world are undeniable. Furthermore, those countries have assumed major power responsibilities. Surely, Canada's responsibilities are not at that level. France, for instance, located in central Europe, is nevertheless allocating only one dollar per capita more to defence.

39. Evidence presented to the Committee shows that approximately 77% of Canada's total defence budget, 1963-1964, is allocated to the payment of salaries and to expenditures concerning maintenance and operations, while only 23% of the budget is for new equipment. In gross figures, this means $1,253,300,000 for salaries and maintenance costs, and $337,500,000 for equipment.

Evidence further indicated that there has been for a number of years a progressive increase in the proportion of the defence dollar going to salaries, maintenance, etc., with a corresponding decrease in the amount available for the purchase of new equipment. The proportion of the defence dollar available for new equipment is seriously affecting the fighting capabilities of Canada's armed forces.

40. Your Committee recommends:

(*a*) That the Financial Reports of the Defence Department should reflect the cost of defence according to functions and operations.

(*b*) That the division of the Defence budget among the services should be determined according to the changing overall military role rather than frozen to any traditional percentages.

(*c*) That the Department of National Defence, in co-operation with the Secretariat of NATO, evolve as soon as possible a new method of assessing the contributions of each member country of NATO. The establishment of a weighted index would permit a more accurate assessment of the financial contribution of every member of the Alliance.

(*d*) That, in addition to the annual review of budget appropriations, defence expenditures should be projected several years ahead in relation to a percentage of the gross national product and in respect to the planned programs.

41. In order to follow up the third chapter, further time is required to study:

(*a*) Priorities in expenditures

(*b*) The economic consequences of Defence budgeting

(*c*) The possibility of decreased defence expenditure in the event of continuing lessening international tension, and in conjunction with mutual reduction in armament.

CHAPTER IV—NATO

42. Canada was one of the original 12 (now 15) nations signatory to the North Atlantic Treaty in April 1949, and played a leading role in the formation of the Alliance, the members of which are, in the words of the treaty "determined to safeguard the freedom, common heritage and civilization of their peoples . . . (and) are resolved to unite their efforts for collective defence and for the preservation of peace and security." NATO continues to be an essential foundation of Canada's foreign and defence policies. The treaty is to be in force until at least 1969. Section 13 reads as follows:

> After the treaty has been in force for 20 years, any party may cease to be a party one year after its notice of denunciation has been given to the Government of the United States of America, which will inform the governments of other Parties of the deposit of each notice of denunciation.

43. The members of NATO are Canada, Britain, United States of America, France, Belgium, Italy, Iceland, Denmark, Norway, Portugal, Greece, Turkey, West Germany, Luxemburg, The Netherlands.

44. The military contribution of Canada to NATO is established as follows:

One Division of the Canadian Army consisting of one Brigade Group stationed in Europe and two brigades, in reserve in Canada, earmarked for NATO

One Air Division of eight squadrons of CF104 aircraft

One Aircraft Carrier and 29 escort ships earmarked to SACLANT in case of emergency.

45. The Western world defence against aggression is the common purpose of all the members of the Alliance. However, there is not unanimity among NATO members in respect of future policy and of strategic concepts. It can be said that among the more important members of NATO, the United States, France, the United Kingdom and West Germany do not all share the same point of view on the defence strategy and policy of NATO. The Committee's trip in Europe has enabled it to realize the range of views, and how far the members of NATO felt free to express them.

46. The Committee is satisfied that Canada's forces in Europe when properly equipped and armed will contribute more effectively to the defence of Western Europe. By respecting its commitments to NATO, Canada influences the other members of the Alliance to respect theirs. One should not minimize the mutual influences which are exerted in any alliance.

47. Many times during the Committee's sittings a change in the Canadian contribution to the defence of Europe has been mentioned. In Europe, our allies have insisted on the importance and value of a Canadian contribution, and its strong psychological value in the sense that it reassures our European allies.

48. The position of NATO members in 1963 is different from what it was when the alliance was formed. The economic situation has improved in all of the European countries. The relative importance of our contribution in 1963 cannot now be compared with what it was when the alliance was formed, when the military power of some of our European allies was weak. Furthermore, during that period, the development of nuclear weapons has changed the whole concept of defence.

49. In several allied countries it is questioned whether war, conventional or limited nuclear, is credible in Europe. This opinion holds that the use in Europe of conventional troops not armed with nuclear weapons or of nuclear-armed troops engaged in a limited nuclear war can only lead to a world-wide nuclear conflict.

SHAPE's strategy is clear cut: should the NATO conventional forces fail to contain the enemy conventional forces, in an attack on any alliance territory tactical nuclear weapons will be used by NATO forces. However it appears inescapable that if tactical nuclear weapons should be used in Western Europe the conflict will quickly escalate into a major nuclear war between the East and West.

50. The NATO partners are discussing at length the best method of deployment of nuclear forces in forward areas. At present some of the ground forces out front are equipped with tactical nuclear arms. However, many be-

lieve that it would be better to set up a separate nuclear force to be placed behind the conventional forces and under direct command of SACEUR. The risk must not be taken that a major nuclear conflict would be triggered, by the unauthorized use of tactical nuclear weapons, by subordinate command when threatened by annihilation. It should not be taken for granted that nuclear weapons would be used by NATO forces at the very beginning of any aggression notwithstanding the advocacy of such a policy by West German officials.

51. In Europe, instant retaliation, sometimes referred to as trip-wire theory, as opposed to the concept of flexible retaliation or measured response is widely discussed. The first case envisages the massive and instantaneous intervention of conventional and nuclear forces, including strategic nuclear devices, if the slightest part of the territory of a NATO country has been invaded by enemy forces.

In the second instance, nuclear weapons are not to be used until it becomes clear that the aggression cannot be contained in any other way. In either case the position that may be adopted by the United States gives cause for concern to some Europeans. They feel that the United States might hesitate to use tactical nuclear weapons, with the great risk of all-out nuclear warfare, for the sake of defending parts of European territory. They pose the further question: What extent of aggression would have to occur to guarantee nuclear intervention by the United States?

52. Furthermore, it was apparent that there is an undercurrent of skepticism in Europe that the United States may at some future date consider the withdrawal of a substantial portion of its ground forces from Europe. The coincidence of operation Big lift contributed to his skepticism. In some quarters there was even some doubt whether the United States might restrict or even withhold the use of its ground forces in a European conflict out of fear of encouraging an all-out nuclear war. This Committee was again assured by American defence authorities, on its visit to Washington, that these doubts are not justified.

53. Witnesses before the Committee discussed at length the striking power of France which has decided to acquire an independent nuclear force. Inter alia the reasons for this decision appear to the Committee to be as follows:

(*a*) national prestige
(*b*) nuclear weapons on French soil shall be subject only to French authority
(*c*) guaranteed protection of French territory
(*d*) France believes that it is not realistic to depend indefinitely on the protection provided under the present arrangements
(*e*) concurrent development of atomic energy for industrial purposes; and
(*f*) additional deterrent.

54. The Committee concluded that the French policy of "force de frappe" has wide approval in France, not only for the present but for the foreseeable future. On the political scene, this military strategy of France has created certain stresses within NATO and may seriously affect the idea of political unity in Europe.

55. It must be pointed out that both Great Britain and France, possessing independent nuclear forces, have unequivocably reserved the right, for each of them under certain circumstances, of decision as to when and how each shall use its own independent nuclear force, without the necessity of an agreement with its allies.

56. Although the NATO agreement may be modified as of 1959, West Germany has agreed by the 1948 Brussels treaty not to manufacture atomic, bacteriological and chemical weapons for fifty years.

57. It was evident that West Germany seek to have NATO increase its tactical nuclear weapons capability to better redress the apparent imbalance in conventional forces of which Germany, being on the forward line, is most conscious.

West Germany also insists on the integrity of its entire territory, and it is for this reason that West Germany wishes that tactical nuclear weapons shall be readily available to NATO ground forces for immediate use in the event of aggression against her territory.

58. West Germany has endorsed the principle of the multilateral force within NATO because among other reasons it will give her as well as other NATO allies a greater voice in the planning for and pre-targeting of the use of nuclear weapons by NATO forces. Within NATO there is general official acceptance of the necessity of one person authorizing the use of American nuclear weapons placed at the disposal of members of NATO, viz. the President of the United States, rather than by the impractical structure of a Committee.

59. The balance of payments problem, which is inherent in the stationing of forces in another country, was discussed on a number of occasions as also was the question of production sharing of armaments. This is a serious economic side effect of our defence policy. Further study of the problem occasioned by the stationing of Canadian forces on foreign soil is urgent and necessary to determine (1) the full extent of the problem and (2) what steps should be taken to minimize the drain on Canada's dollar reserves.

60. In reply to various doubts and questions about American intentions, it must be pointed out that the United States has on numerous occasions repeated its intentions to maintain its forces in Europe and to fulfill its commitments to its NATO allies in Europe. The United States, through Mr. Robert S. McNamara, its Defence Secretary, seeks an increase of conventional forces within NATO to give NATO greater flexibility in dealing with aggression.

61. The Committee noted, while visiting No. 3 Wing, I Air Division at Zweibruken, Germany, the enthusiasm of R.C.A.F. personnel for the quality of their new equipment, namely the CF-104. This Air Division has a strike reconnaissance (short range bomber) or interdiction role in which the majority of the targets are predetermined. The version of the F-104 with which the R.C.A.F. Air Division is equipped is designed exclusively for the delivery of nuclear warheads. This Committee was advised that other versions of the F-104 in NATO forces, have dual capacities, and it appears that with some modifications the CF-104 could serve in a dual capacity.

62. The importance and effectiveness of this strike reconnaissance role, if war were to break out, was discussed at length. In the event that a strictly conventional conflict were to break out in Europe, the First Canadian Air Division would have a very limited operational role beyond that of being a deterrent and being available as a component of a flexible response. Its exclusive nuclear

role precludes its use in conventional support of NATO ground forces. Since the concept of a limited nuclear war in Western Europe, without escalation, is a dubious one, the strike reconnaissance role of the Air Division, in a nuclear conflict, is of limited operational value. The nuclear strike reconnaissance role remains basically as a deterrent. Another basic weakness of the strike reconnaissance role is its vulnerability to a first strike.

63. France does not permit nuclear warheads, except those under its exclusive control, to be stored on French soil, thus French squadrons, armed with American nuclear warheads, are not permitted to operate from French bases and are stationed in Germany. The four R.C.A.F. squadrons of CF-104's, based in France, will not be permitted to store their American owned nuclear weapons at their French bases and will have to obtain their nuclear warheads outside of France. This situation is not satisfactory.

64. The Committee noted that Canada's Air Division in Europe is not fully equipped as to CF-104 aircraft and has at this time no weapons whatsoever, either conventional or nuclear, for use with its CF-104's.

65. Alternative roles for the Canadian Air Division were discussed. Among which was that of providing air transport for NATO mobile troops for use on the perimeter of the NATO defence area.

66. The Committee visited the Fourth Canadian Infantry Brigade Group at Soest, Germany, and concluded that there were deficiencies in the equipment required to give the brigade desirable mobility. There exists some doubt in the Committee as to the military value of having included in the brigade the four Honest John rocket launchers.

67. As far as the Committee could discern, the morale of the service personnel and their dependents, on the bases visited, was high.

68. Your Committee recommends:

(*a*) In view of the military contribution of our armed forces in Europe as well as the psychological effect of their presence, Canadian forces should remain in Europe.

(*b*) An immediate review to determine the merits or otherwise of giving the CF-104 a dual capacity.

(*c*) Study should be given to the role of the two brigades in Canada, that are presently committed in case of emergency as back-up to the Brigade in Europe and to the transport and mobility of these forces as well as that of Canada's brigade in Europe.

(*d*) A long range force role study be immediately initiated to determine a most suitable future role for the Air Division when its present equipment becomes obsolete.

(*e*) In view of the need for mobility, special consideration should be given to the allocation of a military Air Transport role for the Air Division.

(*f*) That NATO be requested to re-locate the CF-104 squadrons stationed in France.

(*g*) That the brigade group be equipped with armoured personnel carriers, and other suitable air and surface high mobility combat vehicles.

(*h*) That NATO be requested to re-assign the Honest John battery from the brigade group, to a more suitable command formation.

69. In order to follow up the fourth chapter, further time is required to study the role of the Royal Canadian Navy and its effectiveness in SACLANT.

CHAPTER V—NORAD

70. The North American Air Defence Command (NORAD) was organized jointly by the United States and Canada and came into being late in 1957 for an initial ten year period.

The main aim of NORAD is to forewarn the military authorities and population of an outcoming air attack and to defend the North American continent against such an air attack.

The NORAD system is organized jointly with the Strategic Air Command to enable the United States to use its maximum power to destroy the enemy territory should he decide to attack by air the North American Continent.

71. Canada provides 14,700 men to NORAD. They are employed on the Dew Line, the Mid-Canada Line, the Pine Tree Line and on SAGE at North Bay. At the bases of Comox, British Columbia; North Bay, Ontario; Uplands, Ontario; Bagotville, Quebec; and Chatham, New Brunswick, sixty-four Voodoo aircraft share in the surveillance and the defence of the territory. There are also two Bomarcs B squadrons at North Bay, Ontario and La Macaza, Quebec, each having 28 missiles being armed with nuclear warheads.

72. The Committee has visited at Colorado Springs, on July 27, 1963, the headquarters of NORAD, and the members were impressed by the most advanced detection organization which permits in a brief time to determine the nationality of all unidentified aircraft, satellites or ships on or about the North American continent.

73. The Committee also visited the Bomarc B launching base at North Bay, Ontario, on November 7, 1963. The Bomarcs are designed to attack and destroy enemy bombers carrying nuclear or conventional type bombs.

74. Apart from the Bomarc B, Canada has five squadrons of Voodoo interceptor aircraft, designed to carry a mixed load of air-to-air (Falcon) missiles (with high explosive warheads) and two nuclear typed rockets.

75. The advisability of providing the Bomarcs and the Voodoos with nuclear warheads was discussed at length. It does seem that such warheads would add to the effectiveness of the Voodoo and would give the Bomarc a capability as a defensive weapon against bombers. They are of no use against a general range of ballistic missiles.

At its meeting the Committee discussed at length the question of "cooking". That is the process by which a nuclear bomb, carried by a bomber, which is intercepted by a nuclear armed BOMARC or Voodoo is rendered harmless. Defence scientists and United States officials at NORAD and Washington testified that the "cooking" process has been proven. Some scientists from the University of Alberta are doubtful. For the Europeans, the question is academic.

The Bomarcs, whose main purposes are to provide partial protection for SAC and I.C.B.M. bases in the United States of America, are located on the northern fringes of the heavily populated areas of Eastern United States and Canada and will provide a measure of protection for the population of these areas.

76. Concurrently, with the problem of arming the BOMARC and Voodoo with nuclear arms there arises the question of storing nuclear warheads on Canadian soil in peacetime.

77. Canada has agreed to store nuclear weapons under joint control on Canadian soil. This Committee feels that such nuclear weapons should be strictly limited to those which can be used exclusively for the defence of North American air space, on consent of the Canadian government, in the event of aggression.

78. The detection role of NORAD is of very great importance in enabling Air Defence Command and Strategic Air Command to secure early warning of any possible air attack on North America and in particular of attack on SAC bases. To this extent it makes a vital contribution to the invulnerability of the strategic deterrent, which is essential to the defence of the Western World.

79. This Committee recommends:

(*a*) That Canada remain a member of NORAD, since the defence of North America is a joint responsibility.

(*b*) That, as long as attack by enemy bombers remains a continuing threat, though of a diminishing nature, Canada must share in the defence against that threat.

CHAPTER VI—THE UNITED NATIONS ORGANIZATION

80. In 1950 the Canadian government responded to the appeal of the United Nations in the Korean war. Since that time we have sent troops to Gaza, to the Congo, to Indo-China, to the Yemen and to the Indo-Pakistan border among others. Over 1,300 Canadians are serving under the U.N.

81. Since September 1960, an army battalion has been earmarked in Canada, for United Nations service. At present this is the First Battalion of the Royal Twenty-Second Regiment.

82. Like the United Nations Organization itself, the sole purpose of these troops is to keep or restore peace in those parts of the world where armed conflicts have broken out and/or threaten to occur at any moment. The equipment of these Canadian troops consists solely of light conventional weapons. Their task is maintaining order but often times they are asked to set up and maintain communications.

83. Although the matter of organizing a permament police force has often been discussed at the United Nations, such a force has never been formed. It is interesting to note that in this connection Denmark, Finland, Norway and Sweden have agreed in principle to set up, in each of the four countries, a special standby force which can be made available to the United Nations at short notice.

