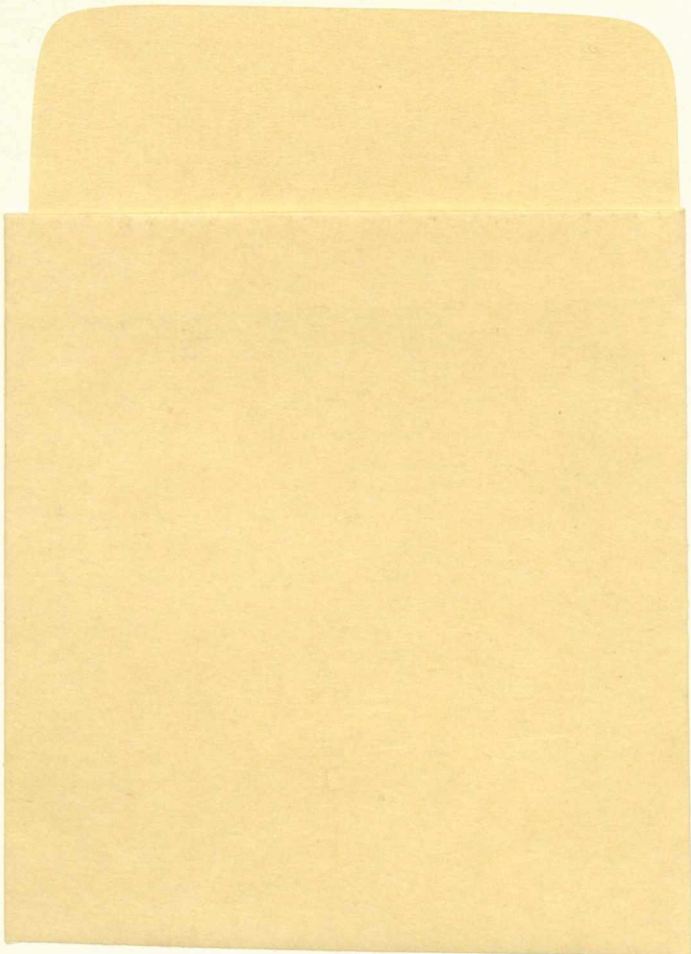
REPORT

of the Special Committee of the Senate on

NATIONAL DEFENCE

Canada's Land Forces

OCTOBER 1989



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Membership

The Honourable Henry D. Hicks, *Chairman*

The Honourable Jack Marshall, *Deputy Chairman*

and

The Honourable:

James Balfour
M. Lorne Bonnell
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Richard J. Doyle
P. Derek Lewis
*Allan J. MacEachen, P.C. (or Royce Frith)
Charles McElman
Gildas L. Molgat
Hartland de M. Molson
*Lowell Murray, P.C. (or C. William Doody)
Duff Roblin, P.C.

**Ex officio* members

Note: The Honourable Philippe D. Gigantès, John Godfrey, Q.C., Paul Lafond and Léopold Langlois, Q.C. also served on the Committee at various stages.

Order of Reference

The motion permitting the Committee to undertake its examination of Canada's land forces was first adopted by the Senate on 7 April, 1987, during the Second Session of the Thirty-Third Parliament, as follows:

> That a special committee of the Senate be appointed to hear evidence on and to consider the following matter relating to national defence, namely, Canada's land forces including mobile command, and such other matters as may from time to time be referred to it by the Senate;
>
> That 12 Senators, to be designated at a later date, four of whom shall constitute a quorum, act as members of the special committee;
>
> That the Committee have power to send for persons, papers and records, to examine witnesses, to report from time to time, and to print such papers and evidence from day to day as may be ordered by the Committee; and
>
> That the Committee report to the Senate no later than 15 December, 1987.

By Order of the Senate of 8 December, 1987 the reporting date was extended to the 15 December, 1988.

Following the recall of Parliament after the General Election in the Autumn of 1988, a motion to permit the Committee to complete its examination of Canada's land forces was re-introduced to the Senate and adopted on 28 December, 1988 in the First Session of the Thirty-Fourth Parliament. When the Second Session of the Thirty-Fourth Parliament was summoned, it necessitated the re-introduction of the Committee's Order of Reference yet again and it was adopted by the Senate on 5 April, 1989, and read as follows:

> That a special committee of the Senate be appointed to hear evidence on and to consider the following matter relating to national defence, namely, Canada's land forces including mobile command, and such other matters as may from time to time be referred to it by the Senate;
>
> That, notwithstanding Rule 66, the Honourable Senators Balfour, Bonnell, Buckwold, Doyle, Gigantès, Hicks, Lewis, MacEachen (or Frith), Marshall, McElman, Molgat, Molson, Murray (or Doody) and Roblin, act as members of the Special Committee and that four members constitute a quorum;
>
> That the Committee have power to send for persons, papers and records, to examine witnesses, to report from time to time and to print such papers and evidence from day to day as may be ordered by the Committee;
>
> That the papers and evidence received and taken on the subject during the Thirty-Third Parliament be referred to the Committee; and
>
> That the Committee report to the Senate no later than 30th June, 1989.

By Order of the Senate of June 22, 1989 the Committee's reporting date was extended for the last time, to 31 October, 1989.

The Committee heard from 62 witnesses, listed alphabetically in Appendix III. It also travelled, visiting from 1st to 10th October, 1987, Canadian Forces Europe at Lahr, West Germany, under the Command of MGen. John Sharpe and the Canadian contingent of the United Nations Force in Cyprus, under the command of BGen. John McInnis. The 1st and 2nd March, 1988, the Committee visited the Special Services Force under the Command of BGen. I. C. Douglas, at Canadian Forces Base (CFB) Petawawa and, at CFB Trenton, the Air Transport Group under the Command of BGen. Marc Terreau. On that same trip it also visited the Canadian Forces Training System under the command of BGen. A. C. Brown. From the 3rd to 5th May, 1988 the Committee made its final trip, visiting the Combat Training Centre at CFB Gagetown under the Command of BGen. L. W. MacKenzie, and 434 Tactical Fighter Squadron at CFB Chatham under the Command of Col A. M. Lee.

Contents

Glossary of Abbreviations

ACE	Allied Command Europe
AMF(L)	ACE Mobile Force (Land)
AWACS	Airborne Warning And Control System
CAST	Canadian Air-Sea Transportable (brigade group)
CF	Canadian Forces
CSBM	Confidence and Security Building Measures
CSCE	Conference on Security and Cooperation in Europe
DND	Department of National Defence
FMC	Force Mobile Command
FOFA	Follow-on Forces Attack
GNE	Gross National Expenditure
INF	Intermediate-range Nuclear Forces
MBFR	Mutual and Balanced Force Reduction Talks
NATO	North Atlantic Treaty Organization
P,O&M	Personnel, Operations and Maintenance
RCMP	Royal Canadian Mounted Police
SERT	Special Emergency Response Team
TOW	Tube-launched, Optically-tracked, Wire-guided
UN	United Nations
WTO	Warsaw Treaty Organization

Foreword

The predecessor of the Senate's Special Committee on National Defence was a sub-committee of the Standing Senate Committee on Foreign Affairs. In 1982, the Sub-committee completed its first Report entitled, *Manpower in Canada's Armed Forces*. In May 1983, the Sub-committee completed its Second Report on *Canada's Maritime Defence*. The Committee was then reconstituted as a Special Committee of the Senate on National Defence, and, in January 1985, completed its report on *Canada's Territorial Air Defence*, and then, in February 1986, on *Military Air Transport*.

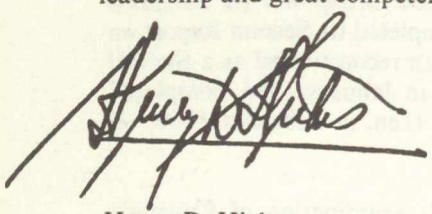
This present report completes the Committee's examination of Canada's Armed Forces. Its publication has been delayed because of the death of the Committee's original Chairman, Senator Paul C. Lafond, and, subsequently, because of the dissolution of Parliament in 1988. Furthermore, the strategic position and announced changes in the defence policy of the U.S.S.R. have necessitated the Committee's reconsideration of some aspects of the report as it might have been if it had been able to be completed in 1987 or 1988. The present report does, however, summarize the situation concerning Canada's Land Forces and the role which they are likely to have to play in the future. In this respect the report speaks for itself and does not require any elaboration in this foreword.

Of particular interest is a relatively brief summation in Appendix II of the impact on the defence budget of the proposals contained in the Committee's five studies. The figures seem to be very large, and by Canadian standards of defence expenditures, they are indeed large. Nevertheless, it should be pointed out that the annual increase resulting from the recommendations of the Committee's five reports is only 0.36% of the Gross Domestic Product. This would increase defence expenditures as a percentage of GDP from 1.98% (1990-1991) to 2.34%. It would still leave Canada's defence expenditures as a percentage of GDP lower than those of any of our NATO allies excepting only those of Luxembourg and Denmark.

The Committee wishes to express its gratitude to the Ministers of National Defence, and, in particular, the Hon. Perrin Beatty, who was Minister during most of the time the Committee was concerned with this report. The Committee also expresses its gratitude to the Senior Officers of the Armed Forces, the Senior Civil Servants, Executives of various Professional Associations, as well as the many learned experts and retired military officers who so willingly appeared before us and expressed their opinions based upon their extensive knowledge and experience. Their names are listed in Appendix III. A particular word of thanks is expressed for the unfailing support of Mr. Patrick Savoie, who was Clerk of the Committee when this study commenced, and of Mr. John Desmarais who succeeded him. The Parliamentary Centre for Foreign Affairs and Foreign Trade was extremely helpful both by contributions of its Director, Mr. Peter Dobell,

and of Mr. Gregory Wirick who, succeeding Roger Hill, was the Chief Research Officer throughout this study. He was assisted by Messrs. Nick Swales and David Mueller, graduate students at Carleton University, Ottawa.

Finally, all members of the Committee wish to pay tribute to the contribution of the late Senator Paul C. Lafond. Senator Lafond chaired this Committee and its predecessor from its inception, and his knowledge of Canada's Armed Forces, and, particularly, of the senior personnel who occupied positions of command and responsibility, was very great indeed. While I was honoured to be selected to succeed him, I am aware of the great debt that I owe to him because of his earlier leadership and great competence.



Henry D. Hicks
Chairman

October, 1989

Chapter I

INTRODUCTION

In many countries, the army is both a symbol of national power and a tangible expression of it. The army occupies more than land in these cases; it encroaches on the very ethos of the nation. It is characteristically Canadian that the army does not play such an exalted role. Indeed, in recent years, Canada's armed forces have not figured prominently in the national consciousness. This is, in part, a function of geographic and historical circumstance.

Canada is remarkably fortunate in its geography. Three oceans, one of them the inhospitable Arctic, have long shielded us from the depredations of invaders. Moreover, the vastness of the country and the perils of the climate make the prospect of a physical invasion of the Canadian land mass unlikely.

History has complemented geography to ensure Canada's insulation, though not isolation, from conflict. Canadians have the longest undefended border in the world — separating them from the single neighbour with an adjoining land mass. That this neighbour is our closest ally and also the world's pre-eminent military power provides its own form of protection, if not always of sovereignty. Thus, Canada has enjoyed the luxury of development virtually without intrusion.

Not surprisingly, then, Canada is a peaceable kingdom. Although large numbers of Canadians have served valiantly and with great purpose and effect in wars overseas, it has always been as part of a larger whole. They have played their part, but they have never taken the leading role, nor have they ever sought to act alone. Yet while Canada has no imperial or expansionist ambitions, it is not without ambition. Canadians have played their part because they believed the cause was just and their security was at risk, and because they desired a role on the larger stage.

Consequently, the army has been used not to defend Canadian territory so much as to assist elsewhere. Nowhere has Canada's internationalist ethic been more clearly displayed than in the activities of its army. While Canada's involvement in the North Atlantic Treaty Organization (NATO) is not large in military terms, when compared to the sum total of the Canadian armed forces, the contribution is very significant. Similarly, Canada's consistent policy of support for peacekeeping, the desire to do "our bit" and the justifiable pride this brings both to our soldiers and to ordinary Canadians is indicative of a national attitude. It is borne of a conviction that Canada's security ultimately depends on the maintenance of a peaceful international order and, therefore, that service abroad is an appropriate role for the armed forces, particularly the army, which complements Canadian diplomatic efforts within the multilateral arena.

The single drawback to this approach is that commitments grew to outweigh capabilities. It is this anomaly that the Special Committee has sought to address. This report will discuss current planning for the land forces in considerable detail and will elaborate the Committee's views of how they should be shaped in the future. Accordingly, it is helpful to review in broad outline the major events in Canadian defence policy since the Second World War, as they pertained to the land forces, in order to have a better appreciation of the current situation.

By the end of World War II, Canada's overseas land force was a field army comprising two corps of three infantry and two armoured divisions, in addition to several independent brigades. There was also a home defence force of three divisions. Following the war, the decision to rely on collective security arrangements through NATO resulted in a requirement for substantial forces in being, as opposed to depending on the quick mobilization of the Militia in a time of crisis. Thus began the gradual decline in the size and capabilities of the Militia which decreased from approximately 60,000 in the early 1950s to 24,000 by 1963.

During the same period, because of Canada's decision in 1951 to provide an army division to NATO's central front in Europe as well as Canadian involvement in all of the UN peacekeeping missions, the Regular army's strength reached some 50,000 personnel organized in four brigade groups and a variety of other units and installations. The prevailing wisdom was "that any future war would be fought with standing regular forces, would in all likelihood be nuclear, and that mobilizable reservists would not be required because the outcome would be decided quickly."[1]

In March 1964 the newly-elected government of Lester Pearson issued a White Paper on Defence which initiated the unification of the forces. The Canadian army ceased to exist as a separate entity and became the land element of the Canadian Forces in 1967.

> While the combat components of the army, that is the infantry, armour and artillery, remained unchanged by and large in function and in their organization, the integrity of the army system and its command structure were radically altered. The army general staff was abolished and the combat service support elements...were replaced by a Canadian Forces unified system.(1:18)

One of the principal reasons given for unification was to streamline defence operations and thus permit a greater proportion of the defence dollar to be spent on capital equipment. The 1964 White Paper stated:

> integration will result in a substantial reduction of manpower strengths in headquarters, training and related establishments, along with other operating and maintenance costs. The total savings to be effected as a result of such reductions

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1. *Proceedings* of the Special Committee of the Senate on National Defence, 5 May 1987, p. 1:18. The historical overview draws heavily from testimony by General Paul Manson, Chief of the Defence Staff, on 5 May 1987. Henceforward all references to the Proceedings will be incorporated in the text immediately following the reference. In this case, it would be shown as (1:18), that is the issue number followed by the page number.

> will make available funds for capital equipment purchases....Sufficient savings should accrue from unification to permit a goal of 25 per cent of the budget to be devoted to capital equipment being realized in the years ahead.[2]

In fact, for reasons unrelated to unification, just the reverse occurred. During the 1970s, capital expenditures as a percentage of the defence budget dropped to their lowest level in decades.

In April 1969, Prime Minister Pierre Trudeau announced changes in defence policy which had a major effect on the land forces. It was decided to reduce the troops in Europe by roughly half. The land element was shifted to southern Germany and co-located with the air element, with headquarters in Lahr. In 1971 a new Defence White Paper elaborated on these changes as well as giving greater emphasis to the protection of Canadian interests at home as a way of "fostering economic growth and safeguarding sovereignty and independence."[3] It was also proposed that the Europe-based land force be reconfigured to give it a higher degree of mobility and greater compatibility with Canada-based forces — in short, "a lighter, more mobile land force capable of a wide range of missions."[4] This involved, among other things, plans to abandon the main battle tank — a policy which, in fact, never materialized.

Yet, combined with a three-year budget freeze for the Canadian Forces from 1969 to 1972, which resulted in the reduction of the regular army from 45,000 to 25,000 and of the Militia from 24,000 to 13,000, these changes, according to the former Chief of the Defence Staff General Paul Manson, "were felt by many to be the nadir of the Canadian army in the post World War II era." The General told the Committee:

> it was evident that mere survival would be the order of the day for the army, and to retain some vestige of a credible combat system, brigade groups were sharply reduced in scope and capability to smaller combat groups. The latter were very much ad hoc organizations, and incapable of meeting the needs of modern high intensity combat, such as would be found in Europe....Although the main battle tank was reinstated for the European forces, little was done to rectify the organizational anomalies in the army, which were compounded at the time by personnel shortages.(1:20-21)

Complicating this picture was the Canadian Air-Sea Transportable (CAST) commitment to send a brigade group to north Norway in time of crisis which had been accepted in 1969. The result, in the General's words, was "fragmented and understrength land forces assigned to a rather broad number of disparate missions."(1:21) The coherence and effectiveness of land force resources — their ability to meet the variety of requirements demanded of them — had become open to question. In broad terms, this was still the predicament of the Canadian land forces when the 1987 Defence White Paper was produced.

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2. Government of Canada, *White Paper on Defence*, March 1964, p. 19.
3. Government of Canada, *Defence in the Seventies*, August 1971, p. 32.
4. *Ibid.*, p. 35.

This report examines the current situation, including both the proposals set out in the White Paper and what is known of the effect of the 26 April 1989 budget cuts. The Committee is concerned that the cutbacks and the delays in procurement were dictated primarily by budgetary pressures rather than following systematically from a review of defence needs. This conclusion is supported by the government's insistence that the 1987 White Paper and the strategic context in which it was prepared remain unchanged and that the White Paper's announced goals have been merely extended. In fact, the budgetary squeeze has occurred at a time when the threat in Europe appears to be changing. The government did not justify any of its cuts on grounds of a change in the international situation. However, the remarkable shift in Soviet pronouncements on security issues, and the growing body of tangible evidence by way of troop and equipment withdrawals are inevitably having a dramatic effect on perceptions of the Soviet threat within the Western alliance.

Changing perceptions of the risks and opportunities lead naturally enough to new thoughts about the role that Canada plays in Europe and the specific commitments of Canadian forces to that continent. During the course of our report, the Committee seeks to lay out potential new roles for Canada's land forces that we believe warrant careful consideration in the light both of the changing strategic situation and the constraints of government spending. It follows that any new role that might in time be adopted by the government will, in turn, entail new structures for the forces and new equipment more appropriate to their revised tasks. The Committee also attempts to describe these considerations in the following pages, at least in broad outline.

In Chapter II, the Committee analyzes the current strategic context. It portrays the new era that seems to be emerging in East-West relations and the consequences that a changed relationship could have for the military balance in Europe. It also reviews recent developments in arms control and discusses Canada's potential contribution.

Chapter III describes the technological and tactical context: how new technology is changing the face of the modern battlefield, and what the Soviet and NATO responses have been. Both of these initial chapters focus almost exclusively on the European and strategic situation and the general requirements of land combat forces.

Chapter IV is also descriptive, but with the focus on Canada's own land forces. Current organization is explained, as are land force roles and new structures. This chapter also discusses other questions such as manpower and training issues.

Chapter V is devoted to the Reserves, including the Cadets and Rangers. It provides details of the Total Force Concept which seeks to integrate the Regular and Reserve forces.

Chapter VI is entitled Canadian Forces Europe and is divided into two parts. The first part looks at commitments to Europe prior to the 1987 White Paper as well as the changes outlined in the White Paper. The second part outlines possible alternative roles in Europe in the light of recent developments.

Chapter VII concerns the territorial defence of Canada: the threat and defence of Canada operations.

Chapter VIII outlines current and potential peacekeeping commitments. It also elaborates on the problems and benefits of peacekeeping to the land forces.

Chapter IX examines the equipment and funding needs of the land forces. It considers current equipment, projects underway and future requirements as well as their cost implications and suggests how the government should handle equipment purchases for the land forces in this time of uncertainty.

Chapter X pertains to mobilization and supply questions. These include the need for an effective mobilization capability which embraces such issues as immediate mobilization, supply and sustainment, and defence industrial preparedness.

Chapter XI reviews the army and society and includes sections on aid to the civil power and assistance to civil authorities; the role of women; emergency powers and other questions that pertain to society as a whole.

Finally, Chapter XII discusses the various policy options for Canada as part of the conclusion to the report.

Chapter II

THE STRATEGIC CONTEXT

A New Era

The 1980s may be remembered as a watershed era in East-West relations. The enormous changes that were introduced in the Soviet Union did more than catch foreign observers by surprise; they exploded old certainties and dashed conventional expectations with such swiftness that everything previously taken for granted between East and West appeared to be in flux. In this chapter, the exclusive focus will be on changes in the Soviet Union and their ramifications since it has been that superpower's relations with Europe on both sides of the "Iron Curtain" that have chiefly defined the dynamics of the larger East-West balance.

No part of the world has been unaffected by the consequences of Mikhail Gorbachev's accession to power in the Soviet Union. President Ronald Reagan of the United States, who at the beginning of the decade described the Soviet Union as an "evil empire," ended his term on a genuinely hopeful note — after concluding one of the most important bilateral treaties since arms control negotiations began between the superpowers. The refreshing new Soviet appreciation for reasonable negotiation and the peaceful settlement of disputes has had a positive influence in opening the door to resolution of such far-flung regional conflicts as Afghanistan, Angola, and Cambodia. It has given new momentum to the United Nations. And it has challenged the broad policy consensus that has been shared by all members of the NATO alliance.

For the NATO alliance, the testing decade will be the 1990s. NATO, in the words of Professor Fen Hampson of Carleton University, "is entering a period of deep structural crisis."(13:13-14) The roots of the crisis can be traced to the changing perceptions of the severity of the Soviet threat, of the concept of flexible response, and of the credibility of the American nuclear guarantee.

In the first instance, the Gorbachev revolution is altering the Alliance's fear of the Soviets. Changes in Soviet rhetoric are one thing, but when they are accompanied by clear shifts in policy, the impact is bound to be significant, particularly in Europe which had grown accustomed to a rigid, even sclerotic, Soviet foreign policy. Gorbachev has spoken of the need for a more defensive posture for Soviet military forces. This has been followed by a string of arms reduction proposals and initiatives as well as an announcement by Gorbachev in January 1989 that by 1991 the Soviet Union would reduce its military budget by 14.2% and arms production by 19.5%. On 30 May 1989 a figure for total defence

spending was disclosed of 77.3 billion rubles (Cdn. $155 billion) that is comparable to, although still less than, most Western estimates.[1] A recent joint report to the U.S. Congress by the Central Intelligence Agency and the Defense Intelligence Agency indicated that Gorbachev would have strong incentives to keep defence spending down at least through the period of the 13th Five-Year Plan (1991-95). The stated intent of the Soviet leadership is to transfer the freed-up resources to civilian uses, particularly to overcome severe shortages in consumer goods. The report noted, however, that only about a third to one-half of the 14.2% reduction could be accounted for by savings associated with the announced unilateral cuts in conventional forces, the withdrawal from Afghanistan and the scrapping of intermediate-range missiles under the Intermediate-range Nuclear Forces Treaty. It concluded that there were powerful pressures and constraints impelling the Soviet leadership to reach more money-saving arms control agreements with the West.[2] This appeared to be confirmed by Soviet Premier Nikolai Ryzhkov who on 7 June 1989 declared that his government intended to continue steadily cutting the military budget until at least 1995, reducing its share of the national income by one-third to one-half.[3]

The credibility of flexible response has also diminished in the aftermath of the Intermediate-range Nuclear Forces Treaty of December 1987, which will eliminate an entire class of land-based nuclear weapons — the intermediate range, from 500 to 5,000 kilometres. Flexible response was formally enunciated in the 1967 NATO policy statement MC 14/3 as a result of the deliberations of the Harmel Committee.(13:14) It has two aspects. The first is that NATO must be able to respond to an attack at any level of conflict with proportional force. In other words, conventional forces must be available to respond to a conventional attack, or limited nuclear forces to respond to a limited nuclear attack. The second aspect is that NATO must be prepared and able to escalate the conflict at will and maintain "escalation dominance" — escalate faster and further than the opponent is willing to risk — even if that involves being the first to use nuclear weapons.