However, to date it has been impossible to assign forces for the sole purpose of serving the United Nations and their international policing activities.

84. This Committee recommends:

(*a*) That Canada continue to support the peace-keeping operations of the United Nations.

(*b*) That Canada continue to earmark forces for special United Nations service, but in addition should consult with Norway, Sweden, Denmark and Finland who have accepted the principle of a special stand-by forces for the United Nations.

85. In order to follow up chapter six, further time is required to consider the implications of the control of any Canadian forces under United Nations Command.

CHAPTER VII—DEFENCE OF CANADA

86. It is alleged that in the context of the technical development of nuclear armaments that has taken place, Canada is not defendable. There are widespread frontiers and a vast territory in the Arctic regions. Many cities are open to attack. However, there is need for troops which can be moved towards the territory where an enemy invasion is staged. We need also an Air Force able to control the territory and to move troops where they are required for the defence of the territory. In addition, there is a need for control and surveillance of territorial waters by the Canadian Navy.

87. If there were an enemy landing on Canadian territory, the prime responsibility for defence would be on Canada. However by reason of treaty obligations and by reason of the joint responsibility or North American defence, the United States would join in that defence. The inviolability of Canadian territory is a *sine qua non* condition of the defence of the United States.

88. In order to follow up Chapter seven, further time is required to study the following matters:

Problems of defending Canadian territory with special reference to

(*a*) number and kind of troops required;

(*b*) degree of mobility of such forces;

(*c*) role of the Air Force;

(*d*) role of the Navy.

CHAPTER VIII—DEFENCE POLICY

Canadian defence policy is conditioned on certain essentials which we have to take into account:

89. It is recognized that defence policy is a logical extension of foreign policy. However it must also be essential that all decisions on defence should be taken in the interest of Canada.

90. Canadian defence policy should be a Canadian policy in the sense that it should get its inspiration and content from Canadian sources in contact with the outside world. Canadian defence policy should not slavishly follow the policy of any other country.

91. The main concern is to establish a policy with a view of the defence of the Canadian territory which is geographically located between two nuclear powers: the Soviets and the United States.

92. In order to ensure the adequate defence of its land, Canada must not rely only on land forces but also on the constant control of its air space and the patrol of its territorial waters by the Canadian navy.

93. Beyond its territorial boundaries, Canada must, in conjunction with our allies, add to the deterrence of war; this entails the necessity of consultation with and active participation in the alliances Canada supports.

94. Canadian forces, subject to Canada's capabilities and other commitments, should be available, under proper control to answer a call from the United Nations for its peace-keeping role in the world.

95. In view of the present situation, what are the possible wars with which the world and Canada would be faced? The worst would most certainly be an all-out nuclear war. Some people maintain that a nuclear conflict could be localized. But opinions to the contrary are many. Canada must face the possibility of a generalized nuclear conflict in which the nations of the Western alliance and of the Eastern block would be the two main opponents. The second possibility would be a conventional war, that is a war without nuclear weapons. Finally, since the Second World War, there have been in the world what is known as brush fire wars, that is localized conflicts.

96. How could a nuclear conflict come about? Most probably by a conventional war escalating into a nuclear conflict. Europe has been mentioned as an area where such a conflict could start, but it may be that the stalemate of the "balance of terror" has made this type of conflict most unlikely.

97. The possibility of a surprise attack from the Soviet against any NATO member and of the instantaneous retaliation with all the nuclear offensive powers of the United States and its allies cannot be ignored.

98. Conventional war breaks out more easily. We were witness to several such occurrences since the end of the 1939-1945 war. The most serious one was without any doubt the Korean war. Nowadays war remains essentially conventional as long as it does not involve the direct participation of the United States and the Soviets in the same war. If the two great opponents were to participate directly in a war, the latter would almost certainly become nuclear.

99. As long as the nuclear weapons of the USSR are matched by the United States missile systems, Strategic Air Command, Polaris firing nuclear submarines and a number of other American nuclear weapons, and until one side or the other perfects an anti-missile missile it is unlikely that a nuclear war will break out.

100. This Committee recommends:

(*a*) That the United States retain final authority over its nuclear arms made available to the North Atlantic Treaty Organization.

(*b*) That Canada positively should not engage in the development and production of nuclear weapons.

101. In order to follow up chapter eight, further time is required to examine the proposal that NATO members participate in the preplanning and targeting of nuclear weapons to be available for use on authority of the United States of America.

CHAPTER IX—DEPARTMENT OF NATIONAL DEFENCE

102. The Committee could not study in all its details the organization of the Department of National Defence, but after the evidence given by the minister, the chiefs of staff and many other witnesses, it can point out some problems which it intends to examine when it resumes its activities during the next session. These are:

(*a*) Nature and extent of civilian control.

(*b*) The organization of the chief of staff structure.

(c) The centralization of defence matters under the authority of only one minister.

(d) The potential impact of military expenditures and armament production on economic activity in Canada.

(e) The effects upon employment of a reduction in the defence budget.

(f) Policies related to research and development.

* * *

The Committee wishes to express its sincere appreciation to its Clerk, members of Committees Branch, the other personnel of the House of Commons and all those persons in Canada and abroad whose devotion to duty and co-operation has greatly assisted the Committee in its work.

MINUTES OF PROCEEDINGS

TUESDAY, December 17, 1963.
(46)

The Special Committee on Defence met *in camera* at 2:10 p.m. this day, the Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch—23.

The Chairman, on behalf of the Steering Sub-Committee, submitted a "Draft Report to the House". He explained to the Committee how this draft Report had been prepared and asked the Committee to proceed with its consideration paragraph by paragraph.

The consideration of the draft Report continuing, at 5:30 p.m. the Committee adjourned until 7:30 p.m.

EVENING SITTING
(47)

The Special Committee on Defence resumed *in camera* at 7:40 p.m., the Chairman, Mr. Sauvé, presiding.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lloyd, MacInnis, MacLean, MacRae, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch—21.

The Committee resumed its consideration of the draft "Report to the House".

Consideration of that Report continuing, at 10:00 p.m. the Committee adjourned until 9:30 a.m. on Wednesday, December 18, 1963.

WEDNESDAY, December 18, 1963.
(48)

The Special Committee on Defence met, *in camera,* at 9:50 p.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, MacRae, McMillan, Patterson, Sauvé, Smith, Temple, Winch—21.

The Committee continued its detailed consideration of the draft "Report to the House".

At 12 noon, the consideration of the Report continuing, the Committee adjourned until 2 p.m. this day.

AFTERNOON SITTING
(49)

The Special Committee on Defence resumed, *in camera,* at 2:20 p.m. this day. The Chairman, Mr. Maurice Sauvé, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Churchill, Deachman, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacInnis, MacLean, Matheson, McMillan, Patterson, Sauvé, Smith, Temple, Winch—21.

The Committee continued its detailed consideration of the draft "Report to the House" and the suggested amendments.

The Report was adopted as amended.

On motion of Mr. Béchard, seconded by Mr. Temple,

Resolved,—That the Committee print in booklet form, 1,500 bilingual copies of this "Report to the House"; and that the Chairman present this Report to the House.

On motion of Mr. Béchard, seconded by Mr. Winch,

Resolved,—That the Committee authorize the securing of certain informative papers respecting defence matters; that a maximum amount of $300.00 be paid for each such paper; that any costs incidental to the arranging and preparation of these papers be paid; and that the Steering subcommittee designate these papers.

The above-mentioned papers were designated as follows:

(*a*) Defence Expenditures and its influence on the Canadian Economy;
(*b*) Cost of Defence Related to Cost in Other Countries;
(*c*) Conventional and Nuclear Armaments;
(*d*) Alternative Defence Policies for Canada;
(*e*) Canadian Defence Policies since 1867;
(*f*) Defence Policies of N.A.T.O. Members and Other Countries including Communist Countries;
(*g*) Obligations to the United Nations and International Operations;
(*h*) Armament and Modern Weapons;
(*i*) Disarmament and Arms Control;
(*j*) Defence Policies as Related to Foreign Policy;
(*k*) International Police Force; and
(*l*) Economic Consequences of Disarmament.

On motion of Mr. Béchard, seconded by Mr. Hahn,

Resolved,—That a vote of thanks be tendered to the Chairman of the Committee and to the other members of the Steering Subcommittee, for the work they have done and for the manner in which they have carried out their responsibilities.

In reply, the Chairman, on behalf of the Steering Subcommittee, thanked the Committee members for their assistance and cooperation during the past months.

At 5.00 p.m. the Committee adjourned to the call of the Chair.

E. W. Innes,
Clerk of the Committee.

HOUSE OF COMMONS
CANADA

INTERIM REPORT

of the

SPECIAL COMMITTEE

of the

HOUSE OF COMMONS

on

Matters Relating To

DEFENCE

Presented by

MR. MAURICE SAUVÉ — *Chairman*

•

DECEMBER 20, 1963

HOUSE OF COMMONS
CANADA

INTERIM REPORT

of the

SPECIAL COMMITTEE

of the

HOUSE OF COMMONS

on

Matters Relating To

DEFENCE

Presented by

MR. MAURICE SAUVÉ — *Chairman*

•

DECEMBER 20th, 1963

20048-5—1

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1963

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December 20, 1963.

The Special Committee on Defence has the honour to present the following as its

THIRD REPORT

Your Committee, pursuant to its Order of Reference of June 7, 1963, submits its findings, observations and recommendations to the House of Commons in the annexed document.

* * * * * * * * *

A copy of the Committee's Minutes of Proceedings and Evidence (Issues Nos. 1 to 22, inclusive) is tabled herewith.

Respectfully submitted,

MAURICE SAUVÉ,
Chairman.

CHAPTER I—THE SPECIAL COMMITTEE ON DEFENCE

1. On June 7, 1963, the House of Commons appointed a Special Committee on Defence by adopting the following resolution:

> "That a Special Committee be appointed to consider matters relating to defence and to report from time to time its observations and opinions thereon; that the Committee have power to send for persons, papers and records and to examine witnesses; that it be empowered to adjourn from place to place; that Standing Order No. 67 be suspended in relation to the Committee; and that the Committee consist of 24 members to be designated by the House at a later date.

2. On June 10, the House of Commons designated the 24 members of the Committee:

> Messrs. Asselin (Notre-Dame-de-Grâce), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (Lac-Saint-Jean), Lloyd, McInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple and Winch.

During the course of its sittings the following members have also been appointed to the Committee: Messrs. Nielsen, McNulty, Plourde, MacRae and Horner (Acadia); the latter two presently serving on the Committee.

To prepare its sittings, the Committee appointed a Steering Subcommittee comprised of Messrs. Sauvé (Chairman), Lambert (Vice Chairman), Lessard (Lac-Saint-Jean), MacLean (Queens), Temple and Winch.

3. The Special Committee on Defence held meetings, to receive information, from June 18, 1963, until December 11, 1963.

Meetings: In Canada	— 29,	including a meeting at NORAD Northern Region Headquarters at North Bay
In U.S.A.	— 2,	at NORAD Headquarters, Colorado Springs; and at Washington
In Europe	— 14,	including visits to the 4th Infantry Brigade and to No. 3 Wing, 1 Air Division, R.C.A.F.
TOTAL:	45	

4. As the Committee undertook a detailed study of matters relating to defence in Canada, it was deemed advisable to call certain witnesses. These were:

> Honourable Paul Martin, Secretary of State for External Affairs; Honourable Paul T. Hellyer, Minister of National Defence; Honourable Lucien Cardin, Associate Minister of National Defence; Honourable Charles M. Drury, Minister of Defence Production; Air Chief Marshal F. R. Miller, Chairman of Chiefs of Staff Committee; Vice Admiral H. S. Rayner, Chief of Naval Staff; Lt. Gen. G. Walsh, Chief of the General Staff; Air Marshal C. R. Dunlap, Chief of the Air Staff; Dr. A. H. Zimmerman, Chairman, Defence Research Board; Dr. J. E. Keyston, Vice Chairman, Defence Research Board; and Dr. G. S. Field, Chief Scientist.

Persons from outside the public service who have made contributions to the Committee's studies were:

Doctors D. B. Scott, L. E. Trainor and J. T. Sample, all from the University of Alberta; General Charles Foulkes (Retired); Lt. Gen. Guy Simonds (Retired); Commodore James Plomer (Retired); and Mr. John Gellner.

5. On Wednesday, July 17, 1963, the Committee visited NORAD Headquarters in Colorado Springs, U.S.A. and heard General John K. Gerhart, U.S.A.F., Commander in Chief, NORAD: and Air Marshal C. Roy Slemon, R.C.A.F., Deputy Commander; assisted by Brig. Gen. L. W. Stocking, U.S.A.F.; Col. J. W. Bothwell, U.S.A.F.; Air Vice Marshal M. D. Lister, R.C.A.F.; Wing Commander V. Rolfe, R.C.A.F.; Lt. Col. J. L. Pilant, U.S. Army; Commander A. M. Smith, U.S.N.; Lt. Col. J. L. Beck, U.S.A.F.; Sqd. Ldr. S. E. Collins, R.C.A.F.; Mr. G. Salsky.

6. On Thursday, November 7, 1963, the Committee visited NORAD northern Region Headquarters and the BOMARC Base at North Bay, Ontario and the 414 Squadron. There, we heard: Air Vice Marshal M. M. Hendrick, Air Officer Commanding, Air Defence Command; Air Vice Marshal J. B. Harvey, Commander, Northern NORAD Region; assisted by Air Commodore M. E. Pollard, Col. T. H. Besson, Group Captain G. B. Murray, Wing Commander A. G. Lawrence, Wing Commander J. MacKay, Squardon Leader H. J. Tennant, Squadron Leader D. S. Terrell, Flight Lieutenant R. M. Taylor.

7. Because Canada's contribution to NATO represents a substantial proportion of the Canadian Defence Budget, the Committee concluded that it could not arrive at a true appreciation of the role of Canadian forces in Europe without some direct knowledge of the defence policies of some of the leading members and direct contact with the heads of NATO and SHAPE. Furthermore, it was evident to the Committee that military strategy had changed considerably over the years and that contacts with European leaders and scholars would give the Committee a better understanding of all aspects of defence.

8. The Committee left Canada on November 10, returning November 24, 1963. Meetings were held in France, Germany, Denmark and the United Kingdom. It heard 44 witnesses in the course of 14 meetings. They were:

Rt. Hon. George Drew, Canadian High Commissioner to the United Kingdom; Commodore F. B. Caldwell; Air Commodore W. P. Gouin; P. E. Haddon; Col. G. R. Hale; R. S. Thain; all of Canadian Joint Staffs (London).

Mr. Leonard Beaton; Institute of Strategic Studies; Professor Michael Howard and Col. Gwynne-Jones.

Air Vice Marshal D. A. R. Bradshaw, Commanding Officer, 1 Air Division; Group Captain D. C. Laubman, Commanding Officer 3 (F) Wing; Brigadier M. R. Dare; Colonel W. C. Dick; Lt. Col. C. D. Simpson; Major Crowe and Captain W. H. Moorhouse, all of 4 C.I.B.G. Mr. Dirk U. Stikker, Secretary-General of NATO; Mr. George Ignatieff, Canada's permanent representative to NATO Council; Air Vice-Marshall R. A.

Cameron, R.C.A.F., Military Advisor; General L. L. Lemnitzer, Supreme Allied Commander—Europe; Colonel Olan and Colonel Dolan, both from SHAPE; Mr. Pierre Dupuy, Canadian Ambassador to France; Brig. General N. V. Hinh, of the French Republic; General Pierre Gallois; Mr. André Moynet, Chairman of Defence Committee of the French National Assembly; Mr. J. G. Halstead, of the Canadian Embassy in Paris.

Herr Franz Krapf, Head of Political Division II; Dr. Dirk Oncken and Dr. Hans Arnold, both of Political Division II, from German Foreign Ministry.

Col. iG. Jähne, Col. iG. Hopfgarten, and Lt. Col. iG. Neubert, from the German Defence Ministry; Herr Fritz Erler, Deputy Chairman, Socialist Democratic party, Republic of Germany; Mr. Victor Gram, Danish Minister of Defence; Mr. Paul Fischer, Under-Secretary of State for Foreign Affairs; Maj. Gen. S. B. R. Helsø, Chief of Danish Defence Staff; and also Maj. Gen. Blixenkrone-Møller, Army; Maj. Gen. Ziegler, RDAF; Capt. J. Petersen, RDN; Lt. Col. P. Brüner, and Capt. M. Petersen of the Danish Defence Staff; Mr. P. W. Frellesvig, Head of NATO Branch; and Mr. M. Frederiksen, Head of Department, Ministry of Defence.

9. The Committee visited Washington, U.S.A. on Wednesday, December 11, 1963, in order to discuss mutual defence problems and related matters with senior United States Defence and State Department Officials.

The following persons were heard:

Mr. W. P. Bundy, Assistant Secretary of Defence (International Security Affairs), U.S.A.; Mr. J. C. Kitchen, Deputy Assistant Secretary for Politico Military Affairs, Department of State, U.S.A.; and Mr. Henry S. Rowen, Deputy Assistant Secretary of Defence (Planning and National Security Council Affairs), U.S.A.

Briefings were also given by

His Excellency Charles S. A. Ritchie, Canadian Ambassador to the U.S.A.; Brigadier Bennett, Acting Chairman of the Canadian Joint Staff (Washington); Mr. D. Gilchrist, Director of the Washington Office of the Department of Defence Production.

10. On August 1st, 1963, the Committee invited groups and individuals to make known their views on matters relating to defence. That decision read as follows:

The Committee will be pleased to receive written papers or submissions with respect to defence and defence matters. Persons or organizations wishing to make such written representations are requested to send forty copies in English, where possible, and fifteen copies in French of their statements to the Clerk of the Special Committee on Defence, House of Commons, Ottawa. These submissions are to be accompanied by a brief outline of the background and qualifications of the persons or groups making such presentations.

11. The following briefs were received:

1. Document prepared by Physicists from University of Alberta—tabled October 17, 1963—(Exhibit No. 5)—(Printed as Appendix to Committee Proceedings No. 14).

2. Review of Mainguy Report by Commodore James Plomer—tabled November 28, 1963—(Exhibit No. 7)—(Printed as Appendix to Proceedings No. 21).

3. Prepared Statement to Defence Committee by the Voice of Women, Canada—tabled November 28, 1963—(Exhibit No. 8).

4. Brief on Research and Defence, with Appendices, by Canadian Peace Research Institute—tabled November 28, 1963—(Exhibit No. 9).

12. This is the first time that the House of Commons has appointed a Special Committee on Defence with specific powers to examine all aspects of Defence Policy. It is true that, since 1941, the House appointed many Special Committees to consider defence expenditures:

Special Committee on War Expenditures	—1941
Special Committee on War Expenditures	—1942
Special Committee on War Expenditures	—1943
Special Committee on War Expenditures	—1944
Special Committee on War Expenditures and Economies	—1945
Special Committee on War Expenditures and Economies	—1946
Special Committee on Defence Expenditures (2nd Session)	—1951
Special Committee on Defence Expenditures	—1952
Special Committee on Defence Expenditures	—1953
Standing Committee on Estimates (Defence Expenditures)	—1958
Special Committee on Defence Expenditures	—1960

13. The Committee considered that it should examine the future defence policy rather than to review in detail the past. It must be remembered that between the time policy is decided upon and it is put into effect there is necessarily a lapse of time. This is especially so when a new direction is given to such policy, which may involve the planning and acquisition of new and complicated equipment, as well as the retraining of personnel.

14. The Committee was appointed at a time when Canada, in the light of new strategic concepts, must reconsider the part that its armed forces will be called upon to play for the defence of our country and of the free world in the framework of her alliances and her international commitments.

15. The Committee has been provided with advice and assistance by personnel from the Public Service on an *ad hoc* basis. This procedure is not wholly satisfactory. The wide scope of the study and the complexities of the problems of Defence emphasize the necessity of a continuing technical assistance, responsible to the Committee.

16. This interim report is submitted at this time so that the Government may have the Committee's present recommendations before the Government brings down its proposed White Paper on Defence.

17. The Committee is now in a position to make some recommendations and to draw up a list of the important matters which it wishes still to examine, reserving the right to study other problems besides those mentioned in this interim report.

18. The Committee therefore recommends:

(*a*) That this Special Committee on Defence, which shall cease to exist at the end of the present session be reconstituted early in the next session and that, as far as possible, the present members of this Committee be reappointed thereto.

(*b*) That the Minutes of Proceedings and Evidence of this Committee be referred by the House to the Committee when it is reconstituted in the next session.

(*c*) That upon the completion of the work by the above-mentioned Special Committee, the House of Commons set up a Standing Committee on Defence, of similar composition to the Special Committee.

(*d*) That the proposed Standing Committee on Defence be provided with a technical secretariat.

CHAPTER II—THE SERVICES

19. At the many meetings of the Committee, a number of questions were raised regarding Canadian armed services, some of which are referred to here and the others in succeeding chapters of this report.

20. The Minister and Associate Minister of National Defence, the Naval, Army and Air Force Chiefs of Staff, and the Chairman of Defence Research Board, provided detailed evidence concerning their respective services' military and civilian establishment and distribution. A summary as of date of evidence is as follows:

NAVY

Service personnel	21,593
Civilian personnel	12,297

Naval Strength

1 aircraft carrier with a squadron of Tracker Aircraft and a squadron of helicopters
18 destroyer escorts (*St. Laurent, Restigouche* or *Mackenzie* classes)
8 Tribal class destroyer escorts
17 frigates
10 minesweepers
3 Royal Navy submarines (on loan)
1 submarine
1 fleet replenishment ship
2 maintenance repair ships
4 squadrons of aircraft (shore-based)

Organization (East Coast)

The Atlantic Command with headquarters in Halifax and operating under the Flag Officer is comprised of—

Fleet establishments
Support facilities

On the East Coast we have:

1 aircraft carrier with a squadron of Tracker Aircraft and a squadron of helicopters embarked
11 destroyer escorts of the *St. Laurent, Restigouche* and *Mackenzie* classes
8 Tribal class destroyer escorts
10 frigates

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6 minesweepers
3 Royal Navy submarines on loan
1 fleet replenishment ship
1 maintenance repair ship
3 squadrons of aircraft shore-based at naval air station Dartmouth

The Atlantic Command is an Area Command, the Flag Officer having responsibility for all naval activities in a wide geographic area. Approximately two thirds of the R.C.N. is serving on the Atlantic Coast.

Organization (West Coast)

The Pacific Command with headquarters at Esquimalt, B.C., operating under the Flag Officer is comprised of—

Fleet establishments
Support facilities

On the West Coast we have:

7 destroyer escorts of the *St. Laurent and Mackenzie* classes
7 frigates
4 minesweepers
1 submarine
1 maintenance repair ship
1 squadron of aircraft shore-based at Patricia Bay

The Pacific Command is an Area Command, the Flag Officer having responsibility for all naval activities in a wide geographic area. Approximately one third of the R.C.N. is serving on the Pacific Coast.

R.C.N. Reserve Division

In Hamilton, Ontario, there is also a Commanding Officer, Naval Division who is in charge of all 21 reserve divisions across the country.

Associated with the navy divisions are seventeen University Navy Training Divisions.

ARMY

Service personnel	49,381
Civilian personnel	16,980

Organization

Western Command Headquarters, Edmonton, Alta.
Central Command Headquarters, Oakville, Ont.
Quebec Command Headquarters, Montreal
Eastern Command Headquarters, Halifax, N.S.

Major Establishments

1 Canadian Infantry Brigade Group, Calgary, Alta. 2 Canadian Infantry Brigade Group, Camp Petawawa, Ont. 3 Canadian Infantry Brigade Group, Camp Gagetown, N.B.	20,500
4 Canadian Infantry Brigade Group, Soest, Germany	6,000
United Nations Police Force	1,329

AIR FORCE

Service personnel	52,272
Civilian personnel	15,249

Militia and Reserve

Army	53,763
Navy	3,405
Air Force	2,307

(As of September 30th, 1963)

TOTAL FOR ALL SERVICES—	
Service personnel	123,246
Civilian personnel including DRB, Administration and Inspection Service	49,078

21. The Chiefs of Staffs and other witnesses discussed varying degrees of integration and co-ordination of the Armed Forces. This ranged from the concept of a single defence force under one command to the consolidation of the three services—the Navy, the Army and the Air Force—under a single general staff with joint facilities for the three services in several sectors.

The question of integration and co-ordination is influenced, not only by the future role of the three services, but by the degree of efficiency, both military and economic, of the separate services as well as the potential morale and esprit de corps of a single defence force. One form of combined services frequently mentioned was the United States Marine Corps, the study of whose organization would be useful.

22. The Committee was advised that the organization of the Army is to be examined by Maj. Gen. Jean Victor Allard. The Committee was also advised that a number of other defence problems were being studied by a temporary working group under Dr. R. J. Sutherland, of the Defence Research Board. Some doubt has arisen within the Committee as to whether the numbers of servicemen and civilians in their support, in each of the services, are properly apportioned to the tasks assigned to each service. The Committee desires to study this problem in greater detail.

23. On December 5, 1963, the Minister of National Defence announced substantial reductions in the strength of the reserve forces, whose traditional function has been to provide a peacetime cadre for mobilization of the armed forces in time of national emergency. No indication was given as to any major reduction in regular forces. The current role of the militia is primarily in the field of survival operations. No detail was furnished as to the effect on survival operations in Canada resulting from the reduction of the militia. Before the Committee, questions were raised as to the relative value of educating the general public on survival measures, as against the organization of military cadres for survival operations.

24. Commodore James Plomer (retired) appeared before the Committee and was examined. He repeated charges that he had made earlier in the press concerning Naval administration and policy. Vice Admiral H. S. Rayner again appeared before the Committee and gave evidence in relation thereto.

25. The question of compulsory military or national service was discussed briefly, especially during the testimony of Lt. Gen. G. Simonds, who expressed himself in favour of such service.

26. This Committee recommends:

(*a*) That since the Committee was not in a position to make the detailed study required by the nature of Commodore Plomer's allegations, an independent committee of inquiry should review the whole matter in the interests of all concerned.

(*b*) That more effective reviews be made of organization, manpower management and utilization to achieve greater efficiency.

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27. In order to follow up the second chapter, further time is required to study the following matters:

(*a*) Integration and co-ordination of the armed services.
(*b*) Role of the Militia and other reserves.
(*c*) Compulsory military service.
(*d*) Manpower management.
(*e*) Service Colleges.
(*f*) Civil defence.

CHAPTER III—DEFENCE BUDGET

28. At a time when the Federal government finds it hard to meet constantly increasing budget requirements, it is vital to consider defence expenditures in detail.

29. The Chiefs of Staff of each of the armed services have supplied the relevant information concerning appropriations for their respective services and budget expenditure allotments. A useful summary of that information produced by the Canadian Tax Foundation, in its publication "The NATIONAL FINANCES—1963-64", follows:

30. Defence Expenditures

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Fiscal Year	Defence Budgetary Expenditure	Total Budgetary Expenditure	Defence as a % of total
			%
1960	1,537.9	5,702.0	26.9
1961	1,542.1	5,958.1	25.9
1962	1,654.9	6,520.6	25.4
1963	1,610.6	6,570.3	24.5
1964	1,639.0	6,845.0	23.9

31. Budgetary Expenditure by Major Categories

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Item	1960	1961	1962	1963	1964
Procurement of equipment	292.5	285.0	320.8	258.4	296.5
Construction	87.8	78.8	84.8	78.2	49.4
Military personnel costs	545.3	565.8	619.9	631.2	623.6
Operations and maintenance costs	586.8	577.5	596.2	605.1	629.7
Contributions to infrastructure and NATO budgets	17.4	14.2	11.1	14.5	15.0
Industrial applied research	—	—	—	1.2	5.3
Research satellite program	—	—	—	—	.8
Total cash disbursements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Deduct:					
Expenditure from special accounts	14.9	3.8	6.7	13.7	29.5
Total budgetary expenditure	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

32. Budgetary Expenditure by Service

For Fiscal Years ending 31st March 1960 to 1964

($ million)

Item	1960	1961	1962	1963	1964
Navy	255.8	245.5	272.0	269.4	291.4
Army	400.8	402.3	442.4	443.0	444.9
Air Force	743.3	755.4	788.1	713.9	692.3
Defence Research and Development	39.2	41.9	40.4	41.1	51.2
Mutual Aid and NATO Infrastructure	18.4	14.6	11.1	25.0	32.1
Other	72.3	61.6	78.8	96.2	108.4
Total cash disbursements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Deduct:					
Expenditure from Special Accounts	14.9	3.8	6.7	13.7	29.5
Total budgetary expenditure	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

33. Distribution of National Defence Dollar

For Fiscal Years ending 31st March 1960 to 1964

(Per Cent)

Item	1960	1961	1962	1963	1964
Equipment	19.1	18.8	19.6	16.3	18.3
Construction	5.7	5.2	5.2	4.9	3.1
Military personnel costs	35.7	37.3	38.0	39.7	38.5
Operations and maintenance costs	38.4	38.1	36.5	38.1	38.9
Infrastructure and NATO	1.1	.9	.7	.9	.9
Industrial applied research	—	—	—	.1	.3
Research satellite program	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0

34. Estimated Expenditure on Equipment and Construction by Service

For Fiscal Year ending 31st March 1964

($ million)

	Air Force	Navy	Army	Defence Research	Other	Total
Aircraft and Engines	105.5	11.2	—	—	17.0	133.7
Ammunition and Bombs	4.1	3.5	11.0	—	—	18.6
Electronic and Communication Equipment	21.9	14.5	5.8	—	—	42.2
Ships	—	38.5	—	—	—	38.5
Armament Equipment	.5	5.7	2.8	—	—	9.0
Mechanical Equipment, including Transport	2.8	.8	13.9	—	—	17.5
Special Training Equipment	3.8	1.5	.1	—	—	5.4
Miscellaneous Equipment	4.5	1.5	4.2	—	—	10.2
Other	—	—	2.1	19.0	.3	21.4
Total Equipment	143.1	77.2	39.9	19.0	17.3	296.5
Construction of Buildings and Works	25.4	3.3	18.0	1.5	—	48.2
Purchase of Real Property	.6	.2	.3	—	—	1.1
Total Construction and Real Property	26.0	3.5	18.4	1.5	—	49.4
Grand Total	169.1	80.7	58.3	20.5	17.3	345.9

35. The military budget of Canada is often compared to military expenditures in the United States, the United Kingdom, France, Germany and Italy, the main NATO countries. Here are some interesting statistics compiled by The Institute for Strategic Studies in a paper published in November 1963 and entitled "The Military Balance 1963-1964".

36. Comparisons on Defence Expenditure

Country	As percentage of Gross National Product			1963 Defence Budgets		1963 Defence Expenditure
	1953	1958	1962	Actual	Increase or decrease compared with 1962 Budget	Per Head of Population
				(Million $)	(Million $)	(dollars)
Belgium	4.9	3.6	3.4	444	+ 88	48
Canada	9.0	6.0	5.1	1,480	− 109	78
Denmark	3.7	3.3	3.5	225	+ 45	48
France	11.0	8.0	7.8	4,062	+ 531	79
Germany	5.0	3.8	6.0	4,607	+ 857	83
Greece	6.1	5.8	4.5	167	− 3	21
Italy	4.6	4.3	4.0	1,510	+ 255	30
Luxembourg	3.2	2.1	1.6	7	—	22
Netherlands	6.2	5.0	5.0	618	+ 63	51
Norway	5.7	4.0	4.2	197	+ 6	54
Portugal	4.5	4.5	8.9	176	+ 18	18
Turkey	5.4	5.4	5.0	235	− 52	8
United Kingdom	11.3	7.8	7.4	5,146	+ 327	96
United States	14.8	11.1	10.7	52,400	+ 400	276
				71,274	+2,418	

37. The concept of the gross national product was the main basis for comparison and in 1962 the United States earmarked 10.7% of their gross national product to defence; France, 7.8%; the United Kingdom, 7.4%; Germany 6%; Italy, 4%; and Canada, 5.1%.

It might appear from the above comparative figures that Canada's effort is not as great as that of her main NATO allies. However, such a means of comparison is not satisfactory. The Secretariat of NATO will publish shortly statistics based on per capita defence expenditures for each NATO member country and on other criteria such as the total amount of taxes paid per capita at all levels of government. Such a basis may permit a more equitable appraisal of Canada's effort.

38. It is interesting to note, from the above table, that Canada spends $78.00 per capita while France spends $79.00 per capita; Italy, $30.00 and the United Kingdom, $96.00. Canada's international responsibilities should not be compared, of course, with those of the United States and the United Kingdom whose interests in all parts of the world are undeniable. Furthermore, those countries have assumed major power responsibilities. Surely, Canada's responsibilities are not at that level. France, for instance, located in central Europe, is nevertheless allocating only one dollar per capita more to defence.