Flexible response was intended to raise the nuclear threshold by having adequate conventional forces to sustain conflict at the conventional level if necessary. Lieutenant-General John Vance, then Vice Chief of the Defence Staff, told the Committee, "It also introduced an important element of uncertainty into the mind of any potential aggressor."(2:6) But the strategy meant different things to different people. The Europeans interpreted it as meaning NATO would go nuclear early in a conventional conflict, which would deter the Soviets from starting the conflict in the first place. The Americans, on the other hand, saw it as meaning NATO would not have to go nuclear early, but would have time to think about it. As Fen Hampson observed, "flexible response was a document cloaked in ambiguity, but an ambiguity that everyone could live with quite happily."(13:14)

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1. Bill Keller, "Gorbachev Urges a Postponement of Local Voting," *The New York Times*, 31 May 1989, p. A1.
2. *The Soviet Economy in 1988: Gorbachev Changes Course*, a paper presented by the Central Intelligence Agency and the Defense Intelligence Agency to the National Security Economics Subcommittee of the Joint Economic Committee, Congress of the United States, April 1989, pp. 9-13.
3. Bill Keller, "Soviet Premier Says Cutbacks Could Reach 33% for Military," *The New York Times*, 8 June 1989, p. A1.

The Intermediate-range Nuclear Forces Treaty undermines flexible response by eliminating a whole level of responses. Paul Buteux, a political scientist at the University of Manitoba, remarked that the Intermediate-range Nuclear Forces agreement put "the final nail in the coffin..."(13:9) Its conclusion can be seen in the context of the growing allergy to nuclear weapons that has surfaced in the last decade. Although flexible response remains official NATO strategy for the time being, its value as a strategic concept is less valid than it used to be.

Meanwhile, criticism of the continued pertinence and efficacy of the American nuclear umbrella over Europe has gained momentum. In recent years, there have been growing concerns about the legitimacy and even the value of nuclear weapons. A number of leading political figures in the West have cast doubts on their military utility — on whether nuclear weapons would ever be used. In the aftermath of the Intermediate-range Nuclear Forces Treaty, many now favour an agreement on strategic nuclear systems (those with ranges beyond 5,000 kilometres), suggesting as much as a 50% cut by either side. Others push for elimination of shorter-range nuclear weapons which are considered a major peril by many Europeans. NATO has approximately 3,200 such theatre nuclear systems in Europe while it is estimated that the Warsaw Pact has over 8,900.[4] On 30 May 1989 NATO's foreign ministers agreed that, while NATO should continue to depend on nuclear weapons for its security, negotiations could begin to achieve a partial reduction of short-range land-based missiles to "equal and verifiable levels," once implementation of an agreement on conventional force reductions was underway.[5]

One of the most difficult questions concerns the depth and durability of change within the Soviet Union. There is little doubt about the determination of President Gorbachev and his supporters to pursue far-reaching reforms and restructuring of the Soviet economy. This, in turn, is fostering calls for reduced military spending and changes in strategy; it is in the reformers' interest to release resources for the civil sector. Yet the enormity of their task gives pause to Western observers; a healthy dose of scepticism is in order before rushing to any final judgements about the future of Soviet-Western relations. The Secretary-General of NATO, Manfred Wörner, in a speech in Brussels earlier this year, reflected on the future tasks of the Alliance.

> The suppositions on which our Alliance policy has been based for the past four decades have not so much disappeared, as become blurred. As a result we can confidently state that the old, post-war European order is on its way out; but not so fast that we can yet distinguish the contours of the new as it appears in the distance.

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4. The breakdowns provided by the German Ministry of Defence, July 1987 in *Force Comparisons 1987 NATO — Warsaw Pact* were as follows: on the *NATO side*, 144 F-111 aircraft, 1,800 F-104, F-4, F-16 and Tornado aircraft, 88 Lance missiles and 1,200 155mm and 203mm artillery projectiles; and on the *Warsaw Pact side*, 360 Badger, Blinder and Backfire aircraft; 4,000 Fitter, Fishbed, Fencer and Flogger aircraft, 140 SS-21 and 635 FROG missiles and 3,800 152mm, 203mm and 240mm artillery projectiles.
5. "Excerpts from Joint Communiqué by Leaders at NATO Summit Meeting," *The New York Times*, 31 May 1989, p. A15.

Mr. Wörner went on to warn:

> a robust defence is not required only for abstract deterrence. We have to consider the possibility — however much we wish otherwise — that reform in the East will go wrong, and that the Soviet leadership, present or future, will come under intense pressure. It will remain for some time to come a small leadership, in absolute control, and thus liable to change course unpredictably. Should we allow our defences to rust away, a stressed Soviet leadership might be tempted to abandon an approach that we have finally persuaded them to take, and to return to political intimidation.[6]

While recognizing this as a transitional period in East-West relations, Wörner argues for prudence. The Committee agrees with Wörner and sees merit in suspending judgement until the situation, which is extremely fluid at present, has evolved. Yet suspending judgement should not be construed, at least in Canada's case, as strict adherence to the status quo. It does not imply that all decisions should be held in abeyance until the situation has clarified. For one thing, that process might take far longer than many observers anticipate. For another, opportunities might be lost for Canadian contributions to the process of change.

In the short term, NATO's and Canada's overriding priority should be the conventional balance of forces in Europe, or rather the lack of balance. The challenge must be to reach a satisfactory and, it is hoped, far-reaching agreement with the Soviet Union on conventional arms reduction and control. But also in the short term, Canada should seize this window of opportunity and thrust it open to new concepts for its armed forces both in Canada and abroad.

Balance of Forces in Europe

A number of independent institutions or agencies of various governments attempt to provide objective assessments of the balance of forces in Europe. Their efforts do not prevent a wide divergence of views and interpretation. The difficulties lie in the enormous complexity and variation of the objects under analysis and the constant danger of comparing dissimilar things or of not including intangible but conceivably critical elements. Admiral Robert Falls (retired), a former chairman of NATO's Military Committee, cited the different structure of military formations in the two alliances; the difficulty of comparing weapons of a generic type with wide ranges in capability; as well as intangible but crucial factors such as morale and training.(12:7)

Roger Hill, the research director of the Canadian Institute for International Peace and Security, added his own qualifications: different geographic bases can result in substantially different figures; so can the inclusion or exclusion of reserve divisions (some of which change their posture from active to reserve annually); as can the calculation of reinforcement time by Soviet divisions in the western Soviet Union.(12:15-16)

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6. Manfred Wörner, "The Future Tasks of the Alliance," 1989 Quadrangular Forum, Brussels, 31 March-2 April 1989, pp. 1 and 4.

The reliability of Warsaw Pact allies is another uncertainty. Soviet specialist Carl Jacobsen mentioned the conclusions of a major study funded by the Department of National Defence which analyzed Soviet attempts to integrate East European with Soviet forces.

> ...attempts to integrate have had little success in terms of reliability, certainly anywhere near the front lines. It is doubtful that the Soviets would consider more than, say, about five divisions as being reliable.
>
> ...there are other divisions that would be reliable enough farther back in the rear, especially those sandwiched between Soviet forces.(13:7)

Yet despite the difficulty of arriving at a definitive conclusion about the different force strengths, the proximity of the two sides' current reduction proposals makes the need for such a conclusion somewhat less relevant. Indeed, even before the growing consensus which has characterized recent developments in conventional arms control, Admiral Falls cited the 1986-87 appraisal of the International Institute of Strategic Studies, the IISS, namely:

> The military balance is such as to make military aggression a highly risky undertaking. Though tactical redeployments could certainly provide a local advantage in numbers sufficient to allow an attacker to believe that he might achieve limited tactical success, there would still appear to be insufficient overall strength on either side to guarantee victory. The consequences for an attacker would be unpredictable, and the risks, particularly of nuclear escalation, incalculable.(12:8-9)

The Committee found this judgement persuasive. It also notes the vast sums of money devoted to maintaining the European balance — well over 50% of world military expenditures.(12:11) To many, this fact is cause enough for seeking change and reason enough to explore the prospect for reductions.

Recent Developments in Conventional Arms Control

The prospect of substantial reductions in conventional forces and armaments in Europe has rarely, if ever, seemed brighter. The recent preoccupation with conventional arms is not surprising. Roger Hill pointed out that many Western European leaders are concerned that "if the nuclear balance is further reduced, then in fact NATO will be left at the mercy of a Warsaw Pact preponderance in conventional forces."(12:12) The challenge unquestionably is to achieve an equitable balance of conventional forces in Europe.

Conventional force reductions in Europe had been the subject of negotiations at the Mutual and Balanced Forces Reduction (MBFR) talks since 1973. There have been no breakthroughs since that time, although a great deal of useful exploratory work was accomplished. The first sign that the Soviet Union was prepared to abandon the rigid negotiating stance that it had favoured in the MBFR process came early in 1986, when Gorbachev suggested a wide range of verification measures for arms control agreements, including on-site inspections. Later in a speech in East Berlin in April 1986, the Soviet leader proposed new negotiations for substantial reductions of conventional weapons and forces "from

the Atlantic to the Urals" — a much wider area than the MBFR talks had covered, including more than a 1,000 kilometres into Soviet territory. This proposal was further elaborated by the Warsaw Pact in the Budapest Appeal of 11 June 1986 which outlined a timetable for reductions.

After careful reflection, NATO foreign ministers responded to this spate of new proposals by issuing the Brussels Declaration on 11 December 1986 which signalled the West's readiness to discuss enhancing conventional stability in the whole of Europe. The Declaration underlined the military imbalance and asymmetries between East and West and identified basic objectives which would need to be agreed in a mandate for negotiations.[7]

While this mandate was under discussion, there were other arresting developments on the Soviet side. On 10 April 1987 General Secretary Gorbachev signalled that the Soviet Union would be willing to address the crucial problem of the European imbalance in conventional forces by finally acknowledging:

> There is a certain asymmetry in the armed forces of both sides in Europe due to historical, geographic and other factors. We are for redressing the imbalances that exist in some of the elements — not through a build-up by the party trailing behind, but through a build-down by the one that is ahead.[8]

On 7 December 1988, in an address to the UN General Assembly, the Soviet leader unveiled a plan for unilaterally cutting and restructuring the armed forces, both in Eastern Europe and the U.S.S.R. Over the subsequent two months, all six Warsaw Pact allies announced cutbacks in their own forces, equipment and defence spending.[9] See Table 1 on page 13.

According to U.S. defence analyst Phillip Karber, "the significance of what Gorbachev announced at the UN was the specifics....There is a level of detail in the announcement of the reductions that they have heretofore never been willing to give us."(1989, 2:15) The details included troop cuts of 500,000 by December 1990, from a total force of about 5.2 million. The cuts involve 240,000 personnel in the European U.S.S.R., 200,000 in the east and 60,000 in the south. Fifty thousand are to be removed from East Germany, Czechoslovakia and Hungary. In addition, 10,000 tanks are to be removed from service, 5,300 of them from Eastern Europe. Six tank divisions are to be withdrawn from Eastern Europe, along with a number of river-crossing and air-assault units. Other reductions are shown in Table 2 on page 14. The Soviets have also provided unusually detailed schedules of precise reductions planned for Eastern Europe, the first of which occurred on 25 April 1989 with the withdrawal of 31 tanks from Hungary.

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7. Jonathan Dean, "Military Security in Europe," *Foreign Affairs*, Fall 1987, pp. 31-2; Karl-Heinz Kamp, "Perspectives on Conventional Arms Control in Europe," *Aussen Politik*, volume 38, no.4, 1987, pp. 332-3.
8. Mikhail Gorbachev "For a Common European Home for a New Way of Thinking," Czechoslovak-Soviet Friendship Meeting, 10 April 1987.
9. Phillip A. Karber, *The Gorbachev Initiatives: Implications for the Military Balance in Europe and Prospects for Conventional Arms Control*, The BDM Corporation, 9 May 1989, pp. 15-16.

TABLE 1
NON-SOVIET WARSAW PACT DEFENSE REDUCTIONS

NATION	DEFENSE SPENDING CUT	MANPOWER	UNITS	EQUIPMENT
GDR	10% (by 1990)	10,000 Troops (6% reduction)	Withdrawn from 6 unspecified tank regiments, 1 unspecified squadron of aircraft	Equipment associated with units to be specified later totalling: 600 tanks* (20% reduction) 50 aircraft (14% reduction)
CZ	15% (by 1991)	12,000 men active service 15,000 reserves. Transfer of 20,000 active duty personnel to construction brigades	(divisional and regimental tactical training sessions are being reduced by 50% and combat fire by 25-30%)	850 tanks*, 165 armoured vehicles, 51 fighter aircraft Equipment for 3 other unspecified divisions put in storage, personnel shifted to "other duties"
PO	4% (from 7.7% to 5.5% of state budget)	Up to "Tens of Thousands" depending on international situation. Assertion of previous cut of 15,000 troops	(including 2 motorized rifle divisions) in 1987, 1988. Proposed elimination of 2 divisions and 85% in 2 additional divisions in 1989	Unspecified
HU	17%	9,300 (mostly enlisted) servicemen 2,100 senior and junior officers (8.8%)	According to defense Minister F. Karpati, an unspecified number of "tank brigades and fighter aircraft squadrons will be dismantled"	From unspecified units: 251 tanks*; 30 APCs 430; artillery pieces (including 180 anti-tank weapons); 9 fighter-interceptor aircraft
BU	12%	10,000 men	5 Naval units	200 tanks*, 200 artillery pieces, 20 aircraft
RO	5% (1986)	Unspecified	Unspecified	Unspecified

* Unknown as to whether these tanks will be withdrawn from active or reserve units.

Source: Phillip A. Karber, *Soviet Implementation of the Gorbachev Unilateral Military Reductions; Implications for Conventional Arms Control in Europe*, The BDM Corporation, testimony before the U.S. House of Representatives Armed Services Committee, 14 March 1989, p. 9.

In the meantime, an agreement was concluded between the 16 members of NATO and the 7 members of the Warsaw Pact on 10 January 1989 to commence the Negotiation on Conventional Armed Forces in Europe. Its mandate is to:

> ...strengthen stability and security in Europe through the establishment of a stable and secure balance of conventional armed forces...at lower levels; the elimination of disparities prejudicial to stability and security; and the elimination, as a matter of priority, of the capability for launching surprise attacks and for initiating large-scale offensive action.

At the same time, it was also agreed to establish a separate set of negotiations as follow-on talks to those conducted in Stockholm between 1983 and 1986 by the Conference on Disarmament in Europe on confidence- and security-building measures.

TABLE 2

CENTRAL EUROPE: FOCUS OF GORBACHEV REDUCTIONS

	Central Europe	Atlantic to Urals Warsaw Treaty Org.)	Soviet Union
Manpower Cuts	50,000 (8.9%)	240,000 (10%)	500,000 12%
Division Cuts	6 tank divisions (20%)	— —	— —
Tanks	5,300 Cut (51%)	10,000 Cut (20%)	— —
Artillery	N/A N/A	8,500 Cut (14.8%)	— —
Combat Aircraft	260 N/A	800 Cut (11%)	— —
	• Most Specific Detail: —Units —Location —timing • OMG Identification • Gorbachev is doing it exactly like we would want him to	• Publishing of WTO Data Base • Ambiguity in: —Units —Types of equipment —subsequent disposition	• 14.2% Defence Spending Cut • Withdrawal of 75% of Assets in Mongolia • High Uncertainty in: —Weapons Modernization —Production Levels —Armament Totals —Unit Restructuring —Draft System —MD Organization —Civilian Authority over Ministry of Defence

Source: Phillip A. Karber, *Soviet Implementation of the Gorbachev Unilateral Military Reductions: Implications for Conventional Arms Control in Europe*, The BDM Corporation, testimony before the U.S. House of Representatives Armed Services Committee, 14 March 1989, p. 2.

The Stockholm Talks had successfully concluded a set of confidence- and security-building measures in September 1986 meant to increase openness and predictability in the conduct of military affairs. The first multilateral East-West security agreement since 1975, it was signed by the 35 nations of the Conference on Security and Cooperation in Europe (CSCE), representing both East and West including Canada, as well as most of the neutral and non-aligned states of Europe. Among its accomplishments are: the lowering of thresholds for notification of military activities to 13,000 troops or 300 tanks, and the extension of advance notification to 42 days; mandatory invitation of observers to military activities involving 17,000 or more troops; and the right of on-site inspection, without a right of refusal, to verify compliance.[10] Another important provision is for no-notice inspections which give either side the right to conduct an inspection with roughly 48 hours' notice. There have been several of these since the Stockholm Agreement came into effect on 1 January 1987 in addition to numerous observations of exercises by both sides.(14:16)

The conventional arms talks between the member countries of NATO and the Warsaw Pact states started in Vienna on 6 March 1989. The initial object of the negotiation from the Western perspective was to reduce Warsaw Pact superiority in main battle tanks, artillery and armoured vehicles. At the time of writing, negotiating positions were already fairly close on all of these major equipment systems. Table 3 on page compares the two sides' proposals. NATO countries are seeking that withdrawn equipment be destroyed. NATO heads of government also accepted, on 30 May 1989, the longstanding Soviet contention that aircraft and manpower should be part of the negotiation. NATO proposed reductions by each side to equal ceilings at a level 15% below current holdings of helicopters and of all land-based combat aircraft in the Atlantic-to-the-Urals zone, with all the withdrawn equipment to be destroyed. The United States also proposed a 20% cut in combat manpower in U.S. stationed forces and a resulting ceiling of approximately 275,000 on U.S. and Soviet ground and air force personnel stationed outside of national territory in the Atlantic-to-the Urals zone. This ceiling would require the Soviet Union to reduce its forces in Eastern Europe by some 325,000. Withdrawn forces on both sides would be demobilized.

Under the NATO plan, all types of combat aircraft deployed by Western and Soviet-bloc forces on land would be limited. This would include defensive interceptor planes since the Alliance believes that the Soviet bloc has an advantage in the total numbers of planes in Europe. The Warsaw Pact, however, is emphasizing aircraft that are used to strike ground targets, an area in which the Soviets insist the West holds an advantage.[11] This is simply one of the areas of contention which may delay progress in the conventional arms talks that U.S. President Bush has urged be concluded by June of 1990 with implementation by 1992 or 1993. In fact, given the complexity of the systems involved, the speed with which an agreement can be reached may be somewhat slower, notwithstanding the extraordinary progress that has taken place in the first six months of 1989.

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[10] C.A. Namiesniowski, "The Stockholm Agreement: An Exercise in Confidence Building," Canadian Institute for International Peace and Security Background Paper No. 14, September 1987, p.1.

[11] Michael Gordon, "Bush Gives Allies Plan for Cutting GI's and Aircraft," *The New York Times*, 29 May 1989, p. A1.

TABLE 3

CONVENTIONAL ARMS CONTROL TALKS IN EUROPE: FORCES AND PROPOSALS
(Atlantic to the Urals Area)

		Current Forces		Proposals	
		NATO	WTO		
Tanks	NATO count	22,224	57,300	NATO:	20,000 each
	WTO count	30,690	59,470	WTO:	20,000 each
Artillery Pieces	NATO count	17,328	46,270	NATO:	16,500 each
	WTO count	57,060	71,465	WTO:	24,000 each
				(different definitions of this category)	
Armoured Vehicles	NATO count	39,500	93,400	NATO:	28,000 each
	WTO count	46,900	70,330	WTO:	28,000 each
Troops	NATO count	2.2 million	3.1 million	NATO:	275,000 U.S. + Soviet troops in Europe. No overall limit.
	WTO count	3.6 million	3.6 million	WTO:	1.35 million troops each. 350,000 each in Europe.
Aircraft	NATO count	3,977	8,250	NATO:	each side limited to 15% below current NATO level for all types.
	WTO count	7,130	7,876	WTO:	limit strike aircraft only to 1,500.
Helicopters	NATO count	2,600	3,800	NATO:	15% below current NATO level.
	WTO count	5,270*	2,785*	WTO:	limit of 1,700.

* includes naval helicopters

Source: The New York Times, 30 May 1989 based on The Brookings Review; International Institute for Strategic Studies, "The Military Balance 1988-89," "Conventional Forces in Europe: The Facts," NATO November 1988; Statement by the Committee of Ministers of Defence of the Warsaw Treaty Member States, January 1989.

Canada's Contribution

The parallel negotiations, on confidence- and security-building measures and on conventional arms, are expected to be enormously influential in determining the future shape of Europe's political and security system, the fulcrum upon which the general East-West balance of forces is based. It is essential for Canada not merely to be represented at the table, but to be an active, conscientious and knowledgeable participant. Professor Paul Buteux remarked:

> given the continuation of the Canadian direct commitment to Europe, it is very important for Canada to ensure that the necessary resources, in terms of expertise and personnel, are provided. By that, I mean there must be enough people in [the Department of National Defence] and in the Department of External Affairs who know what they are talking about in order to make an impression on their counterparts in the Alliance. I think that, if influence is sought through this commitment, then there must be the will, both bureaucratic and political, to ensure that Canada continues to generate the necessary expertise.(13:12-13)

At present, Canada has a single staff officer in Ottawa devoted to conventional arms control within each of the two departments, External Affairs and National Defence, although External Affairs was expected to have a couple by the end of 1989. It also maintains a small verification unit which is extremely valuable, but which lacks a staff person specifically dedicated to the conventional arms negotiations. The entire National Defence staff in the Directorate of Nuclear and Arms Control Policy, covering the gamut of strategic, tactical and conventional issues, consists of four persons. There is no one, for example, specifically dedicated to implementation of the 1986 Stockholm Agreement on confidence- and security-building measures despite the fact that External Affairs Minister Joe Clark declared it "a landmark achievement which could serve as a productive precedent for other arms control negotiations."[12] Such staffing arrangements within the Department of National Defence on arms control issues may have been adequate a decade ago, but are far from sufficient today.

At the same time, Canada has a six-person mission based in Vienna to cover both sets of negotiations. This leaves the staff in Ottawa, which often needs to take the lead in policy decisions, at a disadvantage. Indeed, in general these resources are insufficient given the number of international meetings involved, the amount of paperwork, and the sheer arduousness of what, in Roger Hill's estimation, are emerging as "one of the most complex sets of negotiations undertaken in history [which] will make the strategic arms negotiations look a bit like Sunday School...."(12:17-18)

One prediction that can be made with certainty about the outcome of the Vienna talks is that there will be a far greater demand than ever before for adequate verification, as the surest way to build confidence between the two blocs. Verification is both costly and labour-intensive. Yet it is an area in which Canada has developed an impressive body of expertise, although greater resources will be required to make an effective Canadian contribution to NATO and to a sustainable arms reduction regime in Europe.

The Committee recommends that:

i) **an interdepartmental arms control verification unit be organized, with External Affairs as the lead agency, but to operate in collaboration with National Defence and other relevant departments;**

ii) **the Departments of External Affairs and National Defence commit sufficient additional personnel to ensure that Canada is well represented, both on-site and in-house, in the Negotiation on Conventional Armed Forces in Europe and the parallel negotiations on Confidence- and Security-Building Measures between East and West;**

iii) **the verification unit should train additional personnel to be able to perform inspection and observation roles once a conventional arms control regime has been finalized since verification measures are certain to be a major ingredient of any agreement; and**

iv) **adequate resources should also be devoted to verify other potential future bilateral and multilateral arms-reduction agreements such as that pertaining to chemical weapons.**

Additional personnel would provide Canada with the opportunity to deal with the existing issues and developments adequately and to devote effort to formulating distinctive and innovative approaches that would enhance the Canadian contribution both to NATO and to a more secure world.

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[12] Speech by Secretary of State for External Affairs to 41st session of UN General Assembly, 24 September 1986, *The Disarmament Bulletin*, Winter 1986-Spring 1987, p. 4.

Chapter III

THE TECHNOLOGICAL AND TACTICAL CONTEXT

Central Europe is the site of the greatest aggregation of military might — in troops and armaments — anywhere in the world. That such a concentration has persisted without engagement since the Second World War is one of the central paradoxes of the postwar period — and, to many thoughtful observers, the principal reason that peace has been maintained. However, in the new era that has emerged since Gorbachev's accession to power, the likelihood of a major confrontation between East and West seems increasingly remote. Nevertheless, the Committee believes it important to review the major trends in battlefield technology and tactics in order to explain current military planning by both the Warsaw Pact and NATO in the unlikely event that a worst-case scenario should occur. The following chapter attempts to provide such a review.

The Nature of the Modern Land Battlefield

The advance of military technology has greatly altered the nature of the battlefield for the individual. The increased lethality of modern weaponry over larger and larger areas, culminating in the awesome destructive potential of nuclear munitions, has required greater dispersion of troops around the battlefield and has placed a premium on the ability of soldiers to conceal themselves and their activities. The added mobility conferred by improved engines, wheel and track systems, and advances in vertical and short take-off and landing aircraft and helicopters has led to a lack of recognizable frontlines. The modern soldier in high-intensity battle can expect to be alone or in small groups much of the time. Major-General Gordon Kitchen (retired), former Defence Coordinator of the Cabinet Committee on Foreign and Defence Policy, noted:

> Field Marshal Slim often argued cogently that a nuclear battlefield would put a premium on initiative down to the lowest level, thus resembling jungle warfare and stressing survivability in conditions of maximum confusion.(17:10)

In addition, the development of effective active and passive vision devices, enabling the soldier to see clearly through smoke on the battlefield, at night or in inclement weather, have made it possible to conduct operations 24 hours a day, 7 days a week. As a result of such intense activity, stress and psychological disorders would likely be commonplace. At the same time, increasingly sophisticated weapons and equipment demand a high degree of technical competence from the modern soldier.

A number of witnesses observed that, whereas the air force and the navy centre their attention on large and complex weapons systems such as ships and aircraft, the army is a blend of weapons systems and manpower.(1:15, 2:12; 10:8) In essence, the number of large capital-intensive weapons systems determines the size of the air force and navy, while the number of men determines the size of the army. This is sometimes summed up in the phrase, "The air force and navy man equipment, while the army equips the man."

However, as C.R. Nixon, former Deputy Minister of National Defence, observed, because land warfare has become a battle of machines, the army is no less dependent on equipment than its sister services.(23:7-9) These machines are becoming increasingly specialized in their roles and a land force must have a balanced inventory to accomplish its tasks. As General Manson put it:

> The situation is very much like a symphony orchestra. Unless all the required instruments are in place, well tuned and conducted with skill, the performance is going to suffer accordingly.(1:15)

The land forces, then, are a system of integrated parts. These parts, also known as arms of service, are usually grouped into three categories: 1) the combat arms (also known as "teeth arms") such as armour, infantry, artillery and air defence; 2) the combat support arms, such as signals, engineers, surveillance and aviation; and 3) the combat service support arms (also known as the "tail"), such as medical, supply and maintenance.

As well as being in place, all these parts must operate in a coordinated fashion using combined arms (or "all-arms") tactics. Each arm must fulfil its role as the land force moves "...around the battlefield to counter, to block and best the enemy and seize the initiative."(17:11) Lieutenant-General John Vance summarized the army formation as:

> an integrated, robust, flexible and durable system, not unlike an aircraft or ship in some respects. If it cannot move, shoot and communicate well, neither brigade nor ship nor fighter aircraft are in the end of very much use.(2:12)

The advance of technology has ensured that the land battle can no longer be conducted in isolation from other combat activity, particularly the air battle and the battle for the electromagnetic spectrum. Greater mobility from improvements in aircraft technology has already been noted. Sophisticated airborne radars and cameras have enhanced surveillance and reconnaissance capabilities well beyond normal eyesight. In addition, aircraft are able to deliver vast quantities of munitions onto targets at great speed and with considerable precision using automated optical and laser guidance technologies, anti-tank guided weapons and fuel air explosives in rocket warheads.[1] The United States has recognized the vital interrelationship of air/land operations by designating their most recent operational concept the Air Land Battle. A major role of tactical air forces is to create the conditions to maintain or restore the initiative. As Major-General Kitchen stated:

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[1] Fuel air explosive warheads disperse a gas cloud after the warhead bursts. This gas is exploded by a delayed action fuse a few seconds later, creating a fiery shock wave which covers a large area completely.

> The synergistic effects of proper air/land co-operation in high-intensity war provide the ultimate force multiplier to counteract the weaknesses. Nothing is more important.(17:9)

The various frequencies, both visible and invisible, of heat and light provide opportunities for communication, surveillance and reconnaissance. These frequencies are known as the electromagnetic spectrum. The isolation and dispersion of the modern soldier referred to earlier requires effective electronic communications for information and data-sharing to ensure coordination. Surveillance and reconnaissance can be assisted by ground-, air- and space-based radars and infrared systems. Electronic support measures monitor uses of the spectrum through passive devices to collect information and electronic counter-measures seek to jam or deceive the enemy through active emissions. This creates a need for electronic counter-counter-measures to reduce, in turn, the enemy's ability to interfere with the electromagnetic spectrum. Thus another complex and largely invisible battle, often referred to as electronic warfare (EW), takes place concurrently with land and air operations on the modern battlefield.

The advance of military technology also ensures that individuals and machines destroy each other at unprecedented rates. In terms of conventional warfare, perhaps the greatest change in this regard has been the advent of the missile as a primary weapon system. Admiral Falls commented:

> the last Egyptian-Israeli war...proved indisputably that the next war, even if it is fought with conventional weapons, will be a deadly and disastrous war mainly because of the accuracy and firepower of missiles. Nothing will be safe, tanks, airplanes or ships. If it gets to be a good full scale conflict...it will be a very bloody one indeed....(12:24)

Advances in guidance technology, to the point where self-guiding "fire-and-forget" systems are now in operation, have resulted in a situation where anything that can be detected can be hit. Similarly, advances in penetration and explosive technologies have ensured that anything that can be hit, can be destroyed. Furthermore, technologies of mechanization and automation, such as automatic loading and multiple launch systems, entail the expenditure of munitions at unprecedentedly high rates. These factors, plus the necessarily long production times of increasingly sophisticated weapons systems, require great quantities of munitions and equipment to be available for the sustainment of conventional operations. Logistical factors have always been important in war, but they have become even more critical in modern war.

If modern conventional warfare will be more destructive than ever before, the possibilities of nuclear, biological or chemical warfare would make a bad situation orders of magnitude worse. The unknowns would predominate in high-intensity war under such conditions. Major-General Kitchen observed:

> if we ever have to fight in a major theatre under [nuclear, biological and chemical warfare] conditions, what happens will most assuredly not bear much relation to what the experts predicted. If we get into it expecting it to be intense it may well turn out to be absolutely horrific, beyond our wildest expectations, as Nagasaki and Hiroshima were to the Japanese authorities.(17:7)

Miniaturization has allowed nuclear and chemical munitions to be made smaller and smaller, increasing the number of systems that can be used to deliver them. These now include mines, artillery, surface-to-surface (SSM), surface-to-air (SAM), and air-to-surface (ASM) missiles, rocket launchers and aircraft. Effective equipment does exist to protect the individual in the form of suits, gas masks, and other kit, while modern vehicles can be sealed to provide additional protection. Nevertheless, personal equipment cannot be worn indefinitely; it is hot, bulky and restrictive. The decontamination of personnel, equipment and territory which have been exposed to nuclear, biological or chemical attack is difficult and requires substantial specialized equipment and manpower. Operational efficiency would be seriously degraded in such an environment, while the treatment of casualties would be a nightmare.

At present, the most likely danger is from chemical weapons. The destructive potential of nuclear weapons ensures a high degree of deterrence, while biological weapons were outlawed by the 1972 Biological Weapons Convention and are sufficiently unpredictable to be of questionable military use. The use of chemical weapons is banned by a 1925 Geneva Protocol, but they have been employed several times in recent years, notably during the Iran-Iraq war, though always against opponents who were unable to respond in kind.(17:26) The Protocol does not prohibit the manufacture and stockpiling of such weapons and there is a significant imbalance in chemical warfare capability between the East and the West. The Soviet Union possesses large, modern stockpiles of at least 50,000 tonnes, and extensive protection and decontamination equipment. The United States has a small, ageing stockpile which it has just begun to modernize. NATO forces, including Canada, have protective equipment of varying degrees of effectiveness, but limited decontamination capability.

Negotiations on the elimination of chemical weapons have been proceeding at the 40-nation Conference on Disarmament in Geneva since 1968. Progress has been made and a number of areas of substantial agreement exist, including processes for the identification and destruction of stockpiles. In January 1989, 149 countries condemned chemical warfare at an international conference in Paris in reaction to Iraqi use of chemical weapons against civilians and promised never to use chemical weapons and to inspire the continuing work of the Conference on Disarmament. Yet key issues such as what constitutes a chemical weapon, when and how they should be destroyed, and how violations should be monitored remain unresolved. An encouraging breakthrough was Soviet acceptance in August 1989 of an American demand that inspections of chemical weapons stockpiles be carried out before an agreement is formally concluded. This permits data to be exchanged and confirmed prior to the establishment of a verification regime.[2]

Canada is involved in these negotiations as a member of the Conference on Disarmament, even though it has no chemical weapons, and is concerned to achieve a global, comprehensive and effectively-verifiable convention. To this end, considerable research is conducted in Canada on verification techniques and technologies, and a recent Canadian working paper submitted to the Conference on Disarmament in March 1988 concerns verification personnel and resource requirements.

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2. Michael R. Gordon, "Kremlin Accepts Early Inspection on Chemical Arms," *The New York Times*, 3 August 1989, p. A1.

New Technologies

Improvements in military technology are essentially intended to achieve two things. The first is to enhance certain characteristics of existing or traditional types of weapons systems to render them more capable of accomplishing intended roles. The second is to develop new types of weapons systems to address new roles or traditional roles in new ways. This second aspect has been highlighted in recent years because nuclear weapons "...have been marginalized."(13:10) Their immense destructive capacity prevents their being usefully employed within friendly territory, or if an opponent can respond in kind.

Attention has been directed, therefore, towards so-called emerging technologies that will permit conventional weapons to supplant some of the roles that were previously the exclusive domain of nuclear weapons. These roles are twofold: to destroy targets which are difficult to hit or destroy, such as hardened command facilities hundreds of kilometres behind the battle area, and to destroy large numbers of targets, such as tanks in mass formations.

To accomplish the first role — the destruction of difficult targets — technologies are being developed to identify and precisely locate such targets, to improve long-range delivery systems such as cruise missiles, and to increase destructive potential through improved conventional munitions — warheads which disperse large numbers of smaller munitions over the target area — and fuel air explosives.

Fulfilling the second role — the destruction of large numbers of targets — involves technologies which improve existing weapons systems' ability to perform their traditional roles. The first need in this regard is for improvements in the ability to detect targets, to distribute information about those targets, and to coordinate responses as fast as possible. In a combat environment in which what can be detected can be hit, and once hit, destroyed, the side which detects and decides how to hit first will have the edge. Moreover, if that side can sustain its performance, it will probably win. This need can largely be met by exploiting the electromagnetic spectrum. Improved detection systems include remotely piloted vehicles, such as were used with great success by Israel in Lebanon's Bekaa Valley, and NATO's E-3A Airborne Warning and Control Systems (AWACS).(17:10) Communication and coordination are enhanced by systems such as the U.S. Joint Tactical Information Distribution System and NATO's Tactical Fusion Centre programme.

Once the target is located, the aim is to destroy it by coordinating mobility and firepower. But since the enemy does not await his fate passively, friendly systems must also be protected from enemy responses. Yet the more heavily protected and armed a system is, the less mobile it is likely to be. Thus dedicated weapons systems often incorporate two characteristics at the expense of the third. Portable anti-tank guided weapons and attack helicopters, for example, are mobile and have considerable firepower, but are not well protected, while field fortifications are well protected with powerful firepower but are immobile. Nevertheless, General Manson noted:

> The one weapon that best combines all these characteristics and is considered by all armies to be essential to the successful prosecution of any land forces engagement in Europe, whether offensive or defensive in nature, is the tank.(1:26)

New tank technologies seek to enhance mobility, firepower, and protection, and minimize the trade offs among them. Protection is improved and made lighter through composite armours incorporating aluminium and ceramics in place of steel. Mobility is increased through new types of suspension, more powerful engines, increased amphibious capabilities and the use of larger vertical short take-off and landing aircraft, capable of transporting vehicles. Firepower is improved by developing larger guns with longer ranges, improved guidance technologies and new ammunition types, such as long-rod penetrators.[3] Improvements have been dramatic. The modern tank, with its 120 millimetre gun, possibly firing anti-tank guided missiles as well as a full range of shells, mounted in a stabilized turret, aimed with the help of a laser rangefinder and ballistic computer, protected by composite and possibly reactive armour, and powered by engines generating up to 1,500 horsepower, is a significantly more capable vehicle than its predecessors of only 10 years ago.[4] On the other hand, Carl Jacobsen commented that the greatest possible technological sophistication is not necessarily desirable if it leads to weapons systems that are "...oversophisticated, have not been tested sufficiently, and break down in combat conditions."(13:21)

Soviet Responses

The Soviets are faced with all the problems posed by the nature of modern warfare as well as broad technological inferiority vis-à-vis the western powers. However, by concentrating resources on defence production, the Soviets have successfully reduced the extent of the technology gap. Indeed, in relation to Canada, the latest Soviet equipment is significantly better than current Canadian inventories.(3:14) In addition, they have improved their cumbersome command, control and tactical systems to make better use of their new weapons systems. Nevertheless, according to the Congressional Office of Technology Assessment, the United States retains a marked advantage across the spectrum of more important military technologies.(13:21)

The Soviets recognize the potentially devastating nature of even a battlefield nuclear war, and so, since the mid-1960s "Soviet military art [has] reflect[ed] the political necessity not to allow a war to turn nuclear."(17:18) Maurice Tugwell, Director of the Mackenzie Institute for the Study of Terrorism, Revolution and Propaganda, described possible Soviet operations to minimize this risk:

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3. Long rod penetrators are long, thin projectiles made of very dense metals. They are fired by conventional guns and penetrate armour through force of impact.
4. Reactive armour, carried on the outside of a tank's armour, explodes outward if struck by an anti-tank missile, blunting the missile's ability to penetrate the tank. It does appear to be vulnerable, however, to anti-tank weapons which rely on penetrating rods and perhaps to anti-tank missiles launched from above, for example, by helicopter. It is also dangerous to supporting infantry.

> deception; intimidation; attack without warning, possibly in the let-down period immediately after a confrontation from which the west had just demobilised; Spetsnaz[5] operations in NATO's depth, including Canada....Blitzkrieg tactics would also be employed, and Soviet forces in central Europe are now configurated [sic] for their use. These involve airborne landings in depth, probably on NATO flanks, helicopter landings in the operational area and deep penetrations by operational manoeuvre groups.(17:18)

The Soviets accept that even conventional warfare is likely to be immensely destructive. They maintain large reserve stocks of war materials, and even though much of it dates back to the 1940s and 1950s, it is thought that the Soviets could sustain their forces in battle for at least 60 days.

The emphasis in Soviet offensive operations has been on surprise, deception and speed. They would have the advantage of the initiative; the choice of time, form and principal lines of attack. To this might be added the shock impact of surprise in an effort to achieve overwhelming force. A concentration would aim to break holes in the crust of NATO defences through which highly mobile, mechanized operational manoeuvre groups or second echelon forces would be sent deep into NATO rear areas. Six major strategic corridors have been identified as likely focal points for their efforts: the North German Plain above and below the Luenburger Heath, the route to the Ruhr via the Kassel-Dortmund Autobahn, the Fulda Gap to Frankfurt-am-Main, the Nuernberg approach through Bavaria, and the Danube approach towards Munich, or possibly through Austria.(17:8)

More recently, as part of Gorbachev's "new thinking" in foreign and defence policy, the Soviets appear to recognize the destabilizing nature of their highly offensive doctrine. By putting a premium on surprise and speed, Soviet offensive doctrine encourages each side to begin a war in a crisis situation to avoid being preempted by the other, thereby paradoxically increasing insecurity rather than security.(1989: 2:15) New Soviet *declaratory* doctrines presented since 1986 place more emphasis on defensive operations.(1989: 2A:4) In addition, the withdrawals of Soviet troops and equipment from eastern Europe announced in December 1988 include the pull-back of some highly offensive forces such as the tank divisions of operational manoeuvre groups, and the restructuring of remaining forces into more defensive configurations.[6] These processes are, however, only in their earliest stages, and it is difficult to measure the extent of Soviet sincerity and progress.(1989: 2:16)

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5. "Spetsnaz" or "spetznaz" operations refer to the tactics of Soviet special purpose forces, similar to the U.S. special force or the British SAS, which operate in small groups behind enemy lines with the aim of attacking vital military and political targets such as headquarters, communication centres, airfields, fuel supplies, ammunition, particularly nuclear, stocks, nuclear launchers, etc., and hindering or preventing mobilization.
6. Phillip Karber, *The Gorbachev Initiatives: Implications for the Military Balance in Europe and Prospects for Conventional Arms Control*, BDM International Inc., 9 May 1989, p. 13.

NATO Strategy

The aim of NATO strategy has been to deter the Soviet Union and its allies or satellites from launching a military attack of any sort — conventional or nuclear — against Western Europe, and by extension, North America. The present strategy to achieve this is flexible response, which was described in the previous chapter.

The operational doctrine by which NATO plans to execute the conventional phase of flexible response is forward defence which is focused on the inner-German border. Enemy attacks must be halted as close to the inner-German border as possible, before they can penetrate into any of the six strategic corridors identified earlier. The distance from the border to the Rhine varies from 450 kilometres to as little as 150 kilometres. This is particularly important in northern and central Germany, which is essentially "open" country, suited to armoured and mechanized forces such as Soviet operational manoeuvre groups, though it is obstructed by low hills, and urban areas. Elsewhere, as Major-General Kitchen noted:

> In the south the outcrops and the great Alpine mass begin to dominate the terrain and restrict mobility. West Germany has a dense network of high-quality roads, extensive canal and barge systems, railways, bridges, autobahns, airdromes and other important infrastructure of military significance. Entry into Italy and Southern Europe is strictly controlled by the tunnels through the Alps. About 30% of West Germany is intensely forested and about 10% is urban, making offensive operations that [much] more difficult. Fortune favours the audacious defender.(17:8)

The need to defend on the border and along the whole length of the front to counter possible Soviet concentrations at any point has stretched NATO conventional forces to the utmost. In addition, reserves would be needed to counter Soviet airborne or heliborne assaults in NATO rear areas, as well as to contain deep thrusts by operational manoeuvre groups. This is because the increased mobility of modern land forces has reduced the operational significance of battlelines and the forward edge of the battle area in favour of the "deep" or "total" battlefield. A French Corps is stationed in Germany which could be expected to assist NATO in the event of war. The theoretic ability to respond anywhere within the Central Army Group area has enhanced the importance of Canada's commitment to Central Army Group as a dedicated reserve formation in place and available to conduct counter attacks and blocking operations against Warsaw Pact forces that might have penetrated the forward defence.

In order to minimize the problems caused by a lack of strategic depth, and to make use of emerging technologies, NATO has begun to look into so-called "deep attack" strategies such as Follow-On Forces Attack (FOFA). FOFA was nominally accepted as an operational concept in the context of forward defence by NATO in 1984, though with little apparent result so far.(13:10) It has envisaged extending the battle area into Warsaw Pact territory by means of advanced radar and target acquisition equipment and intermediate and short-range missiles and aircraft in order to attack second and subsequent echelon forces before they have been committed to battle. A number of systems related but not exclusive to FOFA

are deployed or under development. FOFA is not a new mission, but has provided increased emphasis on interdiction of the enemy's rear areas. Some critics have argued, however, that in creating the appearance of an offensive strategy — by planning to attack Warsaw Pact forces deep in their own territory — FOFA is largely incompatible with many proposals for conventional arms control and confidence-building in Europe.(13:12)

The final element of NATO conventional operational doctrine has involved a recognition of the need to sustain conventional warfare for a period of time to make flexible response workable. The present criterion is that NATO nations must be ready for 30 days of war, in terms of manpower, war stocks and ammunition, which compares unfavourably with the Warsaw Pact estimated capability of 60 days.[7] Such calculations are, of course, highly dependent on the intensity of the fighting. A unit is considered to lose coherence after suffering 30 to 40% casualties. At present NATO would anticipate sustaining between 1-3% casualties per day. If 5-6% of a force were lost per day, however, accumulated casualties would mount to over 35% within a week.

Within NATO strategic and operational concepts, each nation has been responsible for developing its own operational doctrine for how its forces fight. NATO has striven to achieve what is called interoperability by stipulating standardized doctrine for joint operations, but because of national prerogatives and realities, full interoperability is difficult to achieve. In Canada, the process for determining future doctrine disappeared in 1968 with the integration of the forces and was only reintroduced in 1976. It was not until 1981 that the Combat Development Process was officially approved as a planning guide for land forces development.(2:7) Lieutenant-General Vance described how the process works:

> The staff examines current and future aspects of the threat, technology, non-military factors, and so on, against existing organizations and doctrine. They propose changes which are then subjected to validation that involves wargaming, empirical analysis, some field tests, and so on. The results are then presented to the senior leadership of the Army for approval. When approval is obtained, appropriate war establishments and equipment programs are drawn up. (2:8)

As far as the Canadian land forces are concerned, the Combat Development Process has identified four combat tasks to be executed in any land battle. These are 1) guarding, 2) hitting (the basic tasks necessary to destroy the enemy and hold ground), 3) forming a reserve and 4) reinforcing (the tasks necessary to prepare for the unexpected and to exploit success). The army has concluded that four combat components are necessary at most levels of organization to achieve these tasks.

The Combat Development Process covering the 1986-95 timeframe was completed in 1984 and a new effort covering the 1996-2005 period is well underway. Eleven combat functions are now being analyzed to determine the most effective organizations, equipment and doctrine to deal with the threat in the future in the overall context of combined arms tactics. These are: command and control; close combat; fire support; engineer and mine warfare; aviation; communications; electronic warfare; intelligence; air defence; nuclear, chemical and biological defence; and combat service support.