39. Evidence presented to the Committee shows that approximately 77% of Canada's total defence budget, 1963-1964, is allocated to the payment of salaries and to expenditures concerning maintenance and operations, while only 23% of the budget is for new equipment. In gross figures, this means $1,253,300,000 for salaries and maintenance costs, and $337,500,000 for equipment.

Evidence further indicated that there has been for a number of years a progressive increase in the proportion of the defence dollar going to salaries, maintenance, etc., with a corresponding decrease in the amount available for the purchase of new equipment. The proportion of the defence dollar available for new equipment is seriously affecting the fighting capabilities of Canada's armed forces.

40. Your Committee recommends:

(*a*) That the Financial Reports of the Defence Department should reflect the cost of defence according to functions and operations.

(*b*) That the division of the Defence budget among the services should be determined according to the changing overall military role rather than frozen to any traditional percentages.

(*c*) That the Department of National Defence, in co-operation with the Secretariat of NATO, evolve as soon as possible a new method of assessing the contributions of each member country of NATO. The establishment of a weighted index would permit a more accurate assessment of the financial contribution of every member of the Alliance.

(*d*) That, in addition to the annual review of budget appropriations, defence expenditures should be projected several years ahead in relation to a percentage of the gross national product and in respect to the planned programs.

41. In order to follow up the third chapter, further time is required to study:

(*a*) Priorities in expenditures

(*b*) The economic consequences of Defence budgeting

(*c*) The possibility of decreased defence expenditure in the event of continuing lessening international tension, and in conjunction with mutual reduction in armament.

CHAPTER IV—NATO

42. Canada was one of the original 12 (now 15) nations signatory to the North Atlantic Treaty in April 1949, and played a leading role in the formation of the Alliance, the members of which are, in the words of the treaty "determined to safeguard the freedom, common heritage and civilization of their peoples . . . (and) are resolved to unite their efforts for collective defence and for the preservation of peace and security." NATO continues to be an essential foundation of Canada's foreign and defence policies. The treaty is to be in force until at least 1969. Section 13 reads as follows:

> After the treaty has been in force for 20 years, any party may cease to be a party one year after its notice of denunciation has been given to the Government of the United States of America, which will inform the governments of other Parties of the deposit of each notice of denunciation.

43. The members of NATO are Canada, Britain, United States of America, France, Belgium, Italy, Iceland, Denmark, Norway, Portugal, Greece, Turkey, West Germany, Luxemburg, The Netherlands.

44. The military contribution of Canada to NATO is established as follows:

One Division of the Canadian Army consisting of one Brigade Group stationed in Europe and two brigades, in reserve in Canada, earmarked for NATO

One Air Division of eight squadrons of CF104 aircraft

One Aircraft Carrier and 29 escort ships earmarked to SACLANT in case of emergency.

45. The Western world defence against aggression is the common purpose of all the members of the Alliance. However, there is not unanimity among NATO members in respect of future policy and of strategic concepts. It can be said that among the more important members of NATO, the United States, France, the United Kingdom and West Germany do not all share the same point of view on the defence strategy and policy of NATO. The Committee's trip in Europe has enabled it to realize the range of views, and how far the members of NATO felt free to express them.

46. The Committee is satisfied that Canada's forces in Europe when properly equipped and armed will contribute more effectively to the defence of Western Europe. By respecting its commitments to NATO, Canada influences the other members of the Alliance to respect theirs. One should not minimize the mutual influences which are exerted in any alliance.

47. Many times during the Committee's sittings a change in the Canadian contribution to the defence of Europe has been mentioned. In Europe, our allies have insisted on the importance and value of a Canadian contribution, and its strong psychological value in the sense that it reassures our European allies.

48. The position of NATO members in 1963 is different from what it was when the alliance was formed. The economic situation has improved in all of the European countries. The relative importance of our contribution in 1963 cannot now be compared with what it was when the alliance was formed, when the military power of some of our European allies was weak. Furthermore, during that period, the development of nuclear weapons has changed the whole concept of defence.

49. In several allied countries it is questioned whether war, conventional or limited nuclear, is credible in Europe. This opinion holds that the use in Europe of conventional troops not armed with nuclear weapons or of nuclear-armed troops engaged in a limited nuclear war can only lead to a world-wide nuclear conflict.

SHAPE's strategy is clear cut: should the NATO conventional forces fail to contain the enemy conventional forces, in an attack on any alliance territory tactical nuclear weapons will be used by NATO forces. However it appears inescapable that if tactical nuclear weapons should be used in Western Europe the conflict will quickly escalate into a major nuclear war between the East and West.

50. The NATO partners are discussing at length the best method of deployment of nuclear forces in forward areas. At present some of the ground forces out front are equipped with tactical nuclear arms. However, many be-

lieve that it would be better to set up a separate nuclear force to be placed behind the conventional forces and under direct command of SACEUR. The risk must not be taken that a major nuclear conflict would be triggered, by the unauthorized use of tactical nuclear weapons, by subordinate command when threatened by annihilation. It should not be taken for granted that nuclear weapons would be used by NATO forces at the very beginning of any aggression notwithstanding the advocacy of such a policy by West German officials.

51. In Europe, instant retaliation, sometimes referred to as trip-wire theory, as opposed to the concept of flexible retaliation or measured response is widely discussed. The first case envisages the massive and instantaneous intervention of conventional and nuclear forces, including strategic nuclear devices, if the slightest part of the territory of a NATO country has been invaded by enemy forces.

In the second instance, nuclear weapons are not to be used until it becomes clear that the aggression cannot be contained in any other way. In either case the position that may be adopted by the United States gives cause for concern to some Europeans. They feel that the United States might hesitate to use tactical nuclear weapons, with the great risk of all-out nuclear warfare, for the sake of defending parts of European territory. They pose the further question: What extent of aggression would have to occur to guarantee nuclear intervention by the United States?

52. Furthermore, it was apparent that there is an undercurrent of skepticism in Europe that the United States may at some future date consider the withdrawal of a substantial portion of its ground forces from Europe. The coincidence of operation Big lift contributed to his skepticism. In some quarters there was even some doubt whether the United States might restrict or even withhold the use of its ground forces in a European conflict out of fear of encouraging an all-out nuclear war. This Committee was again assured by American defence authorities, on its visit to Washington, that these doubts are not justified.

53. Witnesses before the Committee discussed at length the striking power of France which has decided to acquire an independent nuclear force. Inter alia the reasons for this decision appear to the Committee to be as follows:

(*a*) national prestige
(*b*) nuclear weapons on French soil shall be subject only to French authority
(*c*) guaranteed protection of French territory
(*d*) France believes that it is not realistic to depend indefinitely on the protection provided under the present arrangements
(*e*) concurrent development of atomic energy for industrial purposes; and
(*f*) additional deterrent.

54. The Committee concluded that the French policy of "force de frappe" has wide approval in France, not only for the present but for the foreseeable future. On the political scene, this military strategy of France has created certain stresses within NATO and may seriously affect the idea of political unity in Europe.

55. It must be pointed out that both Great Britain and France, possessing independent nuclear forces, have unequivocably reserved the right, for each of them under certain circumstances, of decision as to when and how each shall use its own independent nuclear force, without the necessity of an agreement with its allies.

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56. Although the NATO agreement may be modified as of 1959, West Germany has agreed by the 1948 Brussels treaty not to manufacture atomic, bacteriological and chemical weapons for fifty years.

57. It was evident that West Germany seek to have NATO increase its tactical nuclear weapons capability to better redress the apparent imbalance in conventional forces of which Germany, being on the forward line, is most conscious.

West Germany also insists on the integrity of its entire territory, and it is for this reason that West Germany wishes that tactical nuclear weapons shall be readily available to NATO ground forces for immediate use in the event of aggression against her territory.

58. West Germany has endorsed the principle of the multilateral force within NATO because among other reasons it will give her as well as other NATO allies a greater voice in the planning for and pre-targeting of the use of nuclear weapons by NATO forces. Within NATO there is general official acceptance of the necessity of one person authorizing the use of American nuclear weapons placed at the disposal of members of NATO, viz. the President of the United States, rather than by the impractical structure of a Committee.

59. The balance of payments problem, which is inherent in the stationing of forces in another country, was discussed on a number of occasions as also was the question of production sharing of armaments. This is a serious economic side effect of our defence policy. Further study of the problem occasioned by the stationing of Canadian forces on foreign soil is urgent and necessary to determine (1) the full extent of the problem and (2) what steps should be taken to minimize the drain on Canada's dollar reserves.

60. In reply to various doubts and questions about American intentions, it must be pointed out that the United States has on numerous occasions repeated its intentions to maintain its forces in Europe and to fulfill its commitments to its NATO allies in Europe. The United States, through Mr. Robert S. McNamara, its Defence Secretary, seeks an increase of conventional forces within NATO to give NATO greater flexibility in dealing with aggression.

61. The Committee noted, while visiting No. 3 Wing, I Air Division at Zweibruken, Germany, the enthusiasm of R.C.A.F. personnel for the quality of their new equipment, namely the CF-104. This Air Division has a strike reconnaissance (short range bomber) or interdiction role in which the majority of the targets are predetermined. The version of the F-104 with which the R.C.A.F. Air Division is equipped is designed exclusively for the delivery of nuclear warheads. This Committee was advised that other versions of the F-104 in NATO forces, have dual capacities, and it appears that with some modifications the CF-104 could serve in a dual capacity.

62. The importance and effectiveness of this strike reconnaissance role, if war were to break out, was discussed at length. In the event that a strictly conventional conflict were to break out in Europe, the First Canadian Air Division would have a very limited operational role beyond that of being a deterrent and being available as a component of a flexible response. Its exclusive nuclear

role precludes its use in conventional support of NATO ground forces. Since the concept of a limited nuclear war in Western Europe, without escallation, is a dubious one, the strike reconnaissance role of the Air Division, in a nuclear conflict, is of limited operational value. The nuclear strike reconnaissance role remains basically as a deterrent. Another basic weakness of the strike reconnaissance role is its vulnerability to a first strike.

63. France does not permit nuclear warheads, except those under its exclusive control, to be stored on French soil, thus French squadrons, armed with American nuclear warheads, are not permitted to operate from French bases and are stationed in Germany. The four R.C.A.F. squadrons of CF-104's, based in France, will not be permitted to store their American owned nuclear weapons at their French bases and will have to obtain their nuclear warheads outside of France. This situation is not satisfactory.

64. The Committee noted that Canada's Air Division in Europe is not fully equipped as to CF-104 aircraft and has at this time no weapons whatsoever, either conventional or nuclear, for use with its CF-104's.

65. Alternative roles for the Canadian Air Division were discussed. Among which was that of providing air transport for NATO mobile troops for use on the perimeter of the NATO defence area.

66. The Committee visited the Fourth Canadian Infantry Brigade Group at Soest, Germany, and concluded that there were deficiencies in the equipment required to give the brigade desirable mobility. There exists some doubt in the Committee as to the military value of having included in the brigade the four Honest John rocket launchers.

67. As far as the Committee could discern, the morale of the service personnel and their dependents, on the bases visited, was high.

68. Your Committee recommends:

(*a*) In view of the military contribution of our armed forces in Europe as well as the psychological effect of their presence, Canadian forces should remain in Europe.

(*b*) An immediate review to determine the merits or otherwise of giving the CF-104 a dual capacity.

(*c*) Study should be given to the role of the two brigades in Canada, that are presently committed in case of emergency as back-up to the Brigade in Europe and to the transport and mobility of these forces as well as that of Canada's brigade in Europe.

(*d*) A long range force role study be immediately initiated to determine a most suitable future role for the Air Division when its present equipment becomes obsolete.

(*e*) In view of the need for mobility, special consideration should be given to the allocation of a military Air Transport role for the Air Division.

(*f*) That NATO be requested to re-locate the CF-104 squadrons stationed in France.

(*g*) That the brigade group be equipped with armoured personnel carriers, and other suitable air and surface high mobility combat vehicles.

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(*h*) That NATO be requested to re-assign the Honest John battery from the brigade group, to a more suitable command formation.

69. In order to follow up the fourth chapter, further time is required to study the role of the Royal Canadian Navy and its effectiveness in SACLANT.

CHAPTER V—NORAD

70. The North American Air Defence Command (NORAD) was organized jointly by the United States and Canada and came into being late in 1957 for an initial ten year period.

The main aim of NORAD is to forewarn the military authorities and population of an outcoming air attack and to defend the North American continent against such an air attack.

The NORAD system is organized jointly with the Strategic Air Command to enable the United States to use its maximum power to destroy the enemy territory should he decide to attack by air the North American Continent.

71. Canada provides 14,700 men to NORAD. They are employed on the Dew Line, the Mid-Canada Line, the Pine Tree Line and on SAGE at North Bay. At the bases of Comox, British Columbia; North Bay, Ontario; Uplands, Ontario; Bagotville, Quebec; and Chatham, New Brunswick, sixty-four Voodoo aircraft share in the surveillance and the defence of the territory. There are also two Bomarcs B squadrons at North Bay, Ontario and La Macaza, Quebec, each having 28 missiles being armed with nuclear warheads.

72. The Committee has visited at Colorado Springs, on July 27, 1963, the headquarters of NORAD, and the members were impressed by the most advanced detection organization which permits in a brief time to determine the nationality of all unidentified aircraft, satellites or ships on or about the North American continent.

73. The Committee also visited the Bomarc B launching base at North Bay, Ontario, on November 7, 1963. The Bomarcs are designed to attack and destroy enemy bombers carrying nuclear or conventional type bombs.

74. Apart from the Bomarc B, Canada has five squadrons of Voodoo interceptor aircraft, designed to carry a mixed load of air-to-air (Falcon) missiles (with high explosive warheads) and two nuclear typed rockets.

75. The advisability of providing the Bomarcs and the Voodoos with nuclear warheads was discussed at length. It does seem that such warheads would add to the effectiveness of the Voodoo and would give the Bomarc a capability as a defensive weapon against bombers. They are of no use against a general range of ballistic missiles.

At its meeting the Committee discussed at length the question of "cooking". That is the process by which a nuclear bomb, carried by a bomber, which is intercepted by a nuclear armed BOMARC or Voodoo is rendered harmless. Defence scientists and United States officials at NORAD and Washington testified that the "cooking" process has been proven. Some scientists from the University of Alberta are doubtful. For the Europeans, the question is academic.

The Bomarcs, whose main purposes are to provide partial protection for SAC and I.C.B.M. bases in the United States of America, are located on the northern fringes of the heavily populated areas of Eastern United States and Canada and will provide a measure of protection for the population of these areas.

76. Concurrently, with the problem of arming the BOMARC and Voodoo with nuclear arms there arises the question of storing nuclear warheads on Canadian soil in peacetime.

77. Canada has agreed to store nuclear weapons under joint control on Canadian soil. This Committee feels that such nuclear weapons should be strictly limited to those which can be used exclusively for the defence of North American air space, on consent of the Canadian government, in the event of aggression.

78. The detection role of NORAD is of very great importance in enabling Air Defence Command and Strategic Air Command to secure early warning of any possible air attack on North America and in particular of attack on SAC bases. To this extent it makes a vital contribution to the invulnerability of the strategic deterrent, which is essential to the defence of the Western World.

79. This Committee recommends:

(*a*) That Canada remain a member of NORAD, since the defence of North America is a joint responsibility.

(*b*) That, as long as attack by enemy bombers remains a continuing threat, though of a diminishing nature, Canada must share in the defence against that threat.

CHAPTER VI—THE UNITED NATIONS ORGANIZATION

80. In 1950 the Canadian government responded to the appeal of the United Nations in the Korean war. Since that time we have sent troops to Gaza, to the Congo, to Indo-China, to the Yemen and to the Indo-Pakistan border among others. Over 1,300 Canadians are serving under the U.N.

81. Since September 1960, an army battalion has been earmarked in Canada, for United Nations service. At present this is the First Battalion of the Royal Twenty-Second Regiment.

82. Like the United Nations Organization itself, the sole purpose of these troops is to keep or restore peace in those parts of the world where armed conflicts have broken out and/or threaten to occur at any moment. The equipment of these Canadian troops consists solely of light conventional weapons. Their task is maintaining order but often times they are asked to set up and maintain communications.

83. Although the matter of organizing a permament police force has often been discussed at the United Nations, such a force has never been formed. It is interesting to note that in this connection Denmark, Finland, Norway and Sweden have agreed in principle to set up, in each of the four countries, a special standby force which can be made available to the United Nations at short notice.

However, to date it has been impossible to assign forces for the sole purpose of serving the United Nations and their international policing activities.

84. This Committee recommends:

(*a*) That Canada continue to support the peace-keeping operations of the United Nations.

(*b*) That Canada continue to earmark forces for special United Nations service, but in addition should consult with Norway, Sweden, Denmark and Finland who have accepted the principle of a special stand-by forces for the United Nations.

85. In order to follow up chapter six, further time is required to consider the implications of the control of any Canadian forces under United Nations Command.

CHAPTER VII—DEFENCE OF CANADA

86. It is alleged that in the context of the technical development of nuclear armaments that has taken place, Canada is not defendable. There are widespread frontiers and a vast territory in the Arctic regions. Many cities are open to attack. However, there is need for troops which can be moved towards the territory where an enemy invasion is staged. We need also an Air Force able to control the territory and to move troops where they are required for the defence of the territory. In addition, there is a need for control and surveillance of territorial waters by the Canadian Navy.

87. If there were an enemy landing on Canadian territory, the prime responsibility for defence would be on Canada. However by reason of treaty obligations and by reason of the joint responsibility or North American defence, the United States would join in that defence. The inviolability of Canadian territory is a *sine qua non* condition of the defence of the United States.

88. In order to follow up Chapter seven, further time is required to study the following matters:

Problems of defending Canadian territory with special reference to

(*a*) number and kind of troops required;

(*b*) degree of mobility of such forces;

(*c*) role of the Air Force;

(*d*) role of the Navy.

CHAPTER VIII—DEFENCE POLICY

Canadian defence policy is conditioned on certain essentials which we have to take into account:

89. It is recognized that defence policy is a logical extension of foreign policy. However it must also be essential that all decisions on defence should be taken in the interest of Canada.

90. Canadian defence policy should be a Canadian policy in the sense that it should get its inspiration and content from Canadian sources in contact with the outside world. Canadian defence policy shoud not slavisly follow the policy of any other country.

91. The main concern is to establish a policy with a view of the defence of the Canadian territory which is geographically located between two nuclear powers: the Soviets and the United States.

92. In order to ensure the adequate defence of its land, Canada must not rely only on land forces but also on the constant control of its air space and the patrol of its territorial waters by the Canadian navy.

93. Beyond its territorial boundaries, Canada must, in conjunction with our allies, add to the deterrence of war; this entails the necessity of consultation with and active participation in the alliances Canada supports.

94. Canadian forces, subject to Canada's capabilities and other commitments, should be available, under proper control to answer a call from the United Nations for its peace-keeping role in the world.

95. In view of the present situation, what are the possible wars with which the world and Canada would be faced? The worst would most certainly be an all-out nuclear war. Some people maintain that a nuclear conflict could be localized. But opinions to the contrary are many. Canada must face the possibility of a generalized nuclear conflict in which the nations of the Western alliance and of the Eastern block would be the two main opponents. The second possibility would be a conventional war, that is a war without nuclear weapons. Finally, since the Second World War, there have been in the world what is known as brush fire wars, that is localized conflicts.

96. How could a nuclear conflict come about? Most probably by a conventional war escalating into a nuclear conflict. Europe has been mentioned as an area where such a conflict could start, but it may be that the stalemate of the "balance of terror" has made this type of conflict most unlikely.

97. The possibility of a surprise attack from the Soviet against any NATO member and of the instantaneous retaliation with all the nuclear offensive powers of the United States and its allies cannot be ignored.

98. Conventional war breaks out more easily. We were witness to several such occurrences since the end of the 1939-1945 war. The most serious one was without any doubt the Korean war. Nowadays war remains essentially conventional as long as it does not involve the direct participation of the United States and the Soviets in the same war. If the two great opponents were to participate directly in a war, the latter would almost certainly become nuclear.

99. As long as the nuclear weapons of the USSR are matched by the United States missile systems, Strategic Air Command, Polaris firing nuclear submarines and a number of other American nuclear weapons, and until one side or the other perfects an anti-missile missile it is unlikely that a nuclear war will break out.

100. This Committee recommends:

(*a*) That the United States retain final authority over its nuclear arms made available to the North Atlantic Treaty Organization.

(*b*) That Canada positively should not engage in the development and production of nuclear weapons.

101. In order to follow up chapter eight, further time is required to examine the proposal that NATO members participate in the preplanning and targeting of nuclear weapons to be available for use on authority of the United States of America.

CHAPTER IX—DEPARTMENT OF NATIONAL DEFENCE

102. The Committee could not study in all its details the organization of the Department of National Defence, but after the evidence given by the minister, the chiefs of staff and many other witnesses, it can point out some problems which it intends to examine when it resumes its activities during the next session. These are:

(*a*) Nature and extent of civilian control.

(*b*) The organization of the chief of staff structure.

(c) the centralization of defence matters under the authority of only one minister.

(d) The potential impact of military expenditures and armament production on economic activity in Canada.

(e) The effects upon employment of a reduction in the defence budget.

(f) Policies related to research and development.

* * *

The Committee wishes to express its sincere appreciation to its Clerk, members of Committees Branch, the other personnel of the House of Commons and all those persons in Canada and abroad whose devotion to duty and co-operation has greatly assisted the Committee in its work.

CHAMBRE DES COMMUNES
CANADA

RAPPORT INTÉRIMAIRE

du

COMITÉ SPÉCIAL

de la

CHAMBRE DES COMMUNES

étudiant

les questions relatives à la

DÉFENSE

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présenté par

M. MAURICE SAUVÉ — *Président*

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LE 20 DÉCEMBRE 1963

ROGER DUHAMEL, M.S.R.C.
IMPRIMEUR DE LA REINE ET CONTRÔLEUR DE LA PAPETERIE
OTTAWA, 1963

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20 décembre 1963

Le Comité spécial de la défense a l'honneur de présenter son

TROISIÈME RAPPORT

Conformément à son Ordre de renvoi du 7 juin 1963, votre Comité présente à la Chambre des communes, dans le document ci-annexé, ses conclusions, observations et recommandations.

* * *

Un exemplaire des Procès-verbaux et Témoignages du Comité (Fascicules 1 à 22 inclusivement) est aussi déposé.

Respectueusement soumis,

Le Président,
MAURICE SAUVÉ

CHAPITRE I—COMITÉ SPÉCIAL DE LA DÉFENSE

1. Le 7 juin 1963, la Chambre des communes décidait de former un Comité spécial de la défense et adoptait la résolution suivante:

> Qu'un Comité spécial soit nommé pour étudier des questions relatives à la défense et faire connaître ses observations et avis à cet égard dans des rapports remis de temps à autre; que le comité soit autorisé à assigner des personnes, à exiger la production de documents et de dossiers et à interroger des témoins, de même qu'à siéger à divers endroits; que l'article 67 du *Règlement* soit suspendu en ce qui concerne ledit comité, qui se composera de 24 membres que la Chambre désignera à une date ultérieure.

2. Le 10 juin, la Chambre des communes nommait les 24 membres du comité:

> MM. Asselin (*Notre-Dame-de-Grâce*), Baldwin, Béchard, Brewin, Churchill, Deachman, Fairweather, Granger, Groos, Hahn, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, McInnis, MacLean, Martineau, Matheson, McMillan, Patterson, Sauvé, Smith, Temple et Winch.

Après que le Comité eut commencé à siéger, les députés suivants ont aussi été désignés pour en faire partie: MM. Nielsen, McNulty, Plourde, MacRae et Horner (*Acadia*); ces deux derniers sont actuellement membres du Comité.

Pour préparer les séances, le Comité a formé un sous-comité directeur composé de MM. Sauvé (président), Lambert (vice-président), Lessard (*Lac-Saint-Jean*), MacLean (*Queens*), Temple et Winch.

3. Le Comité spécial de la défense a tenu des séances à partir du 18 juin jusqu'au 11 décembre 1963, pour recueillir des renseignements.

Nombre de séances:	Au Canada — 29,	y compris une séance au quartier général de la région septentrionale du NORAD, à North-Bay.
	Aux États-Unis — 2,	au quartier général du NORAD, à Colorado Springs, et à Washington.
	En Europe — 14,	y compris une visite à la 4e brigade d'infanterie et une autre à l'escadre n° 3 de la 1re Division aérienne.
TOTAL	45 séances	

4. Au moment d'entreprendre l'étude approfondie des problèmes de défense au Canada, le Comité a jugé bon de convoquer les personnes suivantes comme témoins:

> L'honorable Paul Martin, secrétaire d'État aux Affaires extérieures; l'honorable Paul T. Hellyer, ministre de la Défense nationale; l'honorable Lucien Cardin, ministre associé de la Défense nationale; l'honorable Charles M. Drury, ministre de la Production de défense; le maréchal en chef de l'Air F. R. Miller, président du comité des chefs d'état-major; le vice-amiral H. S. Rayner, chef de l'état-major de la Marine; le lieut.-gén. G. Walsh, chef de l'état-major général; le maréchal de l'Air C. R. Dunlap, chef de l'état-major de l'Air; M. A. H. Zimmerman, président du Conseil de recherches pour la défense; M. E. J. Keyston, vice-président du Conseil de recherches pour la défense; et M. G. S. Field investigateur scientifique en chef.

Les personnes suivantes, qui ne sont pas au service de l'État, ont aussi aidé le Comité dans son étude:

MM. D. B. Scott, L. E. Trainor et J. T. Sample, tous trois de l'université de l'Alberta; le général Charles Foulkes (à la retraite); le lieutenant-général Guy Simonds (à la retraite); le commodore James Plomer (à la retraite), et M. John Gellner.

5. Le mercredi 17 juillet 1963, le Comité a visité le quartier général du NORAD à Colorado Springs, aux États-Unis, et a entendu les personnes suivantes: Le général John K. Gerhart, de l'Aviation américaine, commandant en chef du NORAD; le maréchal de l'Air C. Roy Slemon, de l'ARC, commandant adjoint; ils étaient accompagnés des personnes suivantes: le brig.-gén. L. W. Stocking, de l'Aviation américaine, le col. J. W. Bothwell, de l'Aviation américaine; le vice-maréchal de l'Air M. D. Lister, de l'ARC; le lieut.-col. d'aviation V. Rolfe, de l'ARC; le lieut.-col. J. L. Pilant, de l'Armée américaine; le commander A. M. Smith, de la Marine américaine; le lieut.-col. J. L. Beck, de l'Aviation américaine; le commandant d'aviation S. E. Collins, de l'ARC, et M. G. Salsky.

6. Le jeudi 7 novembre 1963, le Comité a visité le quartier général de la Région nord du NORAD, la base de BOMARC, à North-Bay (Ont.), et l'escadron 414. Nous avons entendu les témoins suivants: Le vice-maréchal de l'Air M. M. Hendrick, officier général commandant du commandement de la défense aérienne; le vice-maréchal de l'Air J. B. Harvey, commandant, région septentrionale du NORAD; avec l'aide des personnes suivantes: le commodore de l'Air M. E. Pollard; le colonel T. H. Besson; le colonel d'aviation G. B. Murray; le lieut.-col. d'aviation A. G. Lawrence; le lieut.-col. d'aviation J. MacKay; le commandant d'aviation H. J. Tennant; le commandant d'aviation D. S. Terrell; le capitaine d'aviation R. M. Taylor.

7. Étant donné que l'apport du Canada à l'OTAN absorbe une forte proportion du budget de défense du Canada, le Comité a jugé qu'il n'était pas possible de parvenir à évaluer de façon précise le rôle des troupes canadiennes en Europe sans prendre connaissance, directement, des programmes de défense de certains des principaux États membres de l'OTAN et de SHAPE et d'entrer directement en relations avec les chefs de ces deux organismes. De plus, le Comité a constaté que la stratégie militaire a considérablement évolué au cours des années et il était évident que des entretiens avec les dirigeants et les penseurs d'Europe permettraient à ses membres de mieux comprendre tous les aspects de la défense.

8. Le Comité a quitté le Canada le 10 novembre 1963 et il y est revenu le 24 novembre. Il a tenu des séances en France, en Allemagne, au Danemark et au Royaume-Uni. Au cours de 14 séances, le Comité a entendu les 44 témoins que voici:

Le très honorable George Drew, haut-commissaire du Canada au Royaume-Uni; le commodore F. B. Caldwell; le commodore de l'Air W.-P. Gouin; M. P. E. Haddon; le col. G. R. Hale; M. R. S. Thain, tous membres de l'état-major interarmes du Canada, à Londres.

M. Leonard Beaton, de l'Institut des études stratégiques; le professeur Michael Howard et le col. Gwynne-Jones.

Le vice-maréchal de l'Air D. A. R. Bradshaw, commandant de la 1re Division aérienne; le colonel d'aviation D. C. Laubman, commandant de l'escadre 3 (F); le brigadier M. R. Dare, le colonel W. C. Dick; le lieut.-col. C. D. Simpson; le major Crowe et le capitaine W. H. Moorhouse, tous du 4e groupe de brigade de l'infanterie canadienne.

M. Dirk U. Stikker, secrétaire général de l'OTAN; M. George Ignatieff, représentant permanent du Canada au Conseil de l'OTAN; le vice-maréchal de l'Air R. A. Cameron, de l'ARC, conseiller militaire; le général L. L. Lemnitzer, commandant suprême des forces alliées en Europe; le colonel Olan et le colonel Dolan, tous deux du SHAPE; M. Pierre Dupuy, ambassadeur du Canada en France; le brig.-gén. N. V. Hinh, de la République française; le général Pierre Gallois; M. André Moynet, président de la Commission de défense de l'Assemblée nationale française; M. J. G. Halstead, de l'ambassade du Canada à Paris.

M. Franz Krapf, chef de la IIe Division politique, et MM. Dirk Oncken et Hans Arnold, tous deux de la IIe Division politique du ministère des Affaires étrangères d'Allemagne.

Le col. Jähne, le col. Hopfgarten et le lieut.-col. Neubert, de l'état-major général du ministère de la Défense d'Allemagne; M. Fritz Erler, président adjoint du parti démocratique socialiste de la République d'Allemagne; V. Victor Gram, ministre de la Défense du Danemark; M. Paul Fischer, sous-secrétaire d'État aux Affaires étrangères; le maj.-gén. S. B. R. Helsø, chef d'état-major de la Défense du Danemark; et aussi le major-général Blixenkhrone-Møller (Armée); le maj.-gén. Ziegler, de l'Aviation danoise; le capitaine J. Petersen, de la Marine danoise; le lieut-col. P. Brüner et le capitaine M. Petersen, de l'état-major de la Défense du Danemark; M. P. W. Frellesvig, chef de la division de l'OTAN, et M. M. Frederiksen, chef de département, ministère de la Défense.

9. Le Comité a visité Washington (É.-U.) le mercredi 11 décembre 1963 afin de discuter les problèmes mutuels de défense et les questions connexes avec les fonctionnaires supérieurs de la Défense et du Département d'État des États-Unis.

Les personnes suivantes ont été entendues:

M. W. P. Bundy, secrétaire adjoint à la Défense (affaires internationales de sécurité) (É.-U.); M. J. C. Kitchen, sous-secrétaire adjoint pour les affaires politico-militaires, Département d'État (É.-U.); et M. Henry S. Rowen, sous-secrétaire adjoint de la défense (*Planning and National Security Council Affairs*) (É.-U.).

Des mémoires ont été présentés aussi par

Son Excellence Charles S. A. Ritchie, ambassadeur du Canada aux États-Unis; le brigadier Bennett, président suppléant de l'état-major conjoint du Canada (Washington); M. D. Gilchrist, directeur du bureau de Washington du ministère de la Production de défense.

10. Le 1er août 1963, le Comité a invité des groupes et des particuliers à présenter leurs vues sur les questions relatives à la défense. Voici le texte de cette décision:

Il plairait au Comité de recevoir des documents écrits ou des exposés à l'égard de la défense et des questions de défense. Les personnes ou organisations désirant faire ces représentations écrites sont priées d'envoyer quarante exemplaires en anglais, si possible, et quinze exemplaires en français de leurs déclarations au Secrétaire du Comité spécial d'enquête sur la défense, Chambre des communes, Ottawa. Ces exposés doivent être accompagnés d'un bref résumé sur les antécédents et les titres des personnes ou des groupes qui en sont les auteurs.

11. Les mémoires suivants ont été reçus:

1. Document préparé par les physiciens de l'Université de l'Alberta—déposé le 17 octobre 1963—(Pièce n° 5)—(imprimé en appendice au compte rendu des délibérations du Comité n° 14).