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7. U.S. Department of Defence, *Soviet Military Power 1988*, p. 91.

Beyond the Central Front

The discussion up to this point has been oriented towards the NATO-Warsaw Pact confrontation on the Central Front, essentially West and East Germany and Czechoslovakia. This is the area where the highest intensity warfare could be expected. There are other areas of confrontation in Europe, however, including areas where Canadian troops might be deployed, such as Norway and Denmark. There are also the strategic rear areas of NATO not only in Europe, but as remote as Canada itself. In these areas, warfare would be waged at different intensities and possibly with different key technologies than those employed on "the deep battlefield" of the Central Front. Colonel A. Tattersall, Director General, Military Engineering Operations, pointed out:

> Our country is vast, sparsely populated and does not have an abundance of road and rail networks in the north....our climate is not always hospitable and simple operations are often difficult to execute in the north. Winter Arctic operations are complex and trying for both personnel and equipment....80% of our energy is expended just to survive in the north, leaving only 20% to fight an enemy.(7:8)

Geography, in the sense of weather as well as topography, plus a lack of infrastructure are the fundamental factors in conventional warfare outside the Central Front region. The intensity and extent of the battlefield would depend on the number and types of weapons systems that can be physically deployed and sustained in the face of potential enemy responses. Key conventional technologies behind the front lines of the Central Front and in regions such as north Norway or Canada include detection, communication and rapid data-transmission technologies to ensure speedy responses; rapid mobility technologies, such as vertical short take-off and landing aircraft and helicopters; and highly portable advanced weapons, such as light anti-tank guided missiles and pack howitzers. North Norway would not see large-scale armoured warfare, because tanks lack the mobility to deal with mountainous terrain crossed by numerous unbridged watercourses. Similarly, Canada would not be subjected to large-scale ground invasion because of the tremendous difficulty Soviet forces would face sustaining large numbers of troops at great distances against even quite weak Canadian and American air and naval forces operating relatively near their own bases.

Chapter IV

THE CURRENT LAND FORCES

Canada's land forces are in transition. Their current structure is undergoing immense changes, the course of which were laid out in the 1987 Defence White Paper, but which the 1989 budget cuts have thrown into some uncertainty. The most far-reaching change is the Total Force Concept which entails substantial integration of Regular with Reserve forces in an effort to expand the capabilities and mobilization of the Canadian army. There are other modifications as well that will be described later in this chapter. The first step toward understanding how the land forces will differ in the future is to survey their current scope and structure.

Current Mobile Command Structure

Canada's land forces consist of the personnel under the authority of Force Mobile Command, plus the land components of Canadian Forces Europe and the Canadian Forces Communication Command. Force Mobile Command can be divided into four components:
1) infrastructure;
2) field formations;
3) army reserves; and
4) additional units under Force Mobile Command.

There were 49,058 personnel under Force Mobile Command on 31 May 1989. Table 4 provides a breakdown of the personnel.

a) Force Mobile Command Infrastructure

Force Mobile Command's infrastructure consists of a headquarters, bases, schools and regular support staff. The **headquarters** is at Canadian Forces Base Montreal, located at St. Hubert, Quebec.

There are eight **bases** located at Canadian Forces Bases Calgary, Suffield, Shilo, London, Petawawa, Montreal, Valcartier, and Gagetown. Canadian Forces Base London will close by 1992. Canadian Forces Bases Calgary, Petawawa, and Valcartier are the headquarters for 1 Canadian Brigade Group, the Special Service Force, and 5 Groupe Brigade du Canada respectively. Canadian Forces Bases Shilo and Suffield are training bases for Canadian troops, as well as for

contingents of West German and British soldiers under NATO agreements. In addition to housing Force Mobile Command Headquarters, Canadian Forces Base Montreal is also used for training while Canadian Forces Base Gagetown is the home of the Combat Training Centre which provides extensive training for the artillery, infantry, and armoured personnel.

The **schools** under Force Mobile Command are described in the section on Training, later in this chapter. In brief, they comprise four battle schools, each associated with a particular regiment; the Combat Training Centre mentioned above; and the Canadian Airborne Centre at Canadian Forces Base Edmonton which is responsible for all training associated with airborne operations. The **Regular Support Staff** refers to Regular Force personnel assigned to Reserve units for training purposes.

b) Field Formations

The major components of Force Mobile Command are its field formations. They consist of three brigade groups, 1 Canadian Brigade Group, 5 Groupe Brigade du Canada and the Special Service Force. All three field formations contain combat units, combat support units, and combat service support units.

1 Canadian Brigade Group and 5 Groupe Brigade du Canada both have five combat units (three infantry battalions, an artillery regiment, and an armoured regiment), two combat support units (a combat engineer regiment and a signals squadron), and three combat service support units (a service battalion, a field ambulance unit and a military police platoon). While the Special Service Force has identical numbers and types of combat support and combat service support units, it has only four combat units — an airborne regiment, an infantry battalion, an armoured regiment, and an artillery regiment.

1 Canadian Brigade Group's units are based across Western Canada from Canadian Forces Base Esquimalt to Canadian Forces Base Winnipeg, though the infantry battalion at Winnipeg (2 Princess Patricia's Canadian Light Infantry) will be moved to Edmonton starting in 1990. After that, the unit stationed furthest east will be at Canadian Forces Base Shilo (3 Royal Canadian Horse Artillery). The Special Service Force is based at Canadian Forces Base Petawawa, except for one infantry battalion (1 Battalion, The Royal Canadian Regiment) now based at Canadian Forces Base London and scheduled for relocation to Petawawa by 1992. 5 Groupe Brigade du Canada is based in francophone Canada with units located from Canadian Forces Base Valcartier to Canadian Forces Base Gagetown.

Each infantry battalion based in Canada is composed of: battalion headquarters; three infantry companies; a support company comprising an armoured defence platoon with eight TOW 2s (tube-launched, optically-tracked, wire-guided anti-tank missile), a mortar platoon with eight 81 milimetre mortars; a reconnaissance platoon, and a pioneer platoon. Battalions are equipped with M-113 armoured personnel carriers, Grizzly armoured vehicles general purpose or trucks, depending on their role and geographical location. **Canada-based armoured regiments** consist of: regimental headquarters; two squadrons equipped

with 18 Cougar armoured vehicles general purposes each; and a reconnaissance squadron of three troops each with seven Lynxs plus an assault troop. The **artillery regiments** of 1 Canadian Brigade Group and 5 Groupe Brigade du Canada are equipped with three batteries of six 155 mm self-propelled howitzers each, and an air defence troop with 20 Blowpipe missile launchers. The artillery regiment of the Special Service Force is equipped with one battery of six towed 105 mm howitzers, and one battery of six 105mm pack howitzers; it has no air defence troop. **The Canadian Airborne Regiment** consists of: three airborne

TABLE 4

FORCE MOBILE COMMAND CURRENT MANPOWER

Field Formations		
1CBG	4,393	
SSF	3,634	
5GBC	4,681	
Task Force	723	
Sub-Total	13,431	
Infrastructure		
FMC headquarters	562	
Schools	1,511	
Bases	6,920	(about 60% civilian)
Regular Support Staff	929	
Sub-Total	9,922	
4 Air Defence Regiment	585	
4CMBG	4,174	
Sub-Total Regular	28,112	
Primary Reserves		
Atlantic Area	3,699	
Secteur de l'Est	5,259	
Central Area	7,449	
Prairie Area	2,732	
Pacific Area	1,807	
Sub-Total	20,946	
Grand Total	**49,058**	

Source: Department of National Defence, 31 May 1989.

commandos, which are essentially large infantry companies; a reconnaissance platoon; an armour defence platoon; and a mortar platoon. Because of restricted regular force manning establishments all Canada-based army combat units are short a squadron, battery, company or engineer troop with the exception of 2 Royal Canadian Horse Artillery and the Airborne Regiment.(10:7)

c) Army Reserves

The third component of the Force Mobile Command structure is the Primary Army Reserves, also known as the Militia. There are land force components of the Supplementary Reserves and of the Cadets, but they are not under the authority of Force Mobile Command. Chapter V is devoted to the Reserves.

d) Additional Units under Force Mobile Command

The last component of the Force Mobile Command organizational structure consists of the additional units under its command or control. The largest of these is the 10 Tactical Air Group which is under its operational control. It comprises three tactical helicopter squadrons (located at Canadian Forces Bases Edmonton, Petawawa, and Valcartier, under the operational control of the brigade group headquartered at each base); two transport helicopter squadrons (at Canadian Forces Bases Edmonton and Ottawa); and a helicopter operational training squadron (at Canadian Forces Base Gagetown). There are also two Air Reserve Wings within 10 TAG, each of two squadrons: 1 Air Reserve Wing stationed at Canadian Forces Base Montreal and 2 Air Reserve Wing at Canadian Forces Base Toronto.

There are a number of other field units under Force Mobile Command. For training purposes, C Squadron of the Royal Canadian Dragoons, 22 Field Engineering Squadron, and 119 Air Defence Battery are under the command of the Combat Training Centre at Canadian Forces Bases Gagetown and Chatham. C Squadron and the Armour School operate the only Leopard tanks in Canada. In wartime, 22 Field Engineering Squadron would provide division level engineering support for the Defence of Canada Task Force, while 119 would combine with 127 Air Defence Battery in Europe to provide air defence for the European force. The 1 Canadian Signals Regiment at Canadian Forces Base Kingston is tasked to provide communications for the European force and for the Task Force headquarters. It has Canada's only electronic warfare squadron, capable of identifying, intercepting and jamming enemy communications (see pp. 27-28). Force Mobile Command retains operational control of medical and dental units and detachments which support land forces bases, including a field hospital.

Canadian Forces Europe

Chapter VI of this report is devoted to Canadian Forces Europe. In brief, however, the land component of Canadian Forces Europe consists solely of 4 Canadian Mechanized Brigade Group, which contains four combat units — two mechanized infantry battalions, an artillery regiment, and an armoured regiment.

4 Canadian Mechanized Brigade Group also contains a combat engineer regiment, a signal squadron, a service battalion, a field ambulance and a tactical helicopter squadron. These units, except for one of the infantry battalions, are stationed at Canadian Forces Base Lahr in the southwest corner of West Germany, about 10 kilometres from the French border. The other infantry battalion is stationed at Baden Soellingen, 60 kilometres north of Lahr.

Canadian Forces Communication Command

The Canadian Forces Communication Command originated following integration of the Canadian Forces to provide centralized communications support for a single, unified force. In 1965 message handling systems of the three services were amalgamated into a hybrid network that includes message handling, telephones and other telecommunications services for the Department of National Defence as well as emergency government communications, direction finding and communications research. Canadian Forces Communication Command has 5,500 personnel consisting of 3,300 regular forces, 1,600 communications reservists and 600 civilians. There are two basic components: 6 communications groups which together span the entire country, and the Supplementary Radio System. The Supplementary Radio System consists of four Canadian Forces Stations — Alert, N.W.T.; Masset, B.C.; Leitrim, Ont.; and Bermuda. From the groups and the Supplementary Radio System headquarters, direction is passed to 16 Regular Force communications squadrons, five Supplementary Radio System units and two other stations, and 21 communication Reserve units. There are certain units as well that are part of NATO's integrated communications system.(8:6-7)

Land Force Roles

The Canadian land forces contribute in carrying out the four broad roles assigned to the Canadian Forces in general. These are: 1) defence of Canada, 2) defence of North America, 3) allied defence in Europe, and 4) peacekeeping.

1 Canadian Brigade Group is committed to three of the four Canadian Forces roles: broad responsibility for the defence of Canada; provision of units to combine with the Special Service Force in building a joint force for the defence of North America; and the supply of augmentation and sustainment troops to all Canadian forces in Europe in the event of hostilities. The latter would entail providing some or all of the approximately 1,400 troops needed to bring 4 Canadian Mechanized Brigade Group up to its war establishment strength. The remainder of 1 Canadian Brigade Group could be used for reinforcement .

One of 1 Canadian Brigade Group's infantry battalions is committed as a rapid deployment force to NATO, as is both one battery of its artillery regiment and the tactical helicopter squadron of 10 TAG assigned in support of the Brigade Group. These units, a battalion group of about 1,200, would join the Allied Command Europe (ACE) Mobile Force (Land) if it deployed to north Norway. If

the ACE Mobile Force (Land) were assigned elsewhere, then the battalion group could alternatively be deployed as part of the NATO Composite Force of units from West Germany, the United States and Norway that is being created to replace the CAST brigade commitment to north Norway.[1]

The Special Service Force is structured as a light, highly mobile, airborne and air-transportable formation whose task is to provide an immediate military response when needed. The Canadian Airborne Regiment can form the nucleus of an airborne battle group, which would include the elements of the Special Service Force's artillery, combat engineer, and service support units that have an airborne capability. This battle group is available for the defence of both Canada and North America, although its primary responsibility is the former. It also fulfils a Canadian commitment to provide a rapid-deployment force of battalion size for the purposes of peacekeeping.(16:12) Finally, one or more of the Special Service Force's combat units could be involved in the defence of North America under Canada-U.S. operational commitments.(3:17)

5 Groupe Brigade du Canada was to act as the CAST brigade to be deployed to north Norway in the event of a crisis. It was to be sent over before war began and would have taken some three weeks to get into position. The 1987 Defence White Paper announced the termination of the CAST commitment effective 30 November 1989. Thereafter, 5 Groupe Brigade du Canada's new role in the event of a crisis will be to deploy to NATO's Central Front, combining with 4 Canadian Mechanized Brigade Group to form a division.

Finally, Canada has accepted a number of commitments to provide personnel for peacekeeping operations in various parts of the world. Chapter VIII deals exclusively with peacekeeping.

The Future Structure of Canada's Land Forces

The 1987 Defence White Paper called for the integration of Regular and Reserve Forces into a Total Force Structure in order to help meet personnel requirements and to address some of the problems of conflicting responsibilities arising from multiple-tasking. The White Paper declared that the "distinction between Regular and Reserve personnel must be greatly reduced." The higher the state of readiness of a unit, the higher the percentage of regular personnel. Therefore, only 10% of the ACE Mobile Force (Land) battalion and only 8% of the Canadian Airborne Regiment will be reservists since both have a requirement for a very high state of readiness, while other brigade groups will have over 50% reservists.

The White Paper initiated further changes in Canada's land forces by consolidating Canadian forces committed to Europe and by transferring regional operations from other services to the army under a plan called Army Structure

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1. Department of National Defence, *News Release*, AFN:65/88, 24 June 1988.

2002. Another major change in that plan is the evolution from a brigade group to a divisional organization. The brigade group has been the standard organizational unit since the early 1950s. It differs from a brigade in that it ostensibly contains the support elements necessary for it to function independently in wartime. This entails a higher ratio of support to combat personnel than a normal brigade. Yet although a brigade group may be able to operate independently for a brief period, its relatively small size (roughly 6,000 personnel) limits its capacity to sustain operations beyond a few days.(2:11; 3:20) The brigade group structure also creates special problems for engineering and artillery units which are usually organized at the level of a division or a corps.(7:5)

The 1989-90 defence budget and current developments in Europe have cast serious doubts on the extent to which the Army 2002 plan will be implemented. It was scheduled to be complete by the year 2002, in line with the 15-year planning period contained within the White Paper.

Under Army Structure 2002, there would be four basic components of the Canadian land forces:

1) forces committed to Allied Command Europe (ACE);
2) forces for the territorial defence of Canada organized under a "Task Force";
3) readiness forces; and
4) infrastructure.(21A:1)

a) The Future in Europe

Under Army 2002 plans the brigade group structure in Europe would be eliminated and replaced by the 1 Canadian Division. The division would consist of three brigades — two mechanized infantry (4 Canadian Mechanized Brigade and 5 Brigade Mechanisé du Canada) and one artillery — as well as various combat support and combat service support elements. Both 4 Canadian Mechanized Brigade and 5 Brigade Mechanisé du Canada would consist of mechanized infantry battalions and armoured regiments. The artillery brigade would consist of two close support self-propelled artillery regiments, one general support regiment (with one battery of self-propelled guns and another battery of multiple-barrelled rocket launchers), and one air defence regiment. In effect, the current artillery regiments of 4 Canadian Mechanized Brigade and 5 Brigade Mechanisé du Canada would become the close support regiments of the new artillery brigade. While the 1989-90 defence budget has confirmed that both 4 Canadian Mechanized Brigade Group and 5 Groupe Brigade du Canada are tasked to the Central Front, they may not form the division as originally planned. A fuller explanation is provided in Chapter VI. The commitment of a battalion group to ACE Mobile Force (Land) or, alternatively, to the NATO Composite Force, will continue.

b) Future Territorial Defence

For the territorial defence of Canada, a Task Force structure could be created, also of divisional strength. It could consist of the Special Service Force (a brigade group), the Canadian Airborne Regiment as an independent formation, an infantry brigade group (12 Canadian Brigade Group), Task Force support

troops, and an aviation wing. The Special Service Force could be expanded to three mechanized infantry battalions, while retaining its armoured and artillery regiments. As a result of budget reductions, however, it may be that four Total Force brigade groups will be based in Canada. One would be 5 Groupe Brigade du Canada, tasked to Europe, and the other three, including 1 Canadian Brigade Group and the Special Service Force would form the "Task Force". One brigade group would be based in each of the four areas of the future geographical regional structure (see below).

c) Future Readiness Forces

Under Army 2002 plans, readiness forces would consist of three brigades, one regular (1 Canadian Brigade) and two reserve (the 11 and 13 Mechanized Brigades). They could provide either augmentation and/or readiness forces to all Canadian forces committed to Europe or to the defence of Canada. As a result of the budget, however, the three home defence brigade groups may be double-tasked to provide readiness resources, and the 11 and 13 Brigades may not be formed.

d) Future Infrastructure

A significant change to the land force infrastructure will be the reorganization required following the transfer of regional operations from other services to the army. Regional operations consist of aid to the civil power (which always involves armed troops, as in the case of an insurrection) and assistance to civil authorities, which involves emergency or disaster relief. Currently, a regional command structure consisting of five geographic areas is superimposed on five of the Canadian Forces's seven functional commands, namely: Force Mobile Command, Air Command, Maritime Command, as well as Maritime Command Pacific, and the Canadian Forces Training System. The regional commanders are double-hatted; in other words, regional command responsibilities are also given to the functional commanders. The Commander of Maritime Forces Pacific based at Canadian Forces Base Esquimalt is also the commander of the Pacific region (B.C.), the Commander of Air Command based at Canadian Forces Base Winnipeg commands the Prairie region, the Commander of Canadian Forces Training System at Canadian Forces Base Trenton commands the Central region (Ontario), the Force Mobile Command Commander is the Eastern region's commander (Quebec), and the Commander of Maritime Command at Canadian Forces Base Halifax is the commander of the Atlantic region.

To carry out regional operations, the necessary resources (all of which come from Force Mobile Command) must first be transferred to the regional command. With reorganization, this cumbersome procedure is avoided since all regional operations will automatically fall under the authority of the highest ranking Force Mobile Command officer in the region, thus eliminating the need to transfer resources. The number of geographic areas will be reduced by combining the Pacific and Prairie regions into a Western region. The resulting four areas will contain 15 Militia districts.

The task of guarding "military vital points" in a crisis will also fall under the rubric of infrastructure. The Reserves will have as one of their major roles responsibility for military vital points.[2] Another task could be to assist in guarding civilian vital points which are the responsibility of the Solicitor-General.

Also included under infrastructure, as before, will be the various schools such as the Combat Training Centre, the battle schools, the Canadian Airborne Centre, as well as a new northern training centre and new Militia Training and Support Centres.

Manpower Issues

An increase in manpower in Canada's land forces is planned to accompany restructuring. By 2000, Canada's land forces are expected to number more than 70,000 regulars and Primary and Supplementary Reservists.

Minor increases to the Regular Force may not address the persistent problem of multiple tasking that has undermined effectiveness in recent years. Multiple tasking is a general term which refers to the assigning of more than one operational task to a unit. It includes both double-tasking and double-hatting. Double-tasking is a practice whereby a unit is assigned two or more operational tasks in the hope that no two of them will arise simultaneously. For example, 1 Canadian Brigade Group is tasked to provide forces for Defence of Canada operations, and also for sustainment of Europe-based forces. If it is performing one task, it cannot perform the other. Aside from the obvious dilemma if the tasks occur at the same time, double-tasking also creates problems with respect to training.(1:21-22)

Double-hatting, which only affects combat support and service support units, also imposes serious strains. To deal with the shortfall following the government's 1971 decision to reduce Canadian Forces personnel, Force Mobile Command restricted personnel at major bases and gave service support personnel base support functions in addition to their field support tasks.(4:7) In short, in a deliberate effort to protect combat units from attrition, service support units bore the major burden of Canadian Forces reductions.(11:6) At first the solution appeared satisfactory because brigade level training exercises were limited and the proportion of experienced support personnel was high. But, according to retired Force Mobile Command Commander Lieutenant-General Charles Belzile, "as the tempo of brigade training necessarily increased...and as attrition decreased the numbers of seasoned army support personnel, a further degradation of our already marginal operational capability became evident."(4:7-8)

The effect of double-hatting on the Army's engineering units has been especially deleterious. Colonel A. Tattersall, Director-General, Military Engineering Operations, remarked that, in certain cases, "people are away from

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2. House of Commons Standing Committee on National Defence, *The Reserves*, June 1988, p. 14.

their prime units upwards of 250 days per year in order to perform" both of their assigned tasks. The problem became especially acute when Military Engineering Operations constructed 28 northern airfields for the Department of Transport in the early 1970s. Colonel Tattersall commented:

> We had field engineer troops...who virtually never saw the brigade with which they were supposed to be training for a full period of tour...because they were doing one thing at the expense of what they are in uniform to do: namely, to provide a credible army force trained for war.(7:15)

In 1980 the Task Force Review on Unification of the Canadian Forces (the Fyffe Report) found that by double-hatting "either the operational [field] requirements deprived the base of necessary support, or the base requirement denied support to the operational unit." Lieutenant-General Belzile testified that the Department of National Defence group which reviewed the task force report concluded:

> One, the operational effectiveness of the combat arms units and the brigade group as a formation is dependent upon the capability of the service battalion to provide essential combat service support. Any detraction from this capability has a correspondingly detrimental effect upon the combat capability of the brigade group as a whole; Two, double hatting establishes a conflict for personnel resources between brigade group combat arms units and the base, particularly when accompanied by manpower deficiencies; and Three, that double hatting is in direct contravention of the organizational principles which govern the structure of the Canadian forces. That is, one man, one job.(5:8-9)

The Committee recommends that the Department of National Defence reconsider the findings of the review group regarding double-hatting and examine its manpower requirements to beyond the year 2000 with a view to reducing incompatible double-hatting in both combat support and combat service support units. The Department should also find ways to address problems of incompatible double-tasking within the combat arms units of Canada's land forces.

Training Issues

One of the greatest challenges the land forces will face in implementing the Total Force Concept will be to improve the intensity and quality of Militia training. Accordingly, the last part of this chapter relates to current training practices in both the Regular Force and the Militia, as well as what will be required and what may be worth considering under the Total Force Structure.

a) Regular Force Training

Once a recruit is accepted into the Regular Force, his basic military training is conducted centrally under the Canadian Forces Training System. English-speaking recruits are trained at Canadian Forces Base Cornwallis, Nova Scotia, French-speaking recruits at Canadian Forces Base St. Jean, Quebec, and officer

basic training is conducted at Canadian Forces Base Chilliwack, British Columbia. Following the common phase of training, the basic occupation training paths differ, with those military occupations predominantly associated with the air, naval or army environments falling under the aegis of the command concerned. Common occupations across the environments such as administration, logistics, communications and electronics, medical and dental services, and security and intelligence are the responsibility of the Canadian Forces Training System.(7:23)

Combat arms training for Force Mobile Command is conducted at the Combat Training Centre at Canadian Forces Base Gagetown. The Combat Training Centre is organized in four schools: Armour, Field Artillery, Infantry and Air Defence Artillery (at Canadian Forces Base Chatham).

Once a recruit passes occupation training, he has reached the employable level and will be assigned to an established position in a unit. Individual training to improve or change a soldier's military occupation, or prepare him for promotion, continues throughout his career. Much of the individual training is conducted by the Canadian Forces Training System which, according to its commander, accounts for over 50% of the total Canadian Forces individual training effort. Airborne training is conducted by the Canadian Airborne Centre at Edmonton, Alberta. Combat arms training is conducted at the Combat Training Centre and Force Mobile Command's four battle schools, namely: the Princess Patricia's Canadian Light Infantry Battle School at Canadian Forces Station Wainwright, Alberta; the Royal Canadian Regiment Battle School at Canadian Forces Base Petawawa; the Ecole du Combat du R22eR at Canadian Forces Base Valcartier; and the Royal Canadian Artillery Battle School at Canadian Forces Base Shilo, Manitoba.

Unit and sub-unit training for the Regular Force are conducted in the unit. Brigade groups conduct collective training activities which culminate in annual brigade group concentrations.[3] There are exchanges with allied and friendly forces each year in Europe, Canada and elsewhere, and combined exercises with other commands. The peak of the training process is the biennial "Rendezvous" series of exercises, since 1981 usually conducted at Canadian Forces Base Wainwright. This is the only context in which the Canadian Forces operates at a level higher than the brigade group. The system has proved to be very effective, as Canadian regular soldiers are regarded among the best trained in the world.

b) Militia Training

The Militia recruits its own soldiers and conducts basic training in the Militia unit. Units usually train one or two evenings a week ("drill evenings") and/or on selected weekends. In addition, there are a variety of special training and advancement courses. Drill evenings concentrate on individual skills, while the weekends are used for sub-unit skills training and range work. The Militia conducts a few larger winter exercises usually involving sovereignty protection in the north.[4]

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3. Department of National Defence, *Defence 86*, (Ottawa: Supply and Service Canada, 1987), p. 32.
4. *Ibid.*, p. 36.

The summer is the peak period for Militia training, as that is when the students and teachers who make up the majority of the Militia are most readily available. Brigadier-General R. Beaudry, Director-General of Reserves and Cadets, described summer activities:

> Area rank and trade schools and national rank qualifying schools provide intermediate, advanced and technical training including officer courses to improve individual skill levels and to provide promotion qualification and leadership training. Militia concentrations are usually held in August at half-a-dozen regular force bases....Units try to send as many reservists as possible to these "MILCONS" as they are the highlight of the training year and provide more realistic subunit and unit training through the amalgamation of forces. During the last six years, attendance at these concentrations has averaged between 8,000 and 9,000 militiamen.(5:16)

The summer is also used to provide full-time recruit and basic trades training for approximately 4,000 students, formerly through the Summer Youth Employment Program which had been jointly funded by the Department of National Defence and Employment and Immigration. This funding has now been ended, but a similar programme will be undertaken by the Department of National Defence alone. The Militia provides augmentation troops, especially operationally tasked sub-units, to Regular Force exercises in Canada and abroad.

Although their training systems operate independently, the Militia trains with the same doctrinal material as the Regular Force with the aim of achieving a comparable level of training. The limited time available to train part-time soldiers, however, results in a considerably lower standard. John Marteinson, editor of the *Canadian Defence Quarterly*, remarked:

> I doubt that the average militiaman gets more than 60 days of training per year, including courses and field exercises. Most probably get even less. Even taken over a two year period — the average retention of a Militia soldier — that amounts to not more than six months training time, and most of that would be classroom as opposed to practical field training.(22:15)

In comparison, NATO nations generally consider one year of service a minimum in peacetime to produce an effective soldier.(22:16)

c) Total Force Training

Training will become more closely integrated under the Total Force with the aim of creating a single training system for the Regular Force and the Militia. Major-General Richard Evraire, then Chief of Land Doctrine and Operations, described the principles:

> For individual training, the focus will be on essential tasks. For junior non-commissioned members, it will be gaining practical experience. In collective training, major exercises will be timed so as to maximize participation at the peak of reserve force availability in the summer break period.(21:9)

A greater number of reservists will be included in Regular Force training courses, particularly at the non-commissioned and commissioned officer levels, but the principal vehicle for Total Force training will be the summer concentrations. As Major-General Evraire explained:

> These [summer] exercises will be designed to provide progressive command and leadership experience in the context of a total force structure, as well as...enhanced reserve force integration into meaningful and challenging operational tasks. From 1988 through 1992, the exercises will incorporate brigade group, task force and divisional training in territorial and NATO defence roles.(21:10)

Militia training and support centres are to be built with readiness and sustainability funds and equipped with battle group sets of equipment for combined arms training. One has been opened at Meaford, Ont., but plans for three others are currently on hold. As well, there is a plan to develop a northern training centre, probably at Nanisivik, Northwest Territories. This, when combined with the $13 million of winter equipment to be acquired in 1989-90, will allow year-round training for the Regular Force and Militia in all of Canada.

d) Training Deficiencies

The main deficiencies in Militia training are the administrative burden and a part-time approach which reduces training time, a lack of equipment for adequate training, and too much repetition of basics with little progression beyond. Alternative proposals emphasized the need to increase the intensity of training. Brigadier-General George Bell (retired), President of the Canadian Institute of Strategic Studies, suggested an expansion of the Youth Training Employment Program to provide one year's full-time training in military and trade skills to 10,000 unemployed youths on condition that they then join the Reserves for a time. This would provide a significant annual intake of trained reservists which would permit an expansion of the training base, and would provide a manpower pool in Canadian society for mobilization.(10:19)

Lieutenant-Colonel S.T. McDonald (retired), President of the Royal Canadian Artillery Association, suggested that an Army Training Command be formed to conduct all individual training for both the Regular and Reserve Forces. Recruits would be sent to basic training centres run by army training command for at least two weeks of initial training (as well as subsequent courses), rather than having it conducted in the unit.(11:17-19) Colonel Brian MacDonald, executive director of the Canadian Institute of Strategic Studies, and John Marteinson agreed and added that field operational training based on meaningful tasks, and within a meaningful Militia organizational structure, was the minimum requirement. They also pointed out that the Canadian Forces tries to produce competent all-round soldiers rather than concentrating on particular skills. While this is laudable in creating a flexible force, it greatly increases the amount of training time required by each individual. It was recognized, however, that centralizing Militia recruit training would involve recruits getting sufficient time off as well as transporting them to centres which could be quite distant from their units.

The Committee recommends that the Department of National Defence investigate measures to improve the quality of Militia training in general, and recruit training in particular. The Committee is concerned that the implementation of the Total Force Concept may encounter

difficulties if it vastly increases individual training time. The Committee recommends that the Canadian Forces concentrate on Militia training for particular skills especially since it is expected that skilled Militia specialists may be in far greater demand in any future land force structure.

Chapter V

THE RESERVES

Historically, the Reserves have formed the backbone of the Canadian Forces. Indeed, before 1939, the Regular Force never numbered more than 4,000 all ranks, except during the First World War. Yet the Militia reached 86,000 in 1938, its highest peacetime strength. Following the Second World War, the advent of nuclear weapons led to an emphasis on in-place forces as a war was expected to be over in days, if not hours, with a corresponding loss of interest in the Reserves. In the period 1946 to 1951, the active force became larger than the Reserves for the first time. Since then, the Reserves have continued to decline in numbers through several reorganizations.

Components of the Reserves

Currently there are four basic components which together are called the Reserves: the Primary Reserves, the Supplementary Reserves, the Rangers, and the Cadet Instructors List. At present, the Primary Reserves have a funded strength of 24,043, of which 17,144 are Militia, 3,760 are Naval Reservists, 1,150 are Air Reservists, 1,706 are with the Communications Reserve, and 283 are in the national infrastructure. The Primary Reserves provide 21% of the strength of the Canadian Forces. This proportion is quite out of line with other developed nations, which tend to have at least as many reservists as regulars. Some examples are provided in Figure 1.

In the light of a revised estimate that a conventional war in Europe could be protracted, the government undertook, as one of the pillars of its defence policy in the 1987 Defence White Paper, greatly to expand the Reserves, particularly the Primary and Supplementary components.[1] This chapter will focus on the land force component of the Reserves, the Militia.

a) Primary Reserves

The Primary Reserves are the most numerous element of the Reserves and the Militia — the legal name for the Army Reserves in Canada — the most numerous element of the Primary Reserves. While their paid strengths have already been detailed, their actual strengths exceed those in most cases. For example, in 1987, when the funded strength of the Militia was 15,500, it actually averaged a strength of 19,220, or 24% above the paid ceiling. Brigadier-General Beaudry, then Director General of Reserves and Cadets, explained:

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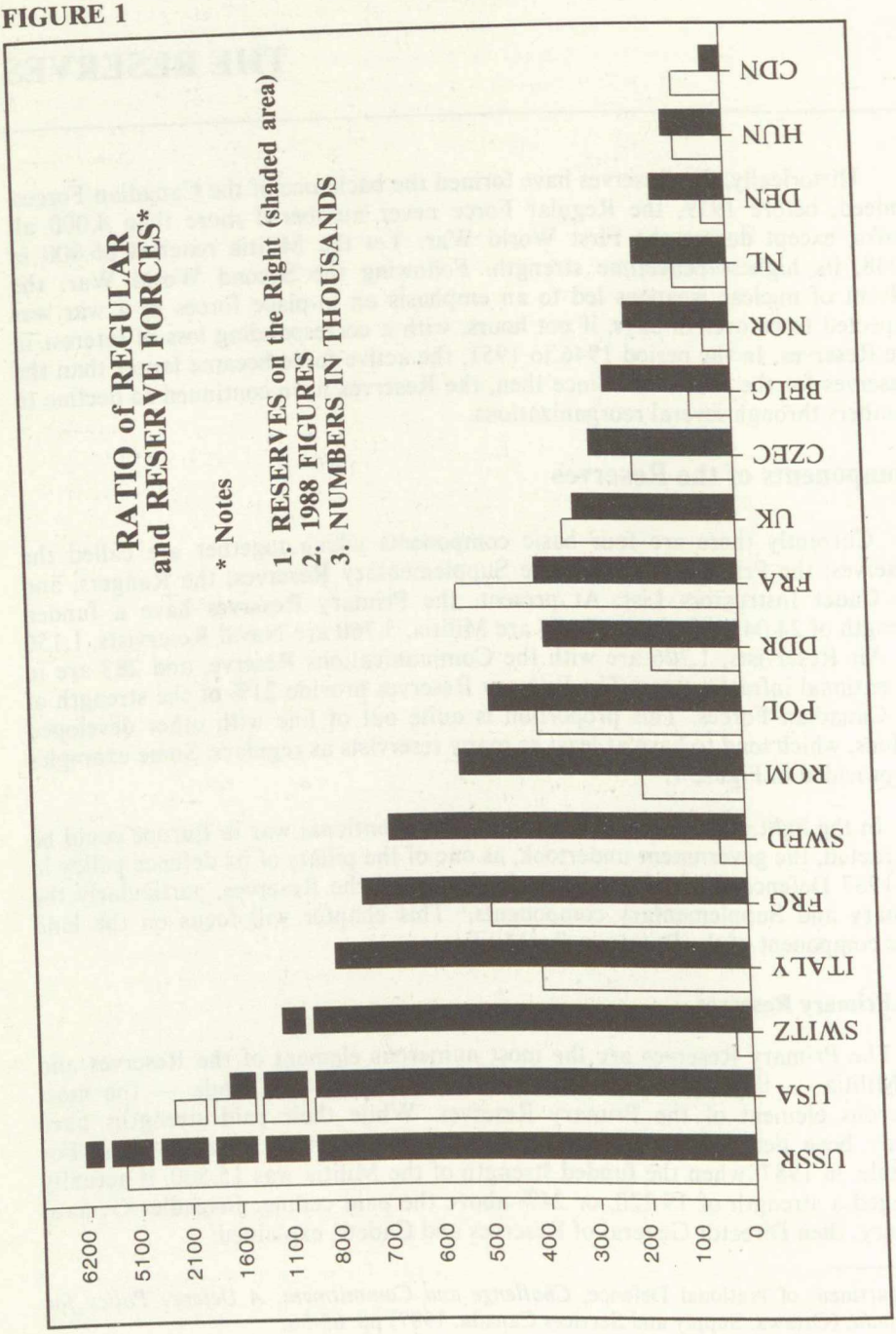
1. Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada*, (Ottawa: Supply and Services Canada, 1987) pp. 65-66.

FIGURE 1


RATIO of REGULAR
and RESERVE FORCES*
* Notes
1. RESERVES on the Right (shaded area)
2. 1988 FIGURES
3. NUMBERS IN THOUSANDS
6200
5100
2100
1600
1100
800
700
600
500
400
300
200
100
0
USSR
USA
SWITZ
ITALY
FRG
SWED
ROM
POL
DDR
FRA
UK
CZEC
BELG
NOR
NL
DEN
HUN
CDN

> This is done by unit commanders over-recruiting by an average of 20% above their paid ceiling, knowing that they average a 75 to 80% turn-out on any given training day. Thus a second soldier is paid with the money allocated to one who failed to show up, rather than allowing the money to lapse.(5:15)

Approximately 14% of the Militia is made up of women. As a result of the February 1989 Canadian Human Rights Commission ruling, women will be integrated into combat roles over the next several years (see Chapter XI). Teachers, students, seasonal workers and the unemployed make up 80% of the Militia, while young professionals are particularly under-represented as a proportion of Canadians. Attrition runs at about 25% per year, which is comparable with the rates of the United States, the United Kingdom and Australia, and half that of a decade ago.

The highest ranking reservist in Canada is the Chief of Reserves, a Major-General, who is a branch head under the Deputy Chief of the Defence Staff and who regards himself as "a sort of ombudsman of the reserves."(5:5) The Militia is commanded by the Commander of Mobile Command. It is organized on a geographical basis of five Militia Areas, each commanded by a Militia Brigadier-General. The five are Militia Areas Pacific, Prairie, Central, Atlantic and the Secteur de l'Est headquartered respectively at Vancouver, Winnipeg, Toronto, Halifax and Montreal. These Areas are subdivided into 22 Districts commanded by Militia Colonels. Within the Districts are 131 Militia field units, of which 117 are major units (battalions or regiments) and 14 are minor units (independent squadrons or batteries). By arm of service, there are 52 infantry, 18 armoured, 18 artillery, 11 field engineer units, 20 service battalions, and 12 medical companies. There are also 52 Militia bands.(5:14)

The location of these units across the country derives more from history, rather than operational necessity or demographic growth. Major Militia units average approximately 120 all ranks, and minor units about 50. There are too few troops within these units for training at a level compatible with the level of command. Most battalions and regiments can, in consequence, field at most one sub-unit — a squadron, battery or company.

The roles of the Militia were described to the Committee by Brigadier-General Beaudry as:

> to enhance Canada's war deterrence capability, and to support the regular force in ongoing peacetime tasks and activities. The [wartime] Militia missions are to provide augmentation and sustainment troops at individual, sub-unit and unit level, and to provide a base for further mobilization. In peace-time, it must prepare for war, and provide troops as required for peacekeeping, for aid to the civil power, and for civil emergencies such as natural disasters.(5:14)

Since 1981 Mobile Command has designated specific operational tasks to some Militia units to provide sub-units to fill out regular force formations with war missions in Canada.

The Primary Reserves account for some 4.2% of the 1989/90 defence budget while providing 21% of the military manpower. This suggests that reservists would be a cost effective means of enhancing military forces, notwithstanding plans to increase Reserve pay and the additional training and equipment that reservists

will require under the Total Force Concept. Total Militia expenditures for 1989/90 are estimated at $335 million, of which $143 million is pay, rations and clothing, $50 million is Regular Support Staff pay and aircraft support, $93 million is the assigned cost of base facilities, and $50 million is capital.

b) Communications Reserve

While not part of the Militia, the Communications Reserve is predominantly a land force organization, in operation if not in role. The actual strength of the Communications Reserve is approximately the same as its funded level of 1,706. The Communications Reserve is already organized as a Total Force, with the 21 Reserve units reporting to their regional Regular Force Communications Group headquarters. Their role is to provide augmentation personnel to Regular Force Communications units.

c) Supplementary Reserve

The current Supplementary Reserve consists of a list of some 20,400 names and addresses of retired or released servicemen and women who were members of the Primary Reserve or the Regular Force. In theory, they are contacted once a year to confirm their address and availability, up to the age of 65. They are under no obligation to train or be associated with Primary Reserve units. The lists have not been kept up to date and not all individuals have been contacted annually. In the initial report of this Committee, *Manpower in Canada's Armed Forces*, which was published in January 1982, it was stated rather earnestly that the Department of National Defence "is now aiming to revitalize the Supplementary Reserve..." Almost eight years later, the Committee has learned that virtually nothing has been done to establish an up-to-date list. If an effective system of computerized tracking proposed by the Department of National Defence is not soon put in place, the charade should end and the Supplementary Reserve should simply be disbanded.

d) The Rangers

The third component of the Reserves is the Canadian Rangers. The Rangers' role is to provide a military presence in the sparsely settled northern, coastal and isolated areas of Canada which cannot conveniently or economically be provided by other components of the Canadian Forces.

Seven hundred and eleven Rangers in 37 patrols are under Northern Region headquarters, and another 870 organized in platoons and companies are under Maritime Command on the east coast. Half the Rangers are aboriginal Canadians. The Rangers are provided with a minimum of training and are issued a red cap and armband embroidered with the Rangers' logo, a .303 Lee Enfield rifle, and an annual supply of 200 rounds of ammunition.

The White Paper expressed an intention to expand the Rangers somewhat and improve their equipment. By 1995, the Northern Region Rangers are to be increased to 1,000 personnel with the formation of 13-15 new patrols. This may prove challenging as the number of younger people skilled in Arctic fieldcraft is declining in the north. New equipment will probably include more clothing and tenting gear, a new type of rifle, and communications equipment.

e) Cadet Instructors List

The last component of the Reserves is the Cadet Instructors List. It is the largest officer branch in the Canadian Forces totalling 5,370 instructors. Of these, 1,728 support the Army Cadet movement, along with 1,084 civilian instructors. They provide the command structure for the Sea, Air and Army Cadets. They are part-time officers authorized a maximum of 30 days pay per year.

The Army Cadets

The Army Cadets are a separate organization from the Canadian Forces under the umbrella of the Army Cadet League which is supported by private associations, the general public and the Department of National Defence. Lieutenant-General J. Quinn (retired), Colonel Commandant of the Royal Canadian Army Cadets, described its aims:

> First, to develop in youth the attributes of good citizenship and leadership; second, to promote physical fitness; and third, to stimulate the interest of youth in the armed forces.(9:8)

In 1987 there were 23,400 Army Cadets in Canada, out of a maximum authorized strength of 28,000, organized in 444 Cadet Corps including two Corps in in Lahr, West Germany.[2] There are Corps in all provinces and both territories, each with its own chartered league organization semi-autonomous from the national Army Cadet League. There is a small Directorate of Cadets at National Defence headquarters and a regular force officer responsible for the supervision of cadets in each province. The provincial leagues are established as non-profit charitable organizations and raise funds to augment the Department of National Defence financial support. Each Corps has a local sponsoring body responsible for financing the Corps and ensuring that it is properly managed. Forty-one per cent of the sponsors are branches of the Royal Canadian Legion, and 18% are sponsored by schools. All cadet corps are affiliated at the local level with a Force Mobile Command unit, mainly Militia, which assists in the provision of instructors and facilities and provides the cadets with a regimental link to Canadian military history.

Training is implemented through the "Star Program," a progression of four levels of achievement consisting of mandatory subjects such as drill, map-reading, and weapons training, and optional subjects such as arts and crafts, communications, and photography. Training is conducted at the local headquarters from September to June and is continued at annual summer camps. In addition, cadets can take part in advanced courses and a wide variety of exchanges with NATO allies as well as in public events such as the Edinburgh Military Tattoo.

Over the past four years, the Army Cadets' strength has decreased by 2,000. The problem is partly demographic, but there is also a need to ensure that

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2. *Proceedings*, 24 November 1987, pp. 9A:1-10 for a breakdown of numbers by region and affiliated Militia or Regular Force unit.

training programme(s) move with the times and take into account the needs of today's youth. There are also not enough facilities to accommodate all cadets at summer camp, which is disillusioning. In addition, the cadet budget at the Department of National Defence has not increased in line with inflation for several years and the Department of National Defence budgetary constraints have forced bases and Force Mobile Command units to be less generous with their facilities. This further limits the numbers able to attend camps and exacerbates the loss of members. The Militia expansion plans are expected to put additional pressure on recruiting and armouries' facilities, though cadet corps currently in armouries will be maintained in them.

The cadet movement offers the Department of National Defence a potential source of recruits and a higher profile for the military in Canadian society. While its purpose is not to encourage recruiting, it has in fact produced 24.5% of Canadian Forces recruits over the last 10 years.(9:20-21) The cadet movement also increases the Department of National Defence's contacts with civilians across the country and provides a visible reminder of the Department's presence.

The Committee notes the benefit provided to Canada as a whole, and the Department of National Defence in particular, by the Army Cadet League, by helping to promote qualities of good citizenship and maintain a military presence in Canadian society. The Committee therefore recommends that the Department of National Defence as a minimum: a) increase the budget for cadets in line with inflation and b) assure the various cadet groups of training facilities across the country on a regular basis.

The Committee further recommends that school boards, particularly those in urban centres which have demonstrated significant lack of enthusiasm, be encouraged to take a more positive attitude toward the cadet movement. The Cadet Leagues should seek to increase the involvement of school boards in the cadet movement.

White Paper and Budget Plans

Perhaps no element of the Canadian Forces was as radically affected by the 1987 Defence White Paper as the Reserves. The White Paper stated:

> If the Reserve Force is to be used fully and effectively, the distinction between Regular and Reserve personnel must be greatly reduced. Their responsibilities must be integrated into a Total Force Concept. For example, a unit responding to an emergency could be manned by a mix of Regulars and Reservists. The proper ratio for a specific commitment would be determined by the type of unit, the reaction time and the skills needed. If we are to rely to a great degree on the Reserves to augment the Regular Force, the size of the Reserves will have to be significantly increased and their training and equipment substantially improved....As a result, Reserve strength will increase to about 90,000.[3]

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3. Department of National Defence, *Challenge and Commitment, A Defence Policy for Canada, op. cit.*, pp. 65-66.

Of these 90,000 under the Army 2002 plans, 65,000 were to be Primary Reservists and 25,000 Supplementary Ready Reservists. The Militia would have grown by annual increments to 50,838, nearly triple its present strength, and 7,085 Supplementary Ready Reservists would be earmarked for Mobile Command. As a result of the 1989-90 budget cuts, the Reserves will not achieve these levels. The Militia expects to be at least 10,000 reservists below the target by 2002.