2. Revue du rapport Mainguy par le Commodore James Plomer—déposé le 28 novembre 1963—(pièce n° 7)—(imprimé en appendice au compte rendu des délibérations n° 21).

3. Déclaration préparée, qui a été présentée au Comité d'enquête sur la défense par la Voix des femmes, Canada—déposée le 28 novembre 1963—(pièce n° 8).

4. Mémoire sur les recherches et la défense, avec annexes, par l'Institut canadien des recherches sur la paix—déposé le 28 novembre 1963 (pièce n° 9).

12. La Chambre des communes a innové en nommant un Comité spécial d'enquête sur la défense et en lui donnant le mandat d'examiner tous les aspects de la politique de la défense. Il est vrai que, depuis 1941, la Chambre a nommé plusieurs Comités spéciaux pour étudier les dépenses de la défense:

Comité spécial d'enquête sur les dépenses de guerre —1941
Comité spécial d'enquête sur les dépenses de guerre —1942
Comité spécial d'enquête sur les dépenses de guerre —1943
Comité spécial d'enquête sur les dépenses de guerre —1944
Comité spécial d'enquête sur les dépenses et les économies de guerre—1945
Comité spécial d'enquête sur les dépenses et les économies de guerre—1946
Comité spécial d'enquête sur les dépenses de guerre (2e session)—1951
Comité spécial d'enquête sur les dépenses de la défense—1952
Comité spécial d'enquête sur les dépenses de la défense—1953
Comité permanent sur les prévisions budgétaires (dépenses de la défense)—1958
Comité spécial d'enquête sur les dépenses de la défense—1960

13. Le Comité a considéré qu'il avait pour but d'examiner la politique de défense future plutôt que d'examiner le passé en détail. Il faut se rappeler qu'entre le temps où la politique est adoptée et celui où elle est mise en vigueur il y a nécessairement un décalage. C'est surtout le cas quand une nouvelle orientation est donnée à cette politique qui peut entraîner l'organisation et l'acquisition d'un matériel nouveau et compliqué, de même que la formation à nouveau du personnel.

14. Le Comité a été formé à un moment où le Canada, à la lumière de nouveaux concepts stratégiques, doit réexaminer le rôle que ses armées auront à jouer pour la défense du pays et du monde libre dans le respect de ses alliances et de ses engagements internationaux.

15. Le Comité a reçu l'avis et l'assistance du personnel de l'Administration publique sur une base *ad hoc*. Ce procédé n'est pas entièrement satisfaisant. A Cause de l'ampleur de l'étude et des complexités des problèmes de défense, il est nécessaire qu'une assistance technique continue soit assurée au Comité.

16. Ce rapport provisoire est déposé maintenant afin que les présentes recommandations du Comité soient à la disposition du Gouvernement avant que celui-ci ait publié son Livre blanc sur les problèmes de la défense.

17. Le Comité est maintenant en mesure de faire des recommandations et de dresser une liste des questions importantes qu'il désire examiner, se réservant le droit d'étudier d'autres problèmes en dehors de ceux qui sont mentionnés dans le rapport provisoire.

18. Le Comité recommande donc:

a) Que ce Comité spécial d'enquête sur la défense, qui cessera d'exister à la fin de la présente session, soit reconstitué au début de la prochaine session et que, autant que possible, les membres actuels du Comité soient nommés de nouveau.

b) Que les procès-verbaux et les témoignages du présent Comité soient déférés par la Chambre au Comité lorsqu'il sera reconstitué lors de la prochaine session.

c) Que, lorsque le travail du Comité spécial mentionné ci-dessus sera complété, la Chambre des communes organise un Comité permanent d'enquête sur la défense de composition analogue à celui-ci.

d) Que le Comité permanent d'enquête sur la défense proposé soit doté d'un secrétariat technique.

CHAPITRE II—LES SERVICES ARMÉS

19. Au cours des nombreuses séances du Comité on a soulevé plusieurs problèmes concernant les services armés du Canada. Quelques-uns sont rappelés ici; les autres le sont dans des chapitres suivants du rapport.

20. Le ministre et le sous-ministre associé de la Défense, les chefs d'état major de la Marine, de l'Armée et de l'Aviation ainsi que le président du Conseil de recherches pour la défense ont fait des exposés détaillés sur leurs effectifs militaires et civils et sur la répartition de ces effectifs. Voici un résumé de ces renseignements, à la date des témoignages:

MARINE

Effectifs militaires 21,593
Effectifs civils 12,297

Effectif Total de la Marine

1 Porte-avions avec un escadron d'avions de dépistage et un escadron d'hélicoptères
18 Destroyers d'escorte (de la classe Saint-Laurent, Restigouche ou Mackenzie)
8 Destroyers d'escorte de la classe Tribal
17 frégates
10 dragueurs de mines
3 sous-marins (prêtés par la Marine royale)
1 sous-marin
1 navire d'approvisionnement de la flotte
2 navires de réparations d'entretien
4 escadrons d'avions (base de terre)

Organisation de la Marine (Côte de l'Est)

Le commandement de l'Atlantique, dont le quartier général est à Halifax, est placé sous le commandement de l'amiral et comporte:

des effectifs de la marine
des moyens d'appui

Sur la côte de l'Est nous avons:

1 Porte-avions avec un escadron d'avions de dépistage et un escadron d'hélicoptères embarqués
11 Destroyers d'escorte des classes Saint-Laurent, Restigouche et Mackenzie
8 Destroyers d'escorte de la classe Tribal
10 frégates

6 dragueurs de mines
3 sous-marins prêtés par la Marine royale
1 navire d'approvisionnement de la flotte
1 navire de réparations d'entretien
3 escadrons d'avions dont la base de terre est à la station d'aviation de la marine à Dartmouth

Le commandement de l'Atlantique est un commandement de zone, l'amiral étant responsable de toutes les opérations de la Marine dans une vaste région. Environ les deux tiers des effectifs de la MRC servent sur la côte de l'Atlantique.

Organisation de la Marine (Côte de l'Ouest)

Le commandement du Pacifique, dont le quartier général est à Esquimalt (C.-B.) est placé sous le commandement de l'amiral et comporte:
des effectifs de la Marine
des moyens d'appui

Sur la côte de l'Ouest nous avons:

7 destroyers d'escorte de la classe Saint-Laurent et Mackenzie
7 frégates
4 dragueurs de mines
1 sous-marin
1 navire de réparations d'entretien
1 escadron d'avions dont la base terrestre est à Patricia Bay.

Le commandement du Pacifique est un commandement de zone, l'amiral étant responsable de toutes les opérations de la Marine dans une vaste région. Environ un tiers des effectifs de la MRC servent sur la côte du Pacifique.

Division de Réserve de la MRC

Il y a également un commandant de la division de la Marine à Hamilton (Ontario), qui est chargé des 21 divisions de réserve disséminées à travers le pays.

Dix-sept divisions universitaires de formation pour la Marine sont associées aux divisions de la Marine.

ARMÉE

Effectifs militaires	49,381
Effectifs civils	16,980

Organisation

Quartier général du commandement de l'Ouest, Edmonton (Alberta)
Quartier général du commandement Central, Oakville (Ontario)
Quartier général du commandement de Québec, Montréal
Quartier général du commandement de l'Est, Halifax (N.-É.)

Effectifs principaux

1 Groupe de brigade d'infanterie canadienne à Calgary (Alberta)	20,500
2 Groupe de brigade d'infanterie canadienne au camp de Petawawa (Ont.)	
3 Groupe de brigade d'infanterie canadienne, au camp de Gagetown (N.-B.)	
4 Groupe de brigade d'infanterie canadienne, à Soest (Allemagne)	6,000
Contingent de surveillance des Nations-Unies	1,329

AVIATION

Effectifs militaires	52,272
Effectifs civils	15,249

MILICE ET ARMÉE DE RÉSERVE

Armée	53,763
Marine	3,405
Aviation	2,307

(Données au 30 septembre 1963.)

EFFECTIFS POUR L'ENSEMBLE DES SERVICES—

Personnel militaire	123,246
Personnel civil, y compris le CRD, l'administration et le service de l'inspection	49,078

21. Les chefs d'état-major et autres témoins ont étudié les divers stades de l'intégration et de la coordination des services armés à partir du concept d'un seul service de défense placé sous un seul commandement, jusqu'à la réunification des trois armes—marine, armée et aviation—sous un seul état-major avec services communs aux trois armes dans plusieurs secteurs.

La question de l'intégration et de la coordination est influencée, non seulement par le rôle que les trois armes pourraient être appelées à jouer dans l'avenir, mais par l'efficacité, tant du point de vue militaire que du point de vue économique, des services distincts, et par l'amélioration possible du moral et de l'esprit de corps d'un service de défense homogène. On a souvent cité comme modèle d'intégration le Marine Corps des États-Unis et il serait utile d'en étudier l'organisation.

22. Le Comité a appris que le major-général Jean-Victor Allard doit étudier l'organisation de l'armée. Le Comité a également appris qu'un groupe temporaire de travail étudie en ce moment plusieurs autres problèmes relatifs à la défense sous la direction de M. R. J. Sutherland, du Conseil de recherches pour la défense. Le Comité se demande si les militaires et les civils qui les secondent dans chacune des trois armes sont judicieusement répartis compte tenu des tâches assignées à chaque arme. Le Comité désire étudier plus à fond la question.

23. Le 5 décembre 1963 le ministre de la Défense nationale a annoncé une réduction sensible des effectifs de la milice, dont la mission traditionnelle a été de servir de cadre en temps de paix à la mobilisation des armées en cas d'urgence. Rien n'a été dit au sujet d'une réduction sensible des effectifs réguliers. A l'heure actuelle, la milice s'occupe surtout de protection civile. Aucune indication n'a été donnée quant aux répercussions que la réduction de la milice pourrait avoir sur la défense civile. On a soulevé devant le Comité des questions sur l'avantage qu'il y aurait à éduquer la population sur les mesures à prendre pour survivre plutôt que d'organiser des cadres militaires pour la protection civile.

24. Le commodore James Plomer (à la retraite) a comparu devant le Comité et a été interrogé. Il a réitéré les accusations qu'il avait faites antérieurement dans les journaux contre l'administration et la politique de la Marine. Le vice-amiral Rayner est revenu devant le Comité et a répondu à certaines de ces allégations.

25. La question du service militaire obligatoire ou national a été étudiée rapidement, tout particulièrement pendant le témoignage du lieutenant-général Simonds, qui s'est déclaré en faveur d'un tel service.

26. Notre Comité fait les recommandations suivantes:

a) Comme le Comité n'est pas en mesure d'étudier à fond les accusations du commodore Plomer, qu'un comité d'enquête distinct soit chargé d'étudier toute la question dans l'intérêt des parties en cause.

b) Que l'on examine plus efficacement l'organisation et l'utilisation des effectifs afin d'en obtenir un meilleur rendement.

27. Pour faire suite au deuxième chapitre, le Comité aura besoin de plus de temps pour étudier les questions suivantes:

a) l'intégration et la coordination des forces armées;
b) le rôle de la milice et autres groupes de réserve;
c) le service militaire obligatoire;
d) l'organisation des effectifs;
e) les collèges militaires;
f) la protection civile.

CHAPITRE III—BUDGET DE LA DÉFENSE

28. A une époque où le gouvernement fédéral éprouve de la difficulté à satisfaire aux exigences budgétaires toujours croissantes, il est essentiel d'examiner en détail les dépenses au chapitre de la défense.

29. Les Chefs d'état-major de chaque arme ont fourni les renseignements nécessaires concernant les affectations de crédits à leurs services respectifs et les attributions de dépenses budgétaires. Le sommaire suivant, tiré de la brochure intitulée «The National Finances—1963-64» publiée par *The Canadian Tax Foundation*, sera utile:

30. Dépenses aux fins de la défense

Pour les années financières finissant le 31 mars 1960 à 1964

(en millions de dollars)

Année financière	Dépenses budgétaires Défense	Total des dépenses budgétaires	Défense en tant que % du total
			%
1960	1,537.9	5,702.0	26.9
1961	1,542.1	5,958.1	25.9
1962	1,654.9	6,520.6	25.4
1963	1,610.6	6,570.3	24.5
1964	1,639.0	6,845.0	23.9

31. Dépenses budgétaires par principale catégorie

Pour les années financières finissant le 31 mars 1960 à 1964

(en millions de dollars)

Item	1960	1961	1962	1963	1964
Acquisition de matériel	292.5	285.0	320.8	258.4	296.5
Construction	87.8	78.8	84.8	78.2	49.4
Personnel militaire	545.3	565.8	619.9	631.2	623.6
Direction et entretien	586.8	577.5	596.2	605.1	629.7
Contributions à l'infrastructure et aux budgets de l'OTAN	17.4	14.2	11.1	14.5	15.0
Recherches appliquées dans l'industrie	—	—	—	1.2	5.3
Programme de recherches sur les satellites	—	—	—	—	.8
Total des paiements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Déduire:					
Dépenses sur comptes spéciaux	14.9	3.8	6.7	13.7	29.5
Total des dépenses budgétaires	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

32. Dépenses budgétaires par service

Pour les années financières finissant le 31 mars 1960 à 1964

(en millions de dollars)

Item	1960	1961	1962	1963	1964
Marine	255.8	245.5	272.0	269.4	291.4
Armée	400.8	402.3	442.4	443.0	444.9
Aviation	743.3	755.4	788.1	713.9	692.3
Recherches et perfectionnement pour la défense	39.2	41.9	40.4	41.1	51.2
Aide mutuelle et infrastructure de l'OTAN	18.4	14.6	11.1	25.0	32.1
Autres	72.3	61.6	78.8	96.2	108.4
Total des paiements	1,529.8	1,521.3	1,632.8	1,588.6	1,620.3
Déduire:					
Dépenses sur des comptes spéciaux	14.9	3.8	6.7	13.7	29.5
Total des dépenses budgétaires	1,514.9	1,517.5	1,626.1	1,574.9	1,590.8

33. Répartition de chaque dollar de dépense pour la défense nationale

Pour les années financières finissant le 31 mars 1960 à 1964

(Pourcentage)

Item	1960	1961	1962	1963	1964
Matériel	19.1	18.8	19.6	16.3	18.3
Construction	5.7	5.2	5.2	4.9	3.1
Personnel militaire	35.7	37.3	38.0	39.7	38.5
Direction et entretien	38.4	38.1	36.5	38.1	38.9
Infrastructure et OTAN	1.1	.9	.7	.9	.9
Recherches appliquées dans l'industrie	—	—	—	.1	.3
Programme de recherches sur les satellites	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0

34. Dépenses estimatives pour acquisition de matériel et construction par service

Pour l'année financière finissant le 31 mars 1964

(en millions de dollars)

	Aviation	Marine	Armée	Recherches pour la défense	Autres	Total
Aéronefs et moteurs	105.5	11.2	—	—	17.0	133.7
Munitions et bombes	4.1	3.5	11.0	—	—	18.6
Matériel électronique et de transmission	21.9	14.5	5.8	—	—	42.2
Navires	—	38.5	—	—	—	38.5
Armement	.5	5.7	2.8	—	—	9.0
Matériel mécanique, y compris véhicules	2.8	.8	13.9	—	—	17.5
Matériel spécial d'instruction	3.8	1.5	.1	—	—	5.4
Matériel divers	4.5	1.5	4.2	—	—	10.2
Autres	—	—	2.1	19.0	.3	21.4
Total pour le matériel	143.1	77.2	39.9	19.0	17.3	296.5
Construction de bâtiments et ouvrages	25.4	3.3	18.0	1.5	—	48.2
Achats de propriétés immobilières	.6	.2	.3	—	—	1.1
Total pour la construction et les propriétés immobilières	26.0	3.5	18.4	1.5	—	49.4
Grand total	169.1	80.7	58.3	20.5	17.3	345.9

35. Le budget militaire du Canada est souvent comparé aux dépenses militaires des États-Unis, du Royaume-Uni, de la France, de l'Allemagne et de l'Italie, principaux membres de l'OTAN. Il est peut-être intéressant de donner ici quelques statistiques qui ont été établies par *The Institute for Strategic Studies* dans un document publié en novembre 1963, sous le titre «The Military Balance 1963-1964».