Even so, the most significant change at the unit level in the Militia will be the increase in numbers. Battalions may have as many as 400 personnel, a considerable increase on present authorized strengths of 250 and paid strengths of 120. Several witnesses testified about the need to increase Regular Support Staff support in Militia units to at least 10 per cent of their strength in order to train and administer the units effectively.(4:10, 13, 10:7) Present plans for a modest decrease in the Regular Force ensure that this will not be achieved.

At higher levels, Militia and Regular Force regional organizations will become closely integrated. The present five Militia Areas will be reduced to four and the 22 Districts to 15. While the primary wartime role for the Militia will remain the provision of augmentation and readiness troops, all Militia units are to receive specific wartime tasks. A fourth brigade group will be formed in Canada with a high proportion of reservists. Reservists will still be tasked to the brigade groups in Europe, the Defence of Canada Task Force, military vital points protection, and infrastructure. Peacetime roles of the Militia will remain unchanged.

The White Paper indicates that the Supplementary Reserve will also be revitalized. In order to achieve this, it will be divided into two parts: the Supplementary Ready Reserve and Supplementary Holding Reserve. This structure is targeted to be in place by 1992.(20:37) The Supplementary Ready Reserve will consist of a list of 25,000 individuals who have left the Canadian Forces in the preceding five years — during which time they are expected to retain their military skills — and for whom there is a position in the army structure. The Supplementary Ready Reservists will be provided with a uniform, a specific wartime task, and will have to report to some local military organization once a year, when they will receive a $300 bonus. Upon reporting, each reservist's state of health, documentation and uniform will be confirmed as well as each one's knowledge of where he or she would be employed in wartime.(21:25) The annual bonus and human contact are expected to ensure a much higher level of readiness in the Supplementary Ready Reserve than in the Supplementary Reserves of the past.

The Supplementary Holding Reserve will simply be a list of names and addresses of former Canadian Forces members who have been out of the service more than five years, or who's skills are not immediately needed in the army structure. They will be contacted once a year to confirm their address. The Committee was repeatedly assured by the Department of National Defence officials that the Supplementary Reserves, along with the Primary Reserves, will be satisfactorily tracked by the computerized Reserve Force Management Information System which, when it is completed by 1992, will provide the information necessary to mobilize all reservist personnel rapidly in an emergency.(21:29-30; 2:23; 20:36-37)

Militia Equipment

The White Paper also contains a commitment to improve Militia equipment which has been in chronically short supply. Policy Directive P26, issued in January 1978, stated that the Reserves be included in all Department of National Defence purchases. This had been followed to the extent that the Militia has received a share of new acquisitions such as jeeps, trucks, small arms, and artillery computers. But the quantities have had less to do with operational requirements and more with the availability of funds once Regular Force requirements were satisfied.(5:28) The Defence White Paper clearly stated the government's firm intention to increase Reserve equipment substantially both in quantity and quality. Major-General Evraire outlined the principles:

> The first is that there will be a totally integrated acquisition plan to meet specific operational needs without any difference being made between regular and reserve components. The second is that equipment distribution will be directed towards the operational and training requirements of the total force.(21:7)

In this context, some 46% of the pre-1989 budget, 15-year army capital programme was intended for the Militia.

The situation following the budget cuts is not yet clear. Much of this equipment was to be kept in four Militia training and support centres — the first opened in 1989 — which would provide fully equipped combined arms training up to combat team level. Following the budget cuts, the other three Militia training and support centres have been put on hold. In spite of assurances in the 1988 Defence Update to the White Paper that the Department of National Defence's aim "...is to provide new materiel in sufficient quantities to equip the Total Force — both Regular and Reserve,"[4] it is evident that this does not involve a full-scale equipping of the Reserves to Regular Force levels. C.R. Nixon suggested that 50,000 Reserves without equipment were "pretty useless," but pointed out that fully equipping them would be extremely expensive.(23:8)

In view of the 1989-90 budget cuts, the Committee remains sceptical of assurances that this time the Militia will be adequately equipped. A number of witnesses were asked to express an opinion on the value of a separate budget for the Reserves, the case being that it would prevent scrimping on Reserve funding to meet other requirements. The then Chief of Reserves, Major-General R. Lewis, an accountant by profession, worried "about the gymnastics one would go through" to identify a separate budget and predicted that it would lead to further territorial battles in the defence budgeting process.(5:28) C.R. Nixon also was concerned that it would be against the Total Force spirit and concept which is seeking to reduce the differences between the Regular Force and Reserves, not accentuate them.(23:18) The Committee appreciates the potential benefits that the Total Force Concept would confer on the Reserves which would effectively nullify the need for a separate budget. Accordingly, the Committee will withhold judgement. Nevertheless, bearing in mind unfulfilled promises in the past and the high expectations raised by the 1987 Defence White Paper:

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4. Department of National Defence, *Defence Update 1988-89*, (Ottawa: Supply and Services Canada, 1988), p.18.

The Committee recommends that, in view of the limited value of an ill-equipped Militia, and the likely need for sustainment equipment as well as manpower for deployed Canadian Forces in wartime, the Department of National Defence acquire for the Militia, as a matter of policy, equipment of similar quality and on a comparable basis in terms of numbers as that which it provides to the Regular Force and that such purchases be identified as earmarked for the Militia in the annual Defence Estimates.

Problems of the Reserves

The Reserves have suffered for many years from a number of problems which have reduced their operational effectiveness. Units are under-strength and ill-equipped. Present Reserve expansion plans resulting from the 1987 Defence White Paper provide solutions to these problems if they are implemented, but provide no answers to other issues, and may in fact exacerbate some of them.

Perhaps the most pressing concerns are in the area of conditions of service, particularly pay and time off for training. Reserve pay is low, both absolutely and relative to the Regular Force. Until the pay increase announced in March 1988 of 12%, the most generous calculation placed reserve pay at an average of 80% of the regular rate. (5A:11-12; 15-18) With the pay increase, gaps of 8 to 22% still exist for many ranks between regular and reserve rates. According to a study by the House of Commons Standing Committee on National Defence, the cost for pay comparability at current personnel levels has been estimated at about $50 million annually in 1987-88 dollars.[5] The regulars are also eligible for pensions, death and disability benefits, and insurance. As of March 1988, reservists did become eligible for a term insurance plan and travel on regularly scheduled Canadian Forces passenger flights. Yet this still compares unfavourably to incentives offered reservists in the United States, the United Kingdom, and Australia which include education and income tax benefits and bonuses for completed training programmes.

Inadequate administration compounds pay problems. It is often late and errors in calculation are made because Militia units have virtually the same daily administration to perform as Regular Force units, but with fewer, and part-time, administrators. In addition, the Militia unit must recruit and provide basic training to all its new soldiers, functions which are performed centrally for the Regular Force. Although Militia units are given at least two budget allocations a year, because the amounts from Mobile Command are subject to change, units can find themselves over-committed and can run out of money to pay their soldiers.(22:30-31) Approximately 86.5 person days per year per reservist of Militia pay is allocated to Force Mobile Command, of which some 40-45 days pay is provided to the reservist. The rest is used to administer the Militia. Brigadier-General Beaudry observed to the Committee:

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5. Standing Committee on National Defence, *The Reserves*, June 1988, p. 19.

> In other reserve forces, many of the administrative and training functions performed by our full-time reservists, and charged against the reserve budget, are carried out by the regular force. The result is that while we consume 86 to 100 plus pay days of reservists annually, the Americans, British and Scandinavians, for example, come in at about half of this figure.(5:10)

The Regular Support Staff is made up of regular soldiers assigned to the Militia to provide the professional expertise to ensure the efficient administration and quality of training of Militia units. Each unit normally has no more than a Captain and one or two non-commissioned officers assigned. In 1989, 1,075 Regular Support Staff supported the Primary Reserve, 834 of which were with the Militia. Nevertheless, this number is insufficient to provide the support required and so 765 reservists serve on a full-time basis to help administer and manage the Militia.(5:17) These reservists are paid out of funds initially earmarked for Militia training. While some progress has been made regarding administration, only an increase of Regular Support Staff will eliminate the problem.

> **The Committee recommends that full pay parity between the Regular Force and the Reserves be implemented in the near future, and that the Department investigate the possibility of providing pension plans and education or other benefits to reservists as incentives both to recruitment and retention. The Committee further recommends that a disability insurance scheme be established for Reservists and that other financial incentives be investigated for those Reservists who remain in the Reserves for a certain length of time. Such a system would likely improve retention rates and thereby lower long-term expenditures, given the additional investment that the Department of National Defence is planning in terms of Militia training to achieve Total Force Concept standards.**

The Militia makes considerable demands on the time of its members who want to move up in the organization; two drill nights a week, one weekend a month, and at least two weeks during the summer for training courses. This may increase with the introduction of the Total Force Concept. Yet already time demands create difficulties for many Militia members. On one hand, the Unemployment Insurance Act appears to discourage individuals from joining the Reserves. If, for example, an individual is a keen Reservist and parades as often as possible while drawing unemployment insurance, then Reserve service income must be deducted from the unemployment insurance benefits paid, which totally disrupts the regular payment of unemployment insurance. Often the person decides not to sign in for service pay or parades less frequently or not at all so as not to affect regular unemployment insurance payments. The result is that at present where unemployment in the country is highest, Reserve unit and parade strength is lowest.

On the other hand, the difficulty in securing time off for training by reservists with steady, full-time jobs accounts for the low percentage of young professionals in the Militia. At the same time, competent young Militiamen or women in their twenties or early thirties, particularly officers, are probably facing career pressures to get ahead in their jobs. There is no obligation for employers to

grant their employees additional time off for reserve service beyond the employees' annual vacation time, or to guarantee reservists their jobs if they are called out to deal with an emergency. The federal government and its agencies and crown corporations has been among the worst offenders in this regard, even though provisions exist to grant reservists two weeks' leave a year for reserve service in addition to their usual holidays.

Often it is not the employer per se who causes problems for the reservist, but rather middle management. Yet until recently, a concerted effort to improve the situation had never been undertaken, especially at the political level, where it counts. The Honourable Perrin Beatty, the previous Minister of National Defence, however, did a great deal to encourage employers to provide leave voluntarily for Reserve service. Whether such exhortation will be sufficient remains to be seen. The option of legislation requiring employers to provide at least two weeks' leave for reservists in addition to their regular holidays, as is done in the United States, was repeatedly discussed before the Committee.(4:11; 5:8; 10:19-20; 20:26-29; 23:9) Witnesses generally preferred persuasion, but felt that legislation should be enacted if persuasion proves inadequate.

The Committee recommends that the Government of Canada and the Department of National Defence encourage employers, to the greatest extent possible, to provide leave voluntarily to their employees for reserve service, without prejudice to their careers, pensions or holidays. A particular effort should be made to enforce existing provisions for leave within the federal public service, agencies and crown corporations, which are frequently overlooked or disregarded, and to encourage similar provisions and treatment within provincial public services and local governments.

The Committee further recommends that the Government give consideration to developing specific incentives to encourage the private sector to give leave for reserve service.

A large part of the problem is simply that, along with neglect and atrophy, the Reserves have lost their high profile in Canadian society. The Militia once conferred considerable status on its members within society and, in smaller Canadian communities, the local mess was often a centre of social life. Many of the detached companies in small communities have vanished because it was considered impractical to administer them.(4:19-20; 20:8-9) Although there is thus far no shortage of recruits, a considerably enhanced image will be needed as the Militia attempts to expand to triple its present size while the population base is diminishing.

The Committee recommends that the Department of National Defence prepare a comprehensive publicity campaign for expanding the Reserves involving all forms of media.

Another concrete action which would raise the profile of the Canadian Forces and Reserves and ease some of the problems of attracting and retaining quality junior leadership from the professions would be the reactivation of the Canadian Officers Training Corps (COTC) and its Naval and Air counterparts

— the University Naval Training Division and the University Reserve Training Plan — in Canadian universities. The White Paper pledged the government would investigate this option and a team within the Assistant Deputy Minister, Personnel's office is presently studying it. This team will choose a number of universities that have agreed to host trial COTCs.(20:29-30) There does seem to be a singular lack of urgency about this matter within the Department of National Defence and the Committee strongly urges officials to speed up their study.

The Committee recommends that the Canadian Officers Training Corps, the University Reserve Training Plan and the University Naval Training Division be re-established on Canadian university campuses as soon as possible to provide a military presence in university life and to increase the knowledge and involvement of future leaders in the Canadian Forces.

The final problem faced by the Militia concerns its relationship with the Regular Force. Brigadier-General Yost (retired) observed:

> [The Militia] have been suffering from [lack] of a real task; whereas at the same time the whole stress on the regular force for years has been to have your unit as operationally ready as possible...and the result of all that was for the regular force to regard the reserves as non-essential. That is what they were encouraged to do.(11:15)

Major-General Lewis noted that the national attitudes survey conducted among Primary Reservists in 1985 indicated that 72% believed that the Regular Force had little respect for them. Such attitudes will have to change as the two cultures become integrated under the Total Force Concept. Unfortunately, these changes may be difficult. Colonel Brian MacDonald predicted, "there is going to be a tremendous amount of trauma among regular army people who will be in a militia environment in the proportion of 30 per cent [reserve] and 70 per cent [regular]."(22:29) What is required is "a fundamental change in the thought processes of both the regulars and the Militia," said Lieutenant-General John de Chastelain, then the Department of National Defence's Assistant Deputy Minister, Personnel.(20:21) This is likely to be the greatest challenge to the Canadian Forces as the Total Force Development Plan unfolds. It is also a challenge unquestionably worth taking.

Chapter VI

CANADIAN FORCES EUROPE

The proposals contained in the 1987 Defence White Paper would have significantly altered the nature of Canada's land force commitments in Europe beginning in 1989. These changes have been thrown into some doubt following the April 1989 budget with its substantial reductions affecting the land forces. Accordingly, the first part of this chapter describes present commitments, following which it outlines the changes proposed in the White Paper and attempts to identify the impact of the April 1989 budget cuts.

In the second part of the chapter, the Committee explores certain alternative roles for the Canadian Forces in Europe which we perceive to be more in keeping with the possible future character of the Soviet threat given the latest developments in East-West relations. As stated earlier in our report, with the shifting Soviet defence priorities, the West's perception of the threat is also changing. This permits Canada to consider other commitments for its forces in Europe and, consequently, other ways of structuring the land forces.

Current Commitments and Planning

Canadian Forces Europe is the functional command responsible for all Canadian Forces in Europe. It reports directly to National Defence headquarters and is not subordinate to Mobile Command, though they maintain a close working relationship. Canadian Forces in Europe headquarters has a staff of approximately 100 personnel and is commanded by a Major-General. In peacetime, it is responsible for all Canadian personnel and equipment stationed in Europe. In wartime, Canadian Forces in Europe headquarters would also command augmentation forces sent to Europe from Canada, but operational control of combat forces would be handed over to designated NATO commanders at an appropriate NATO alert level. Canadian Forces in Europe headquarters would remain responsible largely for logistics and personnel matters which are a national task in NATO.

Present Commitments to Europe

a) 4 Canadian Mechanized Brigade Group

The primary land force element of Canadian Forces in Europe stationed in Europe is the 4 Canadian Mechanized Brigade Group. It consists of three manoeuvre units, an artillery regiment and a number of combat support and combat service support elements. It is the only brigade group in the Canadian Forces with an approved war establishment — a list of personnel, qualifications and equipment required to make the organization fully fit for battle — specifying a war strength of 5,456 personnel. This is manned during peacetime at 75%, or 4,115 personnel in theatre. Combat units are manned at 84% of their war establishment and support units at 50-60%. Twenty per cent of the manpower is rotated each summer, and a major unit is rotated every four years.

The three manoeuvre units are: one armoured regiment equipped with 59 Leopard C1 main battle tanks in three squadrons of 19 tanks plus regimental headquarters tanks and Taurus recovery vehicles, and a reconnaissance squadron of 22 Lynx command and reconnaissance vehicles; and two infantry battalions, each consisting of four mechanized rifle companies in M-113 armoured personnel carriers, an armoured defence platoon with 18 TOW-2 missile systems, a mortar platoon with 8 81 millimetre (mm) mortars, a reconnaissance platoon with nine Lynx's, and a Pioneer platoon.

The artillery regiment is organized in four close support batteries, each equipped with 6 M109A2 155mm self-propelled howitzers, and an air defence missile troop with 18 Blowpipe shoulder-launched anti-aircraft missiles.

Combat support and combat service support elements include: a headquarters and Signal squadron with liaison detachments with VII (U.S.), II (German), and II (French) Corps as well as 4 Panzer Grenadier (German) and 1st Armoured (U.S.) Divisions; 4th Combat Engineer Regiment with one field squadron of three troops and a support squadron; 4th Service Battalion with an administrative company, a supply and transport company and a maintenance company; 4th Field Ambulance with a treatment and an evacuation company; and 4th Military Police Platoon with 31 men.

4 Canadian Mechanized Brigade Group also retains operational control of 10 Tactical Air Group's 444 Tactical Helicopter Squadron with 12 CH-136 Kiowa light observation helicopters. The final in-place element of Canadian Forces in Europe is a Communication Group, from Communication Command, which provides strategic communications between Canada and Canadian forces in the field. All of these units are based at Canadian Forces Base Lahr, except for one infantry battalion at Canadian Forces Base Baden-Soellingen.

The equipment required by 4 Canadian Mechanized Brigade Group, insofar as it is available, is prepositioned in Germany, along with some stocks for sustainment in war. Some equipment is also prepositioned in northern Norway for the Allied Command Europe (ACE) Mobile Force (Land).

In addition to the forces in place, Canada has undertaken to provide further troops for Europe from Canada in a crisis. The 1,341 soldiers required to bring 4 Canadian Mechanized Brigade Group up to war establishment strength would be flown to Europe under Operation Pendant and have already been earmarked.

b) Other Land Force Elements in Canadian Forces in Europe

Canada is committed to provide a battalion group on short notice for the Allied Command Europe (ACE) Mobile Force (Land) for operations in north Norway. At present, this contribution is fulfilled by 1 Battalion, Princess Patricia's Canadian Light Infantry based at Canadian Forces Base Calgary.

Should war break out, there would be a need for troop replacements for the formations in Europe. The first 30 days are provided for and, though mobilization studies are not yet complete, most of them would be expected to come from 1 Canadian Brigade Group headquartered in Calgary.

In addition, until 30 November 1989, Canada's second land force responsibility to NATO was to provide a brigade group to reinforce NATO forces in north Norway. The 4,800-man 5 Groupe Brigade du Canada based at Valcartier, Quebec, had been tasked with this role.

c) Non-Land Force Elements in Canadian Forces in Europe

The non-land force elements of Canadian Forces in Europe consist, firstly, of three tactical fighter squadrons of 1st Canadian Air Group equipped with CF-18s, (nos. 409, 421 and 439 based at Canadian Forces Base Baden-Soellingen). The non-land force elements also comprise the third largest national contribution in personnel to the NATO Airborne Warning and Control System (AWACS) at Geilenkirchen as well as staff at 10 additional NATO headquarters in Europe. In addition, the airfields at Canadian Forces Bases Baden-Soellingen and Lahr are protected by 128 and 129 Airfield Air Defence Batteries respectively, recently re-equipped with Oerlikon 35 mm anti-aircraft guns, and soon to receive ADATS (air-defence anti-tank) missile launchers. Beginning in 1988, two Rapid Reinforcement Fighter Squadrons in Canada were equipped with CF-18s and tasked with reinforcing the squadrons in Germany in the event of war. One of these squadrons is tasked to join the Allied Command Europe Mobile Force (Air), if necessary, as a demonstration of allied solidarity in regions other than the Central Front. The four or five squadrons form 1 Canadian Air Division with 3 Wing operating out of Canadian Forces Base Lahr and 4 Wing operating out of Canadian Forces Base Baden-Soellingen.[1] The Air Division would be placed under the operational control of 4 Allied Tactical Air Force which supports Central Army Group.

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[1] General Paul D. Manson, Consolidation in Europe: Implementing the White Paper, *Canadian Defence Quarterly* (17:1) February 1988, pp. 26-28.

d) Wartime Tasks

In the event of war, all Canadian combat forces in Europe would come under the operational command of NATO commanders. For example:

> [4 Canadian Mechanized Brigade Group] deploys under NATO order to a central location and is held under the command of the Commander Central Army Group, who is responsible for the southern half of Germany. He will take a decision at an appropriate stage to give the brigade either to VII US Corps or II German Corps. Therefore it is first his reserve and then will probably become one of theirs...(3:24)

4 Canadian Mechanized Brigade Group would most likely oppose troops from the Czechoslovakian Army, or the five divisions of the Soviet Central Group of Forces based in Czechoslovakia.[2] As it is a reserve formation, however, it might also have to deal with penetrations through NATO's forward defences by Soviet Operational Manoeuvre Groups or operations by Soviet special purpose forces — "spetznaz" — in Central Army Group rear areas.

The Allied Command Europe (ACE) Mobile Force is a multinational immediate reaction force composed of a brigade-size land element, ACE Mobile Force (Land), and a 5-squadron air component, ACE Mobile Force (Air). The Central Front has been considered the most seriously threatened region and consequently that is where NATO has its greatest concentration of force. This results in other, more peripheral regions being less well protected which might provide tempting targets in a crisis. The ACE Mobile Force (Land) was formed to demonstrate allied solidarity in the face of such threats to the northern or southern regions of Europe. In theatre, it consists solely of a skeleton headquarters staff, but in times of tension, six nations have agreed to contribute to the force which could be sent to any of seven areas. 1 Battalion, Princess Patricia's Canadian Light Infantry's commitment is restricted to north Norway. The ACE Mobile Force (Land) is directly under the command of the Supreme Allied Commander Europe (SACEUR).

e) Recent Improvement in Force Posture and Equipment

In January 1985, the Canadian Government authorized an increase in the peacetime manning establishment of Canadian Forces in Europe by 1,220 personnel, to bring formations closer to their war establishment levels. Of that number, 937 for 4 Canadian Mechanized Brigade Group were in place by summer 1987. Most of these additional troops were for the combat units.

A programme to equip Canadian Forces in Europe to war establishment levels and provide upgrades for existing systems is underway. Recently, a number of logistics vehicle programmes have provided new Iltis jeeps, new medium logistics vehicles wheeled, 10-ton trucks and Unimog ambulances, as well as some new armoured personnel carriers. Fire control systems for most major weapons

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2. International Institute for Strategic Studies, *The Military Balance 1987-88*, (IISS, 1987), p. 41. See also David C. Isby and Charles Kamps Jr., *Armies of NATO's: Central Front* (London: Jane's Publishing Co. Ltd., 1985), p. 22.

systems have also been upgraded and some new engineering equipment has been provided. More details are provided in Chapter IX.

The White Paper and the Implications of the 1989 Budget

a) Consolidation in Europe

The June 1987 Defence White Paper significantly altered the nature of Canada's commitment to Europe. The intention to create an Air Division for commitment to 4 Allied Tactical Air Force has already been noted, but the White Paper also states:

> The Government has concluded that consolidation in southern Germany is the best way to achieve a more credible, effective and sustainable contribution to the common defence in Europe...
>
> The task of the Canada-based [Canadian Air-Sea Transportable Brigade Group] will, therefore, be shifted from northern Norway to the central front, thus enabling the Canadian army to field a division-sized force in a crisis.[3]

The outline for the European consolidation is known, but considerable detailed planning has yet to be completed. Major-General George Dangerfield, then Deputy Chief of Staff for Operations at Central Army Group headquarters and presently Commander of 1st Canadian Division, estimated that approximately 2,000 additional personnel should be stationed in Germany, but the precise numbers of troops and amounts of equipment for 5 Groupe Brigade du Canada are yet to be determined. At present, 5 Groupe Brigade du Canada consists of: one armoured regiment equipped with Cougar armoured vehicles general purpose and Lynxs; three infantry battalions in Grizzly armoured vehicles general purpose and M-113s; one artillery regiment equipped with M109A2 self-propelled howitzers and Blowpipe anti-aircraft missiles; one engineer regiment; and some combat service support units.

An element of the land division headquarters deployed to Europe in the summer of 1988 to conduct planning on the ground; the remainder of the division headquarters was established in Kingston. A fully operational structure was planned by 1998. Under the Army 2002 plans, when fully augmented, the 1st Canadian Division would consist of two mechanized infantry brigades, an artillery brigade and a number of combat support and service support units. Of these, 4 Canadian Mechanized Brigade, and divisional headquarters, logistics, medical and support staff cadres would be stationed at Canadian Forces Bases Lahr and Baden-Soellingen, while 5 Brigade Mechanisé du Canada and augmentation troops would be flown over in a crisis to pre-positioned equipment.

As a result of the 1989-90 budget cuts, fewer troops will be stationed in Europe than was planned, and forces committed to Europe will not be organized

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3. Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada*, (Ottawa: Supply and Services Canada, 1987), pp. 61-62.

into the 1st Canadian Division as quickly or as comprehensively as was originally intended. In a crisis, 5 Groupe Brigade du Canada and 1st Canadian Division headquarters would be deployed to Europe to join 4 Canadian Mechanized Brigade Group where they would form a combined force, the structure of which has not yet been fully determined.(1989: 3:10) It is expected that the combined force would retain the role of Central Army Group's only in-theatre reserve.

The White Paper initially reaffirmed the ACE Mobile Force (Land) commitment. NATO was concerned, however, that the elimination of the Canadian Air-Sea Transportable Brigade commitment overly weakened the northernmost flank. Consequently, NATO is to establish a Composite Force to reinforce north Norway in periods of tension and hostility.[4] Canada has offered to provide an infantry battalion group for this force, which will also include West German and United States artillery battalions. The unit earmarked for this role will be 1 Battalion, Princess Patricia's Canadian Light Infantry which will, as a result, drop its commitment to deploy to Denmark with the ACE Mobile Force (Land). The north Norway commitment to the ACE Mobile Force (Land) will be retained, so that in times of crisis, 1 Battalion, Princess Patricia's Canadian Light Infantry would deploy to its pre-positioned equipment in north Norway as part either of the ACE Mobile Force (Land), if it deployed there, or the NATO Composite Force. These arrangements have not yet been finalized.

b) Doing Away with the Canadian Air-Sea Transportable Commitment

Reasons for the planned consolidation were numerous. The Canadian Air-Sea Transportable commitment suffered from several operational handicaps which are reduced by the shift to the Central Front. The first problem involved getting the troops to Norway in time. Because the constitution of Norway forbids the stationing of foreign troops on Norwegian soil in peacetime, and because of Canadian government restrictions on the amount of equipment that was available for pre-positioning, much of the brigade's equipment would have had to be transported by sea, requiring at least three weeks to arrive.(3:15; 12:22) Since the brigade was intended to arrive before hostilities commenced and, in any case, was unable to make opposed landings, a potentially provocative political decision would have had to be taken at an early stage in a crisis. The availability of sufficient transatlantic transport in a crisis was also open to question.

The second problem was that once the brigade was in place, there was no provision for third and fourth-line logistics and medical formations to support and sustain the Canadian Air-Sea Transportable Brigade in Norway. The bilateral sustainment agreement with the United States in 1979, known as the Integrated Lines of Communication, has no outlets in Norway, so there was, in effect, no reinforcement or resupply capability for the Canadian Air-Sea Transportable Brigade. During Exercise Brave Lion in 1987 — the first full-scale rehearsal of the Canadian Air-Sea Transportable commitment — a third-line support group was created from forces in Canadian Forces Base Petawawa which stripped the base and the Special Service Force of its normal second-line capability.(4:9)

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4. Department of National Defence, *News Release*, 24 June 1988.

c) Deficiencies and Planned Improvements

Major-General John Sharpe, then Commander of Canadian Forces in Europe, told the Committee in Germany that his priorities for improving 4 Canadian Mechanized Brigade Group combat capabilities were for new tanks and improved anti-tank weapons, particularly short-range hand-held systems. Warsaw Pact weapons now outgun and outrange Canadian equipment, and are better armoured. The Leopard C1, acquired in 1978, was already a mature design, having entered German service in 1966. It has since been overtaken by dramatic improvements in tank technology.

The government had originally expressed an intention to acquire approximately 250 tanks, the majority for the forces in Europe. As a result of the budget cuts, however, the current intention is to replace only those tanks presently stationed in Europe with 4 Canadian Mechanized Brigade Group and in training, maintenance and war stocks (114 tanks). 5 Groupe Brigade du Canada's armoured regiment will deploy to Europe with its Cougar armoured vehicles general purpose whose viability in a high-intensity combat environment is open to question.(1989: 3:19) Additionally, several projects to acquire new anti-tank and artillery systems have been cancelled or put on hold.

The most serious deficiency in Canadian Forces in Europe at present, mentioned by several witnesses, is a severe shortage of logistics and medical support. 4 Field Ambulance is hopelessly under-manned and under-equipped for handling and evacuating the large numbers of casualties that can be expected in high-intensity conventional warfare. The Commander of Canadian Forces in Europe indicated to the Committee that it is his highest priority for future personnel increases. There are no third or fourth-line medical facilities except for the 100-bed base hospital at Canadian Forces Base Lahr.

The consolidation of European commitments will in itself reduce the logistics and medical support problems of Canadian Forces in Europe. But a comprehensive third and fourth-line logistics structure would still be needed to eliminate the danger of relying on allies who would have their hands full with their own forces' needs. In that respect, even the value of the Integrated Lines of Communication agreement might be open to question; in the height of a crisis, the needs of Canadian forces might be subordinated to those of the United States. As part of the Army 2002 plans, the Allied Central Europe Logistics and Medical Support System was to be set up:

> to design, organize, man and equip the third line and in-theatre — meaning the European theatre — fourth line logistics and medical and personnel administration support systems for the Canadian Allied Central Europe and Eastern Atlantic assigned force in the army, in the air force and in the navy.(19:7)

First-line support, which consists of elements within units themselves such as cooks and mechanics, would remain unchanged. The existing second-line support would be consolidated from the brigade groups into a Divisional Support Group and Divisional Medical Battalion. The third-line would be a completely new structure involving the creation of a Canadian Support Group and a Canadian Medical Group, illustrated in Figure 2. At present, the only third-line unit in

Europe is a Forward Mobile Support Unit. The Integrated Lines of Communication would remain in place, to avoid the duplication of transportation arrangements from North America, and a Host Nation agreement will be negotiated with Germany for the provision of facilities. As many supplies as possible would be pre-positioned in Europe to support Canadian Forces in Europe in combat for NATO's sustainment criterion of 30 days.

At the fourth line, it had been decided that a European Theatre Base would be set up to supplement Canadian infrastructure and provide an alternative source of supply and support in the event that the Integrated Lines of Communication are interrupted or broken. It was to be stocked with 30 days of sustainment supplies for naval, air and land forces. Reinforcements and supplies would move up the pipeline, and casualties down. Brigadier-General Robert Little, then Director General of Logistics Operations, noted:

> we have to be careful to balance the particular system between first, second, third and fourth line because there is no value in having full support at first line but nothing behind it....The pipeline must be evenly balanced, secondly, across all of the functions — supply, maintenance, transportation, et cetera.(19:10)

It was intended that this greatly expanded support structure would be manned at a cadre level in peacetime and would fill out with reservists — who would comprise 75% in both the Canadian Support and Medical Groups — in time of crisis.[5] The budget cuts have forced the Department of National Defence to cancel the plans for the Allied Central Europe Logistics and Medical Support System (see above). Instead, the combined force in Europe will continue to be supplied predominantly through allied supply systems from the Integrated Lines of Communication to the frontline. Supplies will be pre-positioned in Europe to the greatest extent possible.

Major-General Sharpe and other Canadian officers in southern Germany also described further logistics deficiencies in the first and second line. 4 Canadian Mechanized Brigade Group is particularly short of trucks, lacking M548 tracked cargo carriers, 5/4-ton trucks and 5-ton trucks (the latter has been partly addressed through the provision of 42 10-ton vehicles). It also has no heavy lift capability in the 7-9-ton range, although deliveries of a new vehicle to meet this requirement began in April, 1989. The 5/4-ton light support vehicles will likely be replaced in the mid-1990s. Repair facilities are inadequate.(3:14)

Some progress is being made in the combat environment. New small arms are in the process of being issued, with deliveries of the C7 automatic rifle, C8 automatic carbine and the C9 light machine-gun slated for completion in 1993. Low-Level Air Defence (LLAD) will dramatically improve in 1989 when 119 and 127 Air Defence Batteries are formed with Oerlikon ADATS (air-defence anti-tank) self-propelled missile systems for 5 Groupe Brigade du Canada and 4 Canadian Mechanized Brigade Group respectively. 128 and 129 Air Defence Batteries, protecting the Baden-Soellingen and Lahr airfields, will be re-equipped with ADATS and GDF-005 twin 35mm automatic cannon and Skyguard fire control systems. New engineering equipment will also be provided by 1990, including combat engineer vehicles.

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5. General Paul Manson, Consolidation in Europe, *op. cit.*, p. 30.

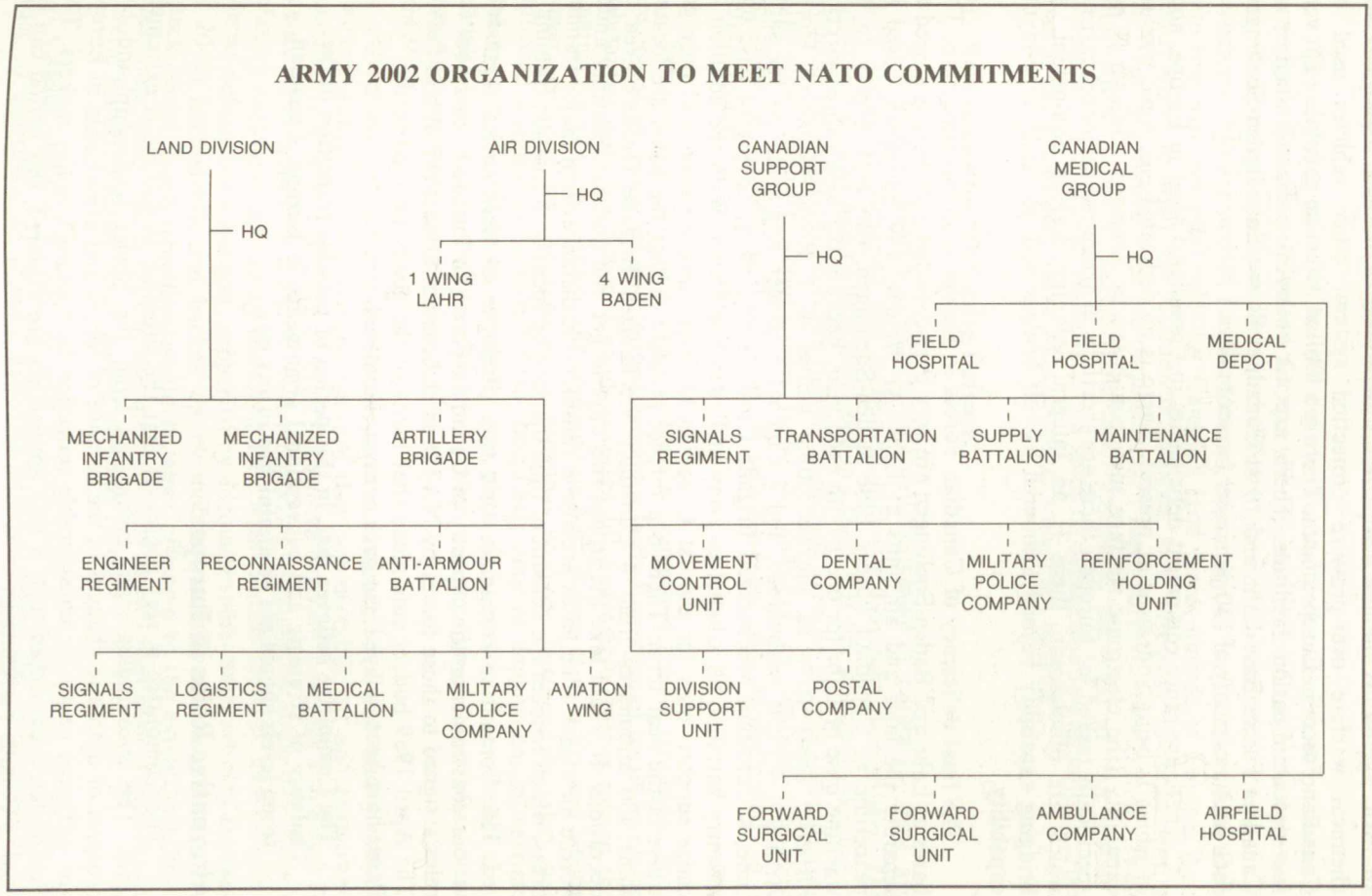
ARMY 2002 ORGANIZATION TO MEET NATO COMMITMENTS
LAND DIVISION
HQ
MECHANIZED INFANTRY BRIGADE
MECHANIZED INFANTRY BRIGADE
ARTILLERY BRIGADE
ENGINEER REGIMENT
RECONNAISSANCE REGIMENT
ANTI-ARMOUR BATTALION
SIGNALS REGIMENT
LOGISTICS REGIMENT
MEDICAL BATTALION
MILITARY POLICE COMPANY
AVIATION WING
AIR DIVISION
HQ
1 WING LAHR
4 WING BADEN
CANADIAN SUPPORT GROUP
HQ
SIGNALS REGIMENT
TRANSPORTATION BATTALION
SUPPLY BATTALION
MAINTENANCE BATTALION
MOVEMENT CONTROL UNIT
DENTAL COMPANY
MILITARY POLICE COMPANY
REINFORCEMENT HOLDING UNIT
DIVISION SUPPORT UNIT
POSTAL COMPANY
CANADIAN MEDICAL GROUP
HQ
FIELD HOSPITAL
FIELD HOSPITAL
MEDICAL DEPOT
FORWARD SURGICAL UNIT
FORWARD SURGICAL UNIT
AMBULANCE COMPANY
AIRFIELD HOSPITAL

FIGURE 2

On the other hand, Canadian Forces in Europe have very limited defences against nuclear, biological and chemical warfare. Personal kit in the form of protective coveralls, boots, gloves and masks was described as cumbersome but adequate, although the numbers are insufficient and not equally effective against all toxic agents. While the Leopard C1 does have a nuclear, biological and chemical warfare over-pressure protection system, other vehicles used by Canadian Forces in Europe do not. There is a limited detection capability but very few decontamination facilities. There are 13 chemical personnel shelters at Canadian Forces Base Lahr and 10 at Canadian Forces Base Baden-Soellingen, each with a capacity of 130 personnel for seven days.

There are other equipment deficiencies in Canadian Forces in Europe, none of which is being addressed at present. There is no dedicated electronic warfare capability (the electronic warfare squadron based at Kingston, Ontario is not specifically tasked for Europe); there are shortfalls in armoured personnel carriers which are obsolescent; there is no integral infantry digging equipment, no bridging capability beyond armoured assault bridges and no rapid mine-laying capability.

The final deficiency of Canadian Forces in Europe is in infrastructure. The bases at Lahr and Baden-Soellingen are very over-crowded and there is a need to separate the land and air units at Lahr. At present, 439 Squadron, based in peacetime at Canadian Forces Base Baden-Soellingen, can only deploy to its wartime base of Lahr for one month each year, because the base's three aircraft dispersal areas serve as the peacetime homes of 1 Royal Canadian Horse Artillery, 4 Field Ambulance, and 4 Combat Engineer Regiment. At the same time, 4 Canadian Mechanized Brigade Group is divided by having to base one infantry battalion 60 kilometres away at Baden-Soellingen. With the addition of cadre support units for the 1st Canadian Division, this situation will only get worse in the near term. There is a further problem in that the bases are located some 300 kilometres from 4 Canadian Mechanized Brigade Group's area of operations. It would take the troops two days to get into position, possibly under hostile air attack. The bases are also a considerable distance from major training areas, which reduces the amount of time that can be spent on formation training.

The Committee recognizes that this catalogue of deficiencies represents serious constraints on the capacity of Canadian Forces in Europe to carry out the roles assigned to those forces by NATO as elaborated in the 1987 White Paper. The April 1989 budget cuts mean that many of the goals specified in the White Paper have been delayed, cut back or even eliminated.

The Committee believes that, in this period of possible transition in the balance of strategic and conventional armaments in Europe, Canadian troop levels should not be diminished in any way.

Alternative Roles in Europe

The Committee is very conscious that the situation in Europe is extremely fluid. The encouraging signs emanating from the Soviet leadership and the prospect of dramatic changes in the balance of forces and armaments in Europe are sufficient cause for considerable reflection by Canada's policy-makers. The Committee is convinced that, if new approaches are explored, this period can be used to Canada's advantage.

The recent cutbacks in defence spending plans have had a markedly negative effect on morale in the Department of National Defence which had been built up by the proposals in the 1987 White Paper. The development of a new and financially realistic role for Canadian Forces in Europe could do much to restore the confidence of departmental officials and of the Canadian military.

The evolving situation on the central front and the exigencies of financial restraint in Canada provides an unexpected opportunity for Canada to the extent that it encourages policy-makers and defence planners to reconsider the kinds of structures that are needed for Europe and, especially, to try to bring them more into line with potential roles for Canada's land forces outside of Europe. As a contribution to what the Committee believes is a necessary re-assessment, a couple of alternative roles are outlined which merit further consideration. These alternatives — one a "defensive-defence" approach, the other an "air mobile" structure — are offered tentatively in a spirit of debate and re-evaluation, rather than as completed analyses of what should or should not be done.

a) Restructure for "Defensive Defence"

Although no weapon system is inherently offensive or defensive, some are more useful for initiating and sustaining high-speed attacks than others. The conventional arms negotiations described in Chapter II are principally aiming at reducing the capability on either side for launching surprise attacks and initiating large-scale offensive action. This is to be achieved by limiting the most destabilizing systems: tanks, armoured personnel carriers, artillery and, to a certain extent, strike aircraft.

While both NATO and the Warsaw Pact espouse defensive strategies, both are organized, equipped and trained to fight a fairly fluid type of battle involving substantial offensive action. Canadian forces fill a strategic reserve role in the Central Army Group sector, and so require a high degree of mobility and hitting power, centring on the tank as a principal weapon. Furthermore, they are stationed a significant distance from their likely zone of deployment in wartime and have to be able to move rapidly into place. It is questionable whether they actually have such mobility and hitting power, but the White Paper plans were supposed to provide them with it.

Defensive defence proponents are particularly concerned with highly mobile and long-range weapons systems because they are destabilizing and encourage pre-emptive attack. The more credible "defensive defence" concepts argue that it is possible to blunt even a highly intense blitzkrieg by deploying some sort of deep infantry anti-tank belt along the front line, with limited mobility and possibly barrier defences of some sort, supported by adequate short-range artillery (ranges of 20-40 kilometres), and backed up by mobile, probably armoured, counter-attack forces. Such structures would be more effective to the extent that both sides adopt them. Some shift in this direction can be expected with reductions in Central Europe and the reconfiguring of Soviet forces.

Canada could be among the first to reconfigure its land forces in Europe in order to contribute to a more defensive defence within the restrictions of an

agreement on conventional arms. The first requirement would be to abandon the reserve role and instead take up a position on the front-line such as Canada had in the 1950s. Since Canada intends to deploy a division in wartime, this could become an integral part of an allied corps. The advantages of such a position would be that under a defensive defence structure the Canadian force would not have to be as mobile or as offensive in structure as it would in reserve. The force would not have to move as far to its deployment location as it does at present, as long as there were adequate rail or airfield facilities nearby. It would be able to draw on the support resources of a corps and therefore would not have to develop as comprehensive a logistics and medical system.

Which corps it should become a part of is more problematic. In order not to be faced with reconstructing a new set of infrastructure elsewhere, the Canadian division would have to arrange a swap of facilities with an existing front-line division, which is better able to perform the reserve role. In the wake of a conventional arms agreement, facilities might be vacated as a result of force reductions and the complexities of a swap could be reduced.

The organization of a front-line defensive division in the context of current Canadian resources could be accomplished by establishing one light armoured defensive division of 6 manoeuvre elements (1 armoured regiment, 1 mechanized infantry battalion, and 4 motorized infantry battalions) plus support units. The support units would comprise two artillery regiments, a large engineering regiment, and combat service support units (divisional support group and medical unit). The brigade level of organization would be eliminated.

For combat, the six manoeuvre elements would normally create three combined arms battlegroups, but they would have the flexibility to operate in other configurations. One would be "heavy," formed by cross-attaching the armoured and mechanized infantry battalions, and the other two would be "light," formed from two motorized infantry battalions each. The motorized infantry battalions would integrate their expanded anti-tank resources into their rifle companies, rather than maintaining a separate anti-tank platoon. The light battlegroups would form an infantry anti-tank defensive belt, while the heavy battlegroup would form an armoured counter-attack force. The heavy battlegroup would have to ensure that it remained within range of the artillery regiments supporting the light battlegroups, which would limit its offensive range. Reconnaissance resources would be concentrated in the light battlegroups in order to identify the nature of the enemy attack, and direct counter-attacking forces onto it.

As little as one battalion, or perhaps one battlegroup plus an artillery regiment and support unit cadres could be stationed in Europe in order to contribute to reductions in conventional arms (a maximum of 3,500 personnel compared to the current 4,200). The stationed battlegroup would have to be the armoured force in order to reduce the requirements for training equipment in Canada. The equipment for the other units could be prepositioned.

The only resources not currently available to 4 Canadian Mechanized Brigade Group and 5 Groupe Brigade du Canada that this scheme would require

are additional anti-tank weapons, perhaps 50 TOW 2s[6] and improved medium anti-tank weapons. Only one armoured regiment's worth of tanks would need to be replaced, or perhaps less if the Leopards were maintained at a reasonable level of effectiveness. Tracked armoured personnel carriers could be replaced by wheeled ones when they wear out, except for one infantry battalion. They are cheaper to buy and maintain. Self-propelled artillery could be replaced by towed artillery when it wore out. 5 Groupe Brigade du Canada would deploy its three infantry battalions to Europe, rather than its armoured regiment. Cost savings would be gained by eliminating the brigade headquarters, even though some of their assets would be shifted to the divisional and battalion headquarters.