36. Comparaisons des dépenses pour la défense

Pays	En pourcentage du produit national brut			Budgets de la défense de 1963		1963 Dépenses pour la défense
	1953	1958	1962	Montants actuels	Augmentation ou diminution au regard du budget de 1962	Par tête
				(en millions de dollars)	(en millions de dollars)	(en dollars)
Belgique	4.9	3.6	3.4	444	+ 88	48
Canada	9.0	6.0	5.1	1,480	− 109	78
Danemark	3.7	3.3	3.5	225	+ 45	48
France	11.0	8.0	7.8	4,062	+ 531	79
Allemagne	5.0	3.8	6.0	4,607	+ 857	83
Grèce	6.1	5.8	4.5	167	− 3	21
Italie	4.6	4.3	4.0	1,510	+ 255	30
Luxembourg	3.2	2.1	1.6	7	—	22
Pays-Bas	6.2	5.0	5.0	618	+ 63	51
Norvège	5.7	4.0	4.2	197	+ 6	54
Portugal	4.5	4.5	8.9	176	+ 18	18
Turquie	5.4	5.4	5.0	235	− 52	8
Royaume-Uni	11.3	7.8	7.4	5,146	+ 327	96
États-Unis	14.8	11.1	10.7	52,400	+ 400	276
				71,274	+2,418	

37. On a surtout retenu comme base de comparaison la notion du produit national brut, et dans ce contexte, les États-Unis ont consacré à la défense en 1962 10.7 p. cent du produit national brut; la France, 7.8 p. cent; le Royaume-Uni, 7.4 p. cent; l'Allemagne, 6 p. cent; l'Italie, 4 p. cent et le Canada, 5.1 p. cent.

Sur cette seule base de comparaison, le Canada peut sembler faire un effort moins considérable que ses principaux alliés de l'OTAN. Cependant, cette méthode de comparaison n'est pas satisfaisante. Le Secrétariat de l'OTAN publiera bientôt une série de statistiques fondées sur le coût de la défense par habitant pour chacun des pays membres de l'OTAN et sur d'autres critères comme la somme totale des impôts payés par habitant à tous les niveaux de gouvernement. Cette nouvelle base de calcul permettrait une évalution plus juste de l'effort canadien.

38. Il est intéressant de noter dans le tableau ci-haut mentionné que le Canada dépense $78 par habitant alors que la France ne dépense que $79 par habitant; l'Italie, $30; le Royaume-Uni, $96. Il ne faut pas comparer, naturellement, les responsabilités internationales du Canada avec celles des États-Unis et du Royaume-Uni dont les intérêts particuliers dans toutes les parties du monde sont indéniables. De plus, ces pays ont assumé des responsabilités de grande puissance. Les responsabilités du Canada ne se situent certainement pas à ce niveau. Si l'on considère le cas de la France, située au cœur de l'Europe, on voit qu'elle ne consacre tout de même qu'un dollar de plus à sa défense.

39. Les témoignages présentés au Comité révèlent que près de 77 p. cent du budget total de la défense du Canada pour 1963-1964 sont consacrés au paiement des salaires et aux dépenses d'entretien et d'opération tandis que 23 p. cent seulement du budget est affecté à l'équipement nouveau. En chiffres ronds, c'est $1,253,300,000 pour les salaires et dépenses d'entretien et $337,500,000 pour l'équipement.

Les témoignages indiquent en outre que la proportion du dollar de la défense affectée aux salaires, à l'entretien, etc. a augmenté progressivement pendant un bon nombre d'années alors qu'on a enregistré une baisse correspondante du montant affecté à l'achat d'équipement. La proportion du dollar de la défense affectée à l'équipement nouveau mine sérieusement la capacité au combat des forces canadiennes.

40. Le Comité recommande:

a) Que les rapports financiers du ministère de la Défense reflètent les dépenses affectées à la défense selon les fonctions et les opérations.

b) Que le partage des dépenses budgétaires aux fins de la défense entre les services devrait être établi en fonction de l'évolution du rôle militaire dans son ensemble plutôt que fixé selon des pourcentages traditionnels.

c) Que le ministère de la Défense nationale, de concert avec le secrétariat de l'OTAN, élabore dès que possible une nouvelle méthode pour établir l'apport que chaque pays membre de l'OTAN doit fournir. L'établissement d'un indice pondéré permettrait de fixer avec plus d'exactitude l'apport financier de chaque membre de l'Alliance.

d) Qu'en outre de la revision annuelle des crédits budgétaires, les dépenses aux fins de la défense devraient être prévues plusieurs années d'avance en fonction d'un pourcentage du produit national brut et des programmes projetés.

41. Il nous reste à étudier, pour faire suite au troisième chapitre, les questions suivantes:

a) La priorité à accorder aux dépenses.

b) Les conséquences économiques des dépenses inscrites au budget.

c) La possibilité d'une diminution des dépenses occasionnées par la défense, advenant que la tension internationale continue à se relâcher et conjointement avec une réduction mutuelle des armements.

CHAPITRE IV—OTAN

42. Le Canada est une des 12 (15 à l'heure actuelle) nations qui les premières ont signé le traité de l'Atlantique Nord au mois d'avril 1949. Il a joué un rôle prépondérant dans la constitution de l'Alliance dont les membres, selon les termes du traité sont «décidés de sauvegarder la liberté, le patrimoine commun et la civilisation de leurs peuples... (et) ont résolu de réunir leurs efforts en vue d'assurer une défense collective et afin de maintenir la paix et la sécurité.» L'OTAN demeure une base essentielle de la politique étrangère et de la politique de défense du Canada. Le traité est censé être en vigueur au moins jusqu'en 1969. L'article 13 se lit ainsi:

> Après que le Traité aura été en vigueur pendant vingt ans, toute Partie pourra mettre fin au Traité en ce qui la concerne un an après avoir avisé de sa décision le Gouvernement des États-Unis d'Amérique, qui informera les Gouvernements des autres Parties du dépôt de chaque instrument de dénonciation.

43. Les États membres de l'OTAN sont le Canada, la Grande-Bretagne, les États-Unis d'Amérique, la France, la Belgique, l'Italie, l'Islande, le Danemark, la Norvège, le Portugal, la Grèce, la Turquie, l'Allemagne de l'Ouest, le Luxembourg et les Pays-Bas.

44. La contribution militaire du Canada à l'OTAN s'établit ainsi:

Une division de l'armée canadienne comprenant un groupe de brigade posté en Europe et deux brigades, en réserve au Canada, affectées à l'OTAN,

Une division aérienne de huit escadrons d'avions CF104,

Un porte-avions et 29 navires d'escorte affectés au SACLANT en cas d'urgence.

45. La défense du monde occidental contre l'agression est l'objectif commun de tous les États membres de l'Alliance. Cependant, l'unanimité ne règne pas parmi les États membres de l'OTAN au sujet de la ligne de conduite future et des concepts stratégiques. On peut dire que les États membres les plus importants de l'OTAN (États-Unis, France, Royaume-Uni et Allemagne de l'Ouest) ne partagent pas tous le même point de vue sur la stratégie et la politique de défense de l'OTAN. Le voyage que le Comité a fait en Europe lui a permis de constater la diversité des opinions et combien les États membres se sentent libres de les exprimer.

46. Le Comité est convaincu que les forces du Canada en Europe, équipés et armées convenablement, contribueront plus efficacement à la défense de l'Europe occidentale. En respectant ses engagements envers l'OTAN, le Canada entraîne les autres États membres de l'Alliance à respecter les leurs. Il ne faut pas minimiser les influences réciproques qui s'exercent dans toute alliance.

47. Souvent au cours des séances du Comité il a été question d'une modification de l'apport du Canada à la défense de l'Europe. En Europe, nos alliés ont insisté sur l'importance et la valeur de l'apport canadien et de son important facteur psychologique en ce sens qu'il rassure nos alliés européens.

48. La situation des États membres de l'OTAN en 1963 est différente de ce qu'elle était au moment de la création de l'Alliance. La situation économique s'est améliorée dans tous les pays d'Europe. L'importance relative de notre contribution en 1963 n'est plus du tout ce qu'elle était au début de l'Alliance, alors que la puissance militaire de certains de nos alliés d'Europe était faible. De plus, au cours de cette période, le perfectionnement des armes nucléaires a changé tout le concept de la défense.

49. Dans plusieurs pays alliés on se demande si une guerre, ordinaire ou nucléaire de portée restreinte, est vraisemblable en Europe. D'après cette opinion, l'utilisation en Europe de troupes ordinaires non pourvues d'armes nucléaires ou de troupes munies d'arme nucléaires et engagées dans une guerre nucléaire de portée restreinte ne peut qu'aboutir à un conflit nucléaire de portée mondiale.

La stratégie du SHAPE est bien définie: si les forces conventionnelles de l'OTAN ne réussissaient pas à contenir les forces conventionnelles de l'ennemi au cours d'une attaque contre le territoire d'un pays de l'Alliance, les forces de l'OTAN utiliseraient les armes nucléaires tactiques. Néanmoins, il semble inévitable que si l'on utilise les armes nucléaires tactiques en Europe de l'ouest, le conflit dégénérera rapidement en une guerre nucléaire d'importance entre l'Est et l'Ouest.

50. Les partenaires de l'OTAN discutent beaucoup du meilleur déploiement des forces nucléaires dans les zones avancées. Actuellement certaines des forces terrestres qui sont au front sont équipées d'armes nucléaires tactiques. Toutefois, beaucoup sont d'avis qu'il vaudrait mieux établir une force distincte, pourvue

d'armes nucléaires, et la placer derrière les forces munies d'armes de type classique sous le commandement direct du SACEUR. Il ne faut pas courir le risque qu'un commandement subalterne, menacé d'annihilation, déclenche un grand conflit nucléaire parce qu'il se serait servi sans autorisation d'armes nucléaires tactiques. Il ne faut pas croire que les forces de l'OTAN se serviraient des armes nucléaires dès le début de l'agression, malgré l'appui que donne l'Allemagne de l'Ouest à pareille ligne de conduite.

51. On discute beaucoup en Europe du concept des représailles immédiates ou riposte du tac au tac et par opposition au concept de la souplesse des représailles. Dans le premier cas, il s'agit de l'intervention massive et instantanée des forces munies d'armes de type classique et des forces munies d'armes nucléaires, si les forces ennemies envahissent la moindre parcelle du territoire d'un pays de l'OTAN.

Dans le second cas, il ne faut recourir aux armes nucléaires qu'après qu'il est devenu évident que l'agression ne peut être contenue d'une autre façon. Dans un cas comme dans l'autre, l'attitude que les États-Unis peuvent prendre est une cause d'inquiétude pour certains Européens. Ils estiment que les États-Unis pourraient hésiter à se servir d'armes nucléaires tactiques, suscitant le grand risque d'une guerre nucléaire totale, pour défendre les parties du territoire européen. En outre, ils se demandent quel degré d'agression devra se produire pour assurer l'intervention des États-Unis au moyen d'armes nucléaires.

52. De plus, il est manifeste qu'on est fortement porté à croire, en Europe, que les États-Unis songent peut-être à retirer éventuellement de l'Europe une partie importante de leurs forces terrestres. La coïncidence de l'opération Big Lift a contribué à la manifestation de cette attitude. En certains milieux, on a même peur que les États-Unis ne restreignent ou ne refusent l'utilisation de leurs forces terrestres dans un conflit européen de crainte de favoriser le déclenchement d'une guerre nucléaire totale. Le Comité, lors de sa visite à Washington, a de nouveau reçu l'assurance des autorités américaines de la défense que ces doutes ne sont pas fondés.

53. Les témoins qui ont comparu au Comité ont parlé longuement de la force de frappe de la France, pays qui a décidé d'avoir une force nucléaire indépendante. Voici, selon le Comité, quelques-unes des raisons qui ont motivé cette décision:

a) Le prestige national.
b) Les armes nucléaires sur le sol de France ne relèveront que des autorités françaises.
c) La protection assurée du territoire français.
d) La France est d'avis que ce n'est pas tenir compte de la réalité que de dépendre à jamais de la protection prévue aux termes des dispositions actuelles.
e) La production, en même temps, de l'énergie atomique à des fins industrielles.
f) Un effet préventif supplémentaire.

54. Le Comité a conclu que le programme visant la force de frappe de la France recevait un appui général dans ce pays, non seulement en ce moment, mais aussi pour un avenir prévisible. Sur le plan politique, cette stratégie militaire de la France a créé certaines tensions dans l'OTAN et peut gravement mettre en péril le concept de l'unité politique de l'Europe.

55. Il est à signaler que la Grande-Bretagne et la France, qui possèdent toutes deux une force nucléaire indépendante, se sont nettement réservé le droit de décider que, dans certaines circonstances et sans avoir à en venir à une entente avec ses alliés, chacune peut prendre l'initiative de dire à quel moment et de quelle façon elle doit utiliser sa force nucléaire indépendante.

56. Bien que plusieurs membres qui ont adhéré au pacte de l'OTAN puissent modifier ce traité depuis 1959, l'Allemagne de l'Ouest a accepté, en vertu du traité de Bruxelles de 1948, de ne pas fabriquer des armes atomiques, bactériologiques et chimiques pendant un demi-siècle.

57. Il est évident que l'Allemagne de l'Ouest voudrait que l'OTAN accroisse la puissance de ses armes nucléaires tactiques, afin de diminuer davantage le déséquilibre apparent qui existe dans les forces dotées d'armes du type classique et dont l'Allemagne est plus consciente que d'autres, vu qu'elle se trouve aux avant-postes.

L'Allemagne de l'Ouest insiste aussi sur l'intégrité de son territoire et c'est pour cela qu'elle voudrait que des armes nucléaires tactiques soient aisément mises à la disposition des forces terrestres de l'OTAN qui pourraient immédiatement s'en servir advenant une agression contre son territoire.

58. L'Allemagne de l'Ouest a accepté le principe à la base d'une force multilatérale au sein de l'OTAN, parce que, entre autres raisons, elle pourra mieux alors, de même que ses alliés de l'OTAN, se faire entendre au sujet du programme visant l'utilisation des armes nucléaires par les forces de l'OTAN et de la décision à prendre d'avance relativement aux cibles. Dans l'OTAN, on est généralement d'avis, de façon officielle, qu'il faut qu'une personne soit appelée à autoriser l'utilisation des armes nucléaires des États-Unis mises à la disposition des États membres de l'organisme, c'est-à-dire le président des États-Unis, plutôt que de recourir à l'organisme impraticable d'un comité.

59. Le problème de la balance des paiements, qui est inhérent à la question du stationnement des troupes en pays étranger, a été examiné à maintes reprises, de même que la question intéressant le partage de la production des armements. Cette question comporte de graves conséquences secondaires d'ordre économique relativement à notre programme de défense. Il est urgent et nécessaire d'étudier davantage le problème que pose le séjour de nos forces militaires en territoire étranger pour déterminer (1) toute la portée du problème (2) les mesures à prendre pour empêcher autant que possible la diminution de nos réserves de dollars.

60. Pour répondre à divers doutes qui ont été exprimés et aux questions qui ont été posées au sujet des intentions des États-Unis, il faut dire qu'à maintes reprises les États-Unis ont indiqué leur intention de maintenir leurs forces en Europe et de remplir les engagements qu'ils ont contractés envers leurs alliés de l'OTAN en Europe. Par l'entremise de M. Robert S. McNamara, secrétaire à la Défense, les États-Unis tâchent d'obtenir que soient accrues les forces dotées d'armes de type classique au sein de l'OTAN, afin que cet organisme jouisse de plus de souplesse en cas d'agression.

61. Lors de notre visite à l'escadre numéro 3, première Division aérienne, à Zweibruchen, en Allemagne, nous avons remarqué que le personnel de l'ARC est enchanté de la qualité de son nouvel appareil, c'est-à-dire le CF-104. Le rôle de cette Division aérienne est la reconnaissance offensive (bombardements à faible distance) ou l'interception, la plupart de ses cibles étant établies d'avance. Le modèle de CF-104 dont dispose la division aérienne est destiné exclusivement au lancement d'ogives nucléaires. On a dit aux membres du Comité que d'autres modèles du F-104, dans les forces de l'OTAN, peuvent accomplir une double tâche et, semble-t-il, quelques modifications permettraient d'utiliser le CF-104 à une double fin.

62. On a longuement étudié l'importance et l'efficacité de ce rôle consistant en la reconnaissance offensive en cas de guerre. Si un conflit du type classique se limitait strictement à l'Europe, la première division aérienne du Canada n'aurait qu'un rôle très restreint à remplir dans les opérations, sauf de constituer une menace préventive et d'être disponible en tant qu'élément souple de

riposte. Son rôle nucléaire exclusif l'empêche de servir d'appui ordinaire aux forces terrestres de l'OTAN. Vu les doutes qui entourent l'idée d'une guerre nucléaire de portée restreinte dans l'ouest de l'Europe sans qu'il y ait aggravation, le rôle d'une force de reconnaissance offensive de la Division aérienne acquiert une valeur militaire restreinte en cas de guerre nucléaire. La reconnaissance offensive nucléaire garde surtout une valeur préventive.