Third and fourth-line logistics would be mostly handled by the allied corps, though with Canadian participation. However, fewer Canadian resources would be required than for the Allied Central Europe Logistics and Medical Support System. Similarly, the Canadian division would have access to corps artillery and especially target-acquisition resources, as well as corps signals and electronic warfare facilities.

b) Restructure for Air Mobility

An alternative approach to that of defensive defence, which the Committee also offers as worthy of further study, would be to restructure Canada's land forces with a greater emphasis on air mobility. This would involve air mobile forces acting as rapid reaction reserves as part of the "operational" level of warfare in Europe in which NATO has recently begun to develop a greater interest. This level of warfare concerns army and army group operations. Up until now, NATO corps have planned to fight essentially separate corps battles using different national doctrines. The role of the army group commanders and the Commander-in-Chief of NATO's Central Army Group has been to try to coordinate these operations and supervise the introduction of reserves into the corps battles. The Soviets, on the other hand, have retained a deep appreciation for the operational level as it was at that level that they smashed German resistance on the Eastern front during the Second World War. Knowing NATO's weaknesses at the operational level, they would try to operate along NATO corps boundaries, in accordance with their offensive doctrine and where coordination would be weakest, in order to surround large forces without a threat from significant operational reserves.

Operational-level combat requires corps to operate in conjunction with each other and relies particularly on the concentration of reserve forces at higher levels to respond to the enemy's operational moves. Substantial operational reserves must be under the control of army group or higher commanders. Under current arrangements, the forces of the French 1st Army represent the operational reserves for Central Army Group, and the U.S. III Corps represents the operational reserves for Northern Army Group. However, for different reasons, neither is immediately available. There is a need for more rapid-reaction reserves in the form of in-place, air mobile forces, to perform blocking roles at least until the larger reserves are available.

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6. Tube-launched, Optically-tracked, Wire-guided missiles systems.

Central Army Group's problems have diminished in recent years due to the creation of the French Force d'Action Rapide, which includes one air mobile, one airborne, and one light armoured division (plus other units). In addition, expectations have grown that French forces would be put under NATO command at the beginning of a conflict and would be deployable throughout the Central Army Group area. Central Army Group's component corps (two U.S. and two German) are in any case well served with helicopter resources.

Northern Army Group has been less fortunate. Currently, in-theatre air mobile reserves for Northern Army Group consist of one British air mobile brigade based in Britain, and the air mobile brigade integral to I German Corps. An idea is being floated within NATO of creating a multinational air mechanized division as a reserve for Northern Army Group. Canada could contribute an air mobile brigade to such a force, but because of its greater mobility could continue to base it at Lahr.

There are quite wide variations in possible organizations of air mobile brigades. They often include vehicle-mounted components and a Canadian force could include a vehicle-mounted battalion. It would be preferable, however, if the whole force could be heli-borne in order to ease coordinated deployment and redeployment. Canadian helicopter resources would have to be integrated, should consist of a mix of light transport helicopters (similar to the CH-135s) and heavy transport helicopters (CH-147s), and should be able to transport at least two-thirds of the force. Transport helicopters would have uses other than combat which tanks, for example, do not.

The force itself should consist of three air mobile battalions; a support battalion including at least one attack helicopter squadron, helicopter transportable mortars, and an engineer company with mine-laying and digging equipment; and a service support battalion. The air mobile battalions should include a high proportion of anti-tank weapons. The most pressing need in that regard would be to replace the Carl Gustavs with a modern medium-range anti-tank guided weapon. There would also be a need to ensure a level of standardization with other Northern Army Group air mobile reserve formations.

Such a force would certainly be cheaper to equip from scratch than a mechanized division, even with a squadron of attack helicopters. The problem would be changing from the current structure to an air mobile one. An air mobile brigade would require significant amounts of new equipment since it would use very little of the equipment of the current 4 Canadian Mechanized Brigade Group and 5 Groupe Brigade du Canada.

If to reduce the need to acquire new equipment, the force were only battalion sized, a useful role is more difficult to envisage unless as part of a foreign or multinational brigade. One possibility would be to base it in Britain and make it part of the British 24th Air Mobile Brigade. If Canada were to station a single battalion in Europe, it would make more sense to commit it to the Allied Command Europe Mobile Force (Land) for deployment to areas other than north Norway.

The Committee is aware that the development and elaboration of a new role for Canadian Forces in Europe, particularly in a period of a changing threat, cannot easily or quickly be achieved. It does not suggest that either of the two approaches it has outlined should be regarded as the ultimate solution. There are other possible configurations that might be elaborated. But the Committee is convinced that alternative roles should be explored and assessed.

The Committee recommends that the Department of National Defence explore alternative roles for the Canadian land forces in Europe, perhaps of a more specialized nature, with a view to reducing the current disparity between stated land force commitments in Europe and actual capabilities. The Committee also believes that, in any investigation, the Department of National Defence should take into account other potential roles for Canada's land forces outside of Europe, ideally in order to ensure that equipment acquired for Europe has viable uses elsewhere.

Chapter VII

THE TERRITORIAL DEFENCE OF CANADA

The last time that Canada had to deal with a military incursion onto its territory was in 1870 when a group of Irish Americans attacked Mississquoi county in Quebec, in the hope of holding Canada "hostage" until Great Britain granted Irish independence. They were, of course, unceremoniously repelled, but since that time the Canadian Army has had a problem defining its existence in terms of the territorial defence of Canada.

Canada's land forces continue to ponder the probability of conventional land attacks in the north and on the two coasts. The evidence suggests that any type of airborne invasion of Canada is remote, while the likelihood of a full-scale armoured battle occurring on Canadian territory approaches zero. The Chief of Defence Staff granted in 1988, "There is no tactical requirement for main battle tanks in Canada itself."[1] The principal requirement is for a small, very mobile land force to deter any incursion by hostile conventional forces.

The Threat

In the nuclear age, the military threats to Canadian territory from space, air and sea are much clearer than those on land. Potential threats by land can be classified in four categories: 1) full-scale conventional attack; 2) airborne attack on strategic targets; 3) airborne attack for diversionary purposes; and 4) terrorism.

There appears to be no policy-maker or informed observer who believes that a full-scale land attack against Canada is at all likely. Lieutenant-General Vance described the possibility as "limited" while Colonel Tattersall testified that the Department of National Defence does "not expect massive armour heavy land forces to attack Canada."(2:14; 7:7) In a 1987 article which examines the various threats to the Canadian Arctic, Cynthia Cannizzo of the University of Calgary wrote that "the possibility of a land invasion over some five thousand kilometres of arctic terrain is minuscule".[2]

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1. Interview with General Manson in *NATO's Sixteen Nations: Special Issue 1988* (12:1) p. 32.
2. Dr. C.A Cannizzo: "Northern challenges" in *Forum: Conference of Defence Associations*, May 1987, p. 8.

Small-scale airborne attacks are somewhat more credible. The objective, within the context of a conventional war in Europe, might be to capture certain military vital points so as to reduce Canada's ability to wage war, or to create panic and put pressure on the Canadian government to keep substantial forces in Canada, or even to call back forces already sent to or stationed in Europe.

The Soviet Union has significant airborne ground capability comprising six divisions and 10 brigades, dispersed throughout five regional theatres of operation. The closest to Canada are a single division and a brigade in the Northwestern theatre with headquarters in Leningrad and two brigades in the Far Eastern theatre near Alaska. The mainstays of the Soviet Union's long-range military transport aviation fleet are its 370 Il-76 Candid B aircraft, each capable of transporting up to 140 troops or 125 paratroops or 48 metric tonnes of equipment over a range of 6,700 kilometres. The other principal paratroop transports are 150 An-12 Cubs, which are being replaced by the Candids.[3] It is improbable, however, that the Soviet Union would commit a large force to attack Canada given the many European targets of much greater tactical value.

Both Brigadier-General Clayton Beattie (retired), former Commander, Northern Region, and Lieutenant-General Fox, then Commander of Force Mobile Command, remarked on the danger to Canada of a quick Soviet airborne attack on either isolated military targets or for diversionary purposes.(3:15; 15:19) Maurice Tugwell identified possible NATO targets for attack, some of which would be in Canada. They included military and political leaders, command and communications facilities, airfields, and ammunition depots.(17:18) A diversionary attack would most likely be carried out by Soviet special purpose forces, or "spetznaz" which operate in small groups behind enemy lines with the intention of attacking vital military and political targets. Spetznaz probably have an airborne capacity, but recent accounts indicate that they would be infiltrated rather than air-dropped into their target areas with the aim of slowing NATO's mobilization process as much as possible.[4] Most accounts estimate there are between 27,000 and 30,000 spetznaz personnel in five brigades associated with the ground forces of the five regional theatres, and four deployed with the naval forces of the four major fleets.[5]

Yet in an article on spetznaz in *Canadian Defence Quarterly*, Major M.J. Goodspeed never mentioned the threat to Canada of these forces. He described four potential targets for spetznaz attacks in order of priority: nuclear weapons

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3. The 150 An-12 Cubs are capable of transporting up to 90 troops or 60 paratroops or 20 metric tonnes over 3,500 kilometres. The Soviet Union's largest transports, 55 An-22 Cocks and 20 new An-124 Condors, each capable of carrying over 80 metric tonnes over 5,000 kilometres, are rarely used for paratroops. IISS, *The Military Balance 1988-89* (London: IISS, 1988), p. 36 and *Jane's All the World's Aircraft 1987-88*, (London: Jane's Publishing Company, 1987), pp. 235-6, 247-8.
4. See John Thompson, "The Soviet Ground Forces Today and into the Nineties," *Canadian Defence Quarterly* (17:1) Summer 1987, p.26; and Captain W.H. Welsh, "The Base Defence Forces: There is Much Room for Improvement," *Canadian Defence Quarterly* (16:2) Autumn 1985, p.36.
5. International Institute of Strategic Studies, op. cit., p. 34. See also Major M.J. Goodspeed, "Spetznaz: Soviet Diversionary Forces; Checkmate in Two Moves," *Canadian Defence Quarterly* (18:1) Summer 1988, p.44; and Thompson, op. cit., p. 26.

storage depots; targets that would reduce NATO's air superiority; targets that would hinder the deployment of NATO's land forces; and targets that would demoralize the population and create panic.[6] Using these criteria, spetznaz forces would probably be preoccupied with European targets rather than with the relatively insignificant ones in Canada. The Committee heard considerable testimony describing the limited value and the tactical difficulties of such an attack for the Soviet Union. Admiral Robert Falls (retired) remarked that "...it would be suicidal on their part. I would have great confidence in the commander of Mobile Command to be able to look after us."(12:29) John Marteinson added, "I have never heard any really convincing argument that our most likely potential enemy has either the capability or the inclination to attempt to seize and hold even small bits of Canadian territory, be they in the Arctic or along our shores."(22:11)

Defence of Canada Operations

The contingency plans for the territorial defence of Canada are contained within the "defence of Canada operations" under which Canada would prosecute attacks without U.S. assistance. Joint Canada-U.S. arrangements for the land defence of North America are coordinated under the Land Operations Plan. The Commander of Force Mobile Command and the American Commander-in-Chief of Readiness Command develop contingency plans and conduct regular exercises with small and large units. If a joint Canada-U.S. operation were called for, American land and tactical air support could be provided by Readiness Command, Alaskan Air Command or the Joint Task Force, Alaska. All U.S. forces operating on Canadian territory would be under Canadian operational control.[7] Colonel L.W.F. Cuppens, then Director of the Department of National Defence Military Plans Coordination, told the Committee during its visit to Canadian Forces Base Trenton: "Owing to the size of our country and the limited resources of the Canadian forces, mobility is the key factor in the conduct of these operations." In practice, this means that the units conducting defence of Canada operations must have an airborne capability.

The Special Service Force is tasked with the primary responsibility for the defence of Canada. Within the Special Service Force, the Canadian Airborne Regiment and elements of its armoured, artillery and combat engineer regiments and support units can be combined to form the Airborne Battle Group of 1,100 personnel. The infantry battalion of the Special Service Force does not have an airborne capability.

Since 1982, the Canadian Forces have trained for defence of Canada operations in an annual exercise called "Lightning Strike." That exercise has been described as a test bed where the land forces develop and validate various aspects of the defence of Canada concept of operations. The first and second exercises were conducted at Earlton, Ontario in 1982 and 1984. They concentrated on air

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6. See Goodspeed, *op. cit.*, p. 44.
7. Standing Committee of the House of Commons on External Affairs and National Defence, *Norad 1986*, February 1986, p. 13.

movement and later equipment requirements for airborne and air landed operations. The 1986 exercise was the first time the Special Service Force was involved in a realistic threat, terrain and weather environment. In February 1987, Lightning Strike operations involved the deployment of a commando group to Iqualuit, N.W.T. as a forward base. The group was then air-dropped against "incursions" at Cape Dorset and Cape Dyer.

Lightning Strike '88 was conducted from mid-January to mid-February. The units which took part were the Special Service Force, 10 squadrons of the Air Transport Group, the Fighter Group, and 10 TAG, as well as command units from Air Command, the Canadian Forces Communication Command, Northern Region Headquarters, Central Region Headquarters, and National Defence Headquarters. The Task Force Headquarters of the operation was located at Trenton, while a forward headquarters for northern operations was located at Yellowknife. The geographic sweep of the exercise was immense, including operations in the areas around Borden and Kapuskasing in Ontario, Inuvik in the Northwest Territories, and Prince George in British Columbia. The next large-scale defence of Canada operation will be Lightning Strike '91 involving the total field force.

The Defence of Canada Task Force

As mentioned in Chapter IV, the planned restructure of Canada's land forces will put defence of Canada operations under the jurisdiction of both the Task Force and four area headquarters. The latter will have a defence of Canada role for the command and control of regional operations and are responsible for the guarding of military vital points. This function will be carried out by the Reserves.

Under Army 2002 plans, the Task Force would be of divisional size, headquartered at Canadian Forces Base Montreal. It would contain the Canadian Airborne Regiment as an independent formation, the Special Service Force, an infantry brigade group consisting mainly of Militia personnel, Task Force support troops, and a tactical/transport helicopter wing. The 1989/90 budget cuts have clouded the situation, but the Task Force will still include the Airborne Battle Group and will draw resources from the three brigade groups to be based in Canada and double-tasked with defence of Canada and readiness roles.

Despite doubts about the magnitude of the land threat to Canada, it would be imprudent not to have the capability to counter small-scale airborne or seaborne attacks in remote regions of the country, whether their goals were diversionary or strategic. General Manson pointed out: "The benefits that would accrue to an enemy who undertakes diversionary actions against an unprepared North America would be out of all proportions to his investment."(1:26) Lieutenant-General Fox added this consideration:

> our defence of Canada forces must not only be capable of defeating the real enemy threat but must also be seen by the Canadian public at large to be capable of responding to a perceived threat anywhere in the country. This is particularly

so if we are to guarantee our strategic freedom to deploy our Europe task force.(3:16)

Regarding the overall size and capabilities of defence of Canada forces, Lieutenant-General Fox felt that: "Ideally, we should have at least two more air transportable brigades to conduct follow on operations...This could be a mission for the reserves..."(3:16)

Air transportable or air mobile troops are those whose equipment is light and small enough to be carried in available tactical transport aircraft, both fixed- and rotary-wing. In Canada's case, the ultimate limiting factor is the size and load capacity of the CC-130 Hercules, Canada's largest tactical transport aircraft, which can carry 92 infantry troops, 64 paratroops, or about 20.4 metric tonnes of equipment.[8] In 1986, this Committee recommended that the Hercules fleet be increased from 28 to 45 by 1994.[9] Although air transport was barely mentioned in the White Paper, the Committee notes that there are plans to implement its earlier recommendation, albeit only by the year 2000.[10] This would significantly increase the number of airborne troops that the Canadian Forces could deploy and support for the territorial defence of the country against conventional threats, in addition to the advantages provided in terms of alternative roles in Europe as described in Chapter VI.

Tactical transport aircraft must land to unload air mobile troops who are organized and equipped for immediate commitment to combat. However, since aircraft on the ground are very vulnerable to enemy action, they must land outside maximum weapons range of the enemy — 2 to 30 kilometres depending on the enemy's equipment. Tactical transport aircraft such as the Hercules do not necessarily need a paved runway to operate from, but they do need dry, hard, flat terrain. It is uncertain how much of the Arctic tundra in winter would be usable.

Airborne troops or paratroops have greater flexibility because the aircraft do not need to land to unload their troops; however, if aircraft cannot land to unload them, they also may be unable to land to extract them. Paratroops are also very vulnerable until they have organized themselves after landing, so they should land outside the enemy's maximum weapons' range. Dry, hard, flat terrain is preferred for airborne operations, and paratroops' equipment must be very light.

If the Soviet Union were to attack with airborne troops in a remote region of the country, Canada would probably not have the luxury of being able to launch counterattacks from developed bases and facilities. Troops and equipment would first be deployed to a forward HQ or base near the intended area of operations, preferably with a paved runway to permit CC-137s and civilian aircraft to operate in support. In Exercise Lighting Strike '88, such a forward base was established at Yellowknife, NWT. From there, operations can be conducted by parachute

8. Special Committee of the Senate on National Defence, *Military Air Transport* (Ottawa: Supply and Services, 1986), p. 12.
9. *Ibid.*, p. x.
10. Colonel George E.C. MacDonald: "The Air Force Programme: Implementing the White Paper," in *Canadian Defence Quarterly*, Spring 1988, p.35; an interview with Eldon J. Healey, Assistant Deputy Minister (Material), DND in *NATO's Sixteen Nations: Special Issue 1988* (12:1) p. 96.

assault, air mobile assault or over-snow ground assault (in over-snow vehicles such as the BV-206) to dislodge incursions. Obviously, the greater the network of airfield and roads in the area of operations, the easier those operations will be to conduct.

Chapter VIII

PEACEKEEPING

Peacekeeping refers to the use of military personnel to monitor and supervise a ceasefire between belligerents. The purpose of peacekeeping is to enable the parties to the conflict to disengage more fully and to give them confidence that their differences can be settled by negotiation. Peacekeeping activities range from unarmed missions intended only to observe and report, through investigation, supervision and control, to the insertion of armed military units and formations between the belligerents. Although peacekeeping is a relatively recent innovation, introduced by the United Nations in 1948, its efficacy in the contemporary world was aptly recognized when UN forces were awarded the Nobel Peace Prize in 1988.

Canada has a tradition of involvement in peacekeeping activities. The only country to have served in all of the United Nations missions since 1948, Canada has also contributed to four non-UN missions: the two International Control Commissions for Indochina (1954-73), the Observer Team in Nigeria (1968-9), and the Multinational Force and Observers in the Sinai (1986-present). It has consistently been regarded as one of the key missions of the Canadian Forces, a commitment confirmed in the 1964, 1971 and 1987 Defence White Papers. By attempting to stabilize regional conflicts, peacekeeping serves the broader interests of preventing armed conflict between East and West.

Canada is well equipped to provide both the political and technical expertise needed for peacekeeping. Canada's activity in many multilateral organizations grants it a high profile in the international community and a useful network in seeking to build the coalitions on which both peacekeeping and peace restoration often depend. It has never been a colonial power and has had no territorial claims or other national interests at stake in the many regions where peacekeeping has been employed. There are also few countries that can "provide a battalion group and sustain it overseas" and fewer still that do not intimidate the parties directly involved in the conflict.(10:24) In short, Canada has a highly professional army and is not a threat to other states. This unusual combination makes Canada an ideal peacekeeper.

Over the years, Canada has developed a number of criteria which serve as guidelines for participation in peacekeeping operations. The 1987 White Paper summarized them as follows:

1) there is a clear and enforceable mandate;
2) the principal antagonists agree to a ceasefire and to Canada's participation in the operation;
3) the arrangements are...likely to serve the cause of peace and lead to a political settlement in the long-term;
4) the size and international composition of the force are appropriate to the mandate and will not damage Canada's relations with other states;
5) Canadian participation will [not] jeopardize other commitments;
6) there is a single identifiable authority competent to support the operation and influence the disputants;
7) participation is adequately and equitably funded and logistically supported.[1]

Although UN auspices have been preferred, superpower differences in the Security Council have often hampered effective decision-making and Canada has therefore participated in some non-UN forces as well.(16:9-10)

Current Commitments

The White Paper underlined the established policy whereby up to 2,000 troops can be called on for peacekeeping duties at any one time.[2] Canada is currently involved in 10 peacekeeping operations:

1) the United Nations Truce Supervisory Organization Palestine (UNTSO);
2) the United Nations Military Observer Group India-Pakistan (UNMOGIP);
3) the United Nations Command Military Armistice Commission (UNCMAC);
4) the United Nations Force in Cyprus (UNFICYP);
5) the United Nations Disengagement Observer Force (UNDOF);
6) the Multilateral Force of Observers (MFO);
7) the United Nations Good Offices Mission in Afghanistan and Pakistan (UNGOMAP);
8) the United Nations Iran-Iraq Military Observer Group (UNIIMOG);
9) the United Nations Transition Assistance Group Namibia (UNTAG); and
10) the Mine Awareness and Clearing Training Program Pakistan (MACTP).

Table 5 provides the number of Canadian troops currently authorized for each peacekeeping force as well as the total number of international personnel involved in the force. (see page 79)

The UN Truce Supervisory Organization (UNTSO) was created in 1948 "to observe and maintain the ceasefire and to assist in the supervision of the General Armistice Agreement concluded between Israel and Egypt, Lebanon, Jordan and Syria.[3] It is a complex operation due to its geographic dispersion throughout the Middle East.

Headquartered in Jerusalem, it is organized into four observer groups and two liaison offices, the latter deploying officers to designated observation posts. Observer Group Lebanon operates along the Israeli-Lebanese border and provides

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1. Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada*, *op. cit.*, p. 24.
2. *Ibid*, p. 25.
3. Senate Foreign Affairs Committee, *Canada's Relations with the countries of the Middle East and North Africa*, June 1985, p. 80.

liaison between the United Nations Interim Force in Lebanon (UNIFIL) and the commanders of the respective factional forces located in UNIFIL's area of responsibility. Observer Group Beirut patrols the city west of a "green line" which divides Moslem from Christian Beirut. Observer Group Golan patrols the Golan Heights. Observer Group Egypt deploys observers to the Sinai peninsula. UNTSO is unusual in that it has a permanent mandate, it operates through individual officers acting as observers, and it serves as an invaluable channel of communications between states which do not have normal relations.

The UN Military Observer Group India-Pakistan (UNMOGIP) was established in 1949 to observe the ceasefire in Kashmir between the two states. Canada's contribution is limited to a biannual relocation of the operation's headquarters between Rawalpindi and Srinagar by CC-130 Hercules aircraft; there are no Canadian troops stationed with UNMOGIP.

The UN Command Military Armistice Commission (UNCMAC) has been in existence since the Korean armistice agreement of 1954. It patrols the demilitarized zone between North and South Korea. Canada's military attaché in Seoul acts as the Canadian observer in this mission.

The UN Force in Cyprus (UNFICYP) was created in 1964 in order to prevent hostilities from recurring between the Greek and Turkish Cypriot communities in Cyprus. Canada has been involved from the outset. In 1974 the situation was radically altered when Turkey intervened militarily in reaction to an attempted coup by forces seeking the union of Cyprus with Greece. About

TABLE 5

CURRENT PEACEKEEPING MISSIONS: CANADIAN AND TOTAL INVOLVEMENT

Force	Authorized Canadians	Total Military Personnel	Total Countries Involved
UNTSO	20	300	17
UNMOGIP	N/A	N/A	N/A
UNCMAC	1	N/A	N/A
UNFICYP	575	2,127	7
UNDOF	227	1,335	4
MFO	139	2,700	11
UNGOMAP	3	40	7
UNIIMOG	16	N/A	26
UNTAG