63. A moins qu'elle n'ait l'autorité exclusive à leur sujet, la France ne permet pas que des ogives nucléaires soient emmagasinées sur son territoire; voilà pourquoi l'activité des escadrons français munis d'ogives nucléaires des États-Unis ne peut se faire à partir de bases françaises; ces escadrons sont donc postés en Allemagne. Il ne sera pas permis aux quatre escadrons de CF-104 de l'ARC, qui sont postés en France, de garder à leur base française leurs armes nucléaires appartenant aux États-Unis; ils devront obtenir leurs ogives nucléaires en dehors de la France. C'est une situation qui n'est pas satisfaisante.

64. Le comité a remarqué que les appareils de la Division aérienne du Canada, en Europe, ne sont pas entièrement équipés en tant qu'avions CF-104, et que, présentement, elle ne dispose pas, pour ses avions CF-104, d'aucune arme quelle qu'elle soit, de type classique ou de nucléaire.

65. On a étudié d'autres rôles qui pourraient être confiés à la division aérienne du Canada, par exemple, le transport aérien des troupes mobiles de l'OTAN dans le périmètre de la région de défense de cet organisme.

66. Le Comité a visité le quatrième groupe de brigade d'infanterie, à Soest, en Allemagne, et il a conclu que la brigade n'avait pas tout le matériel nécessaire pour avoir la mobilité voulue. Le Comité s'est demandé ce que valaient, du point de vue militaire, les quatre lance-fusées *Honest John* dont est dotée la brigade.

67. Autant qu'avaient pu s'en rendre compte les membres du Comité, le moral des militaires et de leurs familles est excellent dans les bases qu'ils ont visitées.

68. Le Comité recommande:

a) Étant donné l'appoint militaire que représentent nos forces armées en Europe, aussi bien que l'effet psychologique que constitue leur présence, les forces canadiennes devraient être maintenus en Europe.

b) Que soit examiné sans retard s'il y a lieu ou non de faire en sorte que le CF-104 soit en mesure d'accomplir une double tâche.

c) Que soit étudié le rôle des deux brigades, au Canada, dont la tâche actuelle consiste à servir d'appui à la brigade, en Europe, en cas d'urgence, ainsi que les moyens de transport et la mobilité de ces forces armées, de même que ceux de la brigade du Canada, en Europe.

d) Que soit immédiatement entreprise une étude relative aux opérations à longue distance en vue de décider du rôle futur le plus approprié pour la division aérienne, lorsque son matériel actuel sera devenu désuet.

e) Vu la nécessité de la mobilité, qu'on songe de façon particulière à confier à la division aérienne un rôle dans le transport aérien.

f) Que l'OTAN soit invitée à établir ailleurs les escadrons de CF-104 qui sont postés en France.

g) Que le groupe de brigade soit doté de véhicules blindés pour les troupes et d'autres moyens appropriés de transport militaire aériens et terrestres d'une grande mobilité.

h) Que l'OTAN soit invitée à transférer la batterie *Honest John* du groupe de brigade à une formation mieux adaptée du commandement.

69. Pour donner suite au quatrième chapitre, il faudra plus de temps pour examiner le rôle de la Marine royale du Canada et son efficacité dans le SACLANT.

CHAPITRE V—NORAD

70. Le Commandement de la défense aérienne de l'Amérique du Nord (NORAD) a été organisé conjointement par les États-Unis et le Canada et a été établi vers la fin de 1957 pour une période initiale de dix ans.

NORAD a principalement pour but de prévenir les autorités militaires et la population de l'imminence d'une attaque aérienne et de défendre le continent nord-américain contre une telle attaque aérienne.

Le système de détection de NORAD, de concert avec le Strategic Air Command, permet aux États-Unis d'utiliser sa puissance au maximum afin de détruire le territoire ennemi si l'ennemi décide d'attaquer le continent nord-américain par la voie des airs.

71. Le Canada fournit 14,700 hommes au NORAD. Ces hommes sont affectés à la Dew Line, à la Pine Tree Line et au SAGE, à North-Bay. Aux bases de Comox (Colombie-Britannique), North-Bay (Ontario), Uplands (Ontario), Bagotville (Québec) et Chatham (Nouveau-Brunswick) soixante-quatre avions Voodoo participent à la surveillance et à la défense du territoire. Il y a aussi à North-Bay (Ontario) et à La Macaza (Québec) deux escadrons de Bomarcs B qui ont chacun 28 missiles en train d'être équipés d'ogives nucléaires.

72. Le Comité a visité à Colorado-Springs, le 27 juillet 1963, le quartier général de NORAD et il a été impressionné par l'organisation très à point de la détection, qui permet de déterminer en peu de temps, partout sur le continent nord-américain et dans les environs, la nationalité des avions, des satellites et des navires non identifiés.

73. Le 7 novembre 1963, le Comité a visité en outre la rampe de lancement des Bomarcs B à North-Bay (Ontario). Les Bomarcs ont pour mission d'attaquer et de détruire les bombardiers ennemis porteurs de bombes nucléaires ou classiques.

74. Outre le Bomarc B, le Canada a cinq escadrons d'avions d'interception Voodoo capables de transporter une charge mixte de missiles (Falcon) air-air dotés d'ogives à explosifs puissants et deux fusées de type nucléaire.

75. L'à-propos de doter les Bomarcs et les Voodoos d'ogives nucléaires a été longuement discuté. Il semble bien que ces ogives accroîtraient l'efficacité du Voodoo et procureraient au Bomarcs une puissance en tant qu'armes de défense contre les bombardiers. Bien entendu, ils ne seraient d'aucune utilité contre la portée générale des engins balistiques.

Au cours de ses séances, le Comité a longuement discuté la question de la «cuisson», c'est-à-dire l'opération par laquelle une bombe nucléaire transportée dans un bombardier intercepté par un Bomarc ou un Voodoo doté d'armes nucléaires est désamorcée. Des spécialistes ainsi que des officiers des États-Unis et de NORAD à Washington nous assurent que la méthode de la «cuisson» a fait ses preuves. Certains hommes de science de l'Université de l'Alberta en doutent. Pour les Européens, la question ne se pose qu'en théorie.

Les BOMARCS sont postés dans la zone de défense du Nord-Est des États-Unis où la population est très dense. Il faut noter qu'ils se trouvent ainsi à protéger les régions de Montréal et de Toronto.

76. Parallèlement au problème que constitue le fait de munir d'armes nucléaires les Bomarcs et les Voodoos se pose la question de l'entreposage d'ogives nucléaires sur le sol canadien en temps de paix.

77. Le Canada a accepté de stocker, sous surveillance conjointe, des armes nucléaires sur le sol canadien. Le Comité est d'avis de restreindre strictement ce stockage aux seules armes nucléaires qui peuvent être utilisées exclusivement à la défense du ciel canadien, avec l'assentiment du gouvernement du Canada, en cas d'agression.

78. Le rôle de détection de NORAD revêt une très grande importance en ce qu'il permet au Commandement de la défense aérienne et au Commandement aérien stratégique d'être avertis assez tôt de toute attaque possible sur l'Amérique du Nord et particulièrement sur les bases du Commandement aérien stratégique. Il contribue donc dans cette mesure, et de façon vitale, à l'invulnérabilité des moyens stratégiques de dissuasion, qui sont essentiels à la défense du monde occidental.

79. Le Comité recommande:

a) Que le Canada continue d'adhérer au NORAD, puisque la défense de l'Amérique du Nord est une responsabilité conjointe.

b) Étant donné qu'une attaque par des bombardiers ennemis continue d'être une menace qui persiste bien qu'elle aille en diminuant, que le Canada soit en mesure de se défendre contre cette menace en ayant recours pour le moment aux Bomarcs et aux Voodoos.

CHAPITRE VI.—L'ORGANISATION DES NATIONS UNIES

80. En 1950, le gouvernement du Canada a répondu à l'appel de l'ONU à l'occasion de la guerre de Corée. Depuis lors nous avons envoyé des troupes à Gaza, au Congo, en Indo-Chine, au Yemen et à la frontière indo-pakistanaise, entre autres. Plus de 1,300 Canadiens servent sous les ordres de l'ONU.

81. Depuis septembre 1960, le Canada maintient un bataillon en réserve pour les besoins de l'ONU. Il s'agit, à l'heure actuelle, du premier bataillon du Royal vingt-deuxième.

82. Ces troupes, comme l'ONU elle-même, n'ont qu'un seul but, qui est le maintien ou le rétablissement de la paix dans les régions du monde où des conflits armés ont éclaté ou menacent continuellement d'éclater. Ces troupes canadiennes sont équipées exclusivement d'armes classiques légères. Leur tâche est de maintenir l'ordre, mais on leur confie souvent le soin d'établir et de maintenir des moyens de communication.

83. On a souvent parlé à l'ONU d'organiser une force permanente de police, mais on ne l'a jamais constituée. Il est intéressant de noter à cet égard que le Danemark, la Finlande, la Norvège et la Suède ont accepté en principe de mettre sur pied, dans chacun de ces quatre pays, une force spéciale de secours qui peut être mise à la disposition des Nations Unies à bref délai.

Cependant, il a été impossible jusqu'ici d'affecter des troupes à la seule fin de servir pour l'Organisation des Nations Unies et de participer à ses opérations policières sur le plan international.

84. Le Comité recommande:

a) Que le Canada continue d'appuyer les opérations pacifiques de l'ONU.

b) Que le Canada continue de maintenir des troupes à la disposition de l'ONU pour tout service spécial, mais qu'en outre il confère à ce sujet avec la Norvège, la Suède, le Danemark et la Finlande, pays qui ont accepté en principe de maintenir des troupes spéciales de secours à la disposition de l'ONU.

85. Afin de continuer l'étude du chapitre six, il faut plus de temps pour étudier la portée du contrôle de contingents canadiens sous le commandement des Nations Unies.

CHAPITRE VII—DÉFENSE DU CANADA

86. On prétend que dans le contexte du perfectionnement technique des armes nucléaires, le Canada n'est pas défendable. Les frontières sont éloignées et le territoire des régions arctiques est vaste. Nombre de villes peuvent être facilement attaquées. Cependant, il est nécessaire que les troupes puissent être transportées vers le territoire où a lieu une invasion ennemie. Il nous faut également une aviation capable de surveiller le territoire et de transporter les troupes requises pour la défense de ce territoire. En outre, il importe que la Marine canadienne surveille et patrouille les eaux territoriales du Canada.

87. A supposer qu'il y ait un débarquement ennemi en territoire canadien, il incomberait en premier lieu au Canada de prendre les mesures de défense nécessaires. Toutefois, étant donné leurs obligations découlant de certains traités et la responsabilité conjointe du Canada et des États-Unis relativement à la défense de l'Amérique du Nord, les États-Unis se porteraient à notre défense. L'inviolabilité du territoire canadien est une condition *sine qua non* de la défense des États-Unis.

88. Pour compléter le chapitre sept, il nous faudra examiner plus à fond les sujets suivants quant à la défense du territoire canadien:

a) les troupes requises (effectifs et genre);
b) le degré de mobilité de ces troupes;
c) le rôle de l'aviation;
d) le rôle de la marine.

CHAPITRE VIII—LA POLITIQUE DE DÉFENSE

La politique de défense du Canada est conditionnée par certains facteurs essentiels:

89. Il est admis que la politique de défense est un prolongement logique de la politique extérieure. Il est essentiel, cependant, de prendre toutes les décisions en matière de défense en tenant compte avant tout des intérêts du Canada.

90. La politique de défense du Canada doit être une politique canadienne en ce sens qu'elle doit s'inspirer des intérêts du Canada et s'alimenter à des sources canadiennes tout en tenant compte de la situation mondiale. Elle ne doit pas imiter servilement la politique d'un autre pays.

91. L'impératif premier de notre politique militaire doit être la défense du territoire canadien situé géographiquement entre les deux puissances nucléaires, l'Union soviétique et les États-Unis.

92. Pour assurer une défense adéquate du territoire canadien, il ne faut pas seulement une armée de terre; il faut aussi que l'espace aérien soit continuellement surveillé et que les eaux territoriales soient patrouillées par la marine canadienne.

93. Le Canada doit, en dehors de ses limites territoriales et conjointement avec ses alliés, contribuer au maintien d'une force de dissuasion, ce qui l'oblige à contracter des alliances et à consulter ses alliés.

94. Les forces armées du Canada, compte tenu de la puissance et des autres engagements de notre pays, doivent être prêtes à répondre, moyennant un contrôle approprié, à n'importe quel appel des Nations Unies pour l'aider à remplir son rôle pacificateur dans le monde.

95. Dans la conjoncture actuelle, quelles sont les guerres auxquelles l'univers et le Canada peuvent être appelés à participer? La plus néfaste serait certainement une guerre nucléaire totale. Certains prétendent qu'un conflit nucléaire pourrait être limité, mais les avis contraires abondent. Le Canada doit envisager la possibilité d'une guerre nucléaire généralisée dans laquelle l'alliance occidentale et le bloc oriental seraient les principaux antagonistes. Le deuxième genre de guerre possible serait une guerre de type classique dans laquelle on n'aurait pas recours aux armes nucléaires. Enfin, depuis la Seconde Guerre mondiale, le monde a connu la guerre d'escarmouches, c'est-à-dire les conflits locaux.

96. Comment pourrait se produire un conflit nucléaire? Ce serait très probablement par l'aggravation d'un conflit de type classique qui dégénérerait en conflit nucléaire. L'Europe a été mentionnée comme une région où un conflit pourrait commencer, mais il se peut que l'impasse créée par l'«équilibre de la terreur» ait rendu ce genre de conflit fort improbable.

97. Il ne faut pas écarter la possibilité d'une attaque-surprise de l'Union soviétique contre un membre de l'OTAN qui déclencherait immédiatement des représailles au moyen des armes nucléaires de la part des États-Unis et de ses alliés.

98. Les conflits de type classique naissent plus facilement. Nous en avons eu plusieurs exemples depuis la guerre de 1939-1945. Le plus sérieux a certainement été la guerre de Corée. A l'heure actuelle un conflit demeure essentiellement de type classique tant qu'il n'implique pas la participation directe des États-Unis et de l'Union soviétique. Si les deux grands antagonistes participent directement au même conflit, il n'y a aucun doute que ce conflit deviendra un conflit nucléaire.

99. Y a-t-il une force de dissuasion qui peut empêcher une guerre nucléaire? Tant que les armes nucléaires de l'URSS sont contrebalancées par les missiles intercontinentaux et les fusées Polaris lancées par les sous-marins nucléaires des États-Unis et tant qu'un des deux antagonistes n'aura pas découvert un missile anti-missile, il n'est pas probable qu'il se déclenchera une guerre nucléaire.

100. Le Comité recommande:

a) Que les États-Unis conservent l'autorité définitive sur toutes ses armes nucléaires mises à la disposition de l'OTAN.

b) Que le Canada ne s'engage absolument pas dans la mise au point et la production des armes nucléaires.

101. Pour donner suite au chapitre huit, il faut plus de temps pour examiner la proposition voulant que des membres de l'OTAN participent aux travaux préliminaires de la préparation des plans et des cibles pour les armes nucléaires qui seront disponibles et utilisables sous l'autorité des États-Unis d'Amérique.

CHAPITRE IX—MINISTÈRE DE LA DÉFENSE NATIONALE

102. Le Comité n'a pas pu étudier tous les détails de l'organisation du ministère de la Défense nationale, mais, après avoir entendu le ministre, les chefs d'état-major et plusieurs autres témoins, il peut mentionner certains problèmes qu'il a l'intention d'étudier quand il reprendra ses travaux au cours de la prochaine session. Ces problèmes sont les suivants:

a) La nature et la portée du contrôle des forces armées par les autorités civiles.

b) L'organisation de l'état-major.

c) La concentration de toutes les questions de défense nationale sous un seul ministre.

d) Le contrecoup possible des dépenses militaires et de la production des armements sur l'activité économique du Canada.

e) Les effets que peut avoir la réduction du budget de la défense sur l'embauche.

f) Les programmes relatifs à la recherche et au perfectionnement.

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Le Comité désire adresser ses remerciements sincères à son secrétaire, aux membres de la Division des comités, aux autres fonctionnaires de la Chambre des communes et à toutes les personnes au Canada et à l'étranger dont la collaboration a grandement aidé au Comité à accomplir son travail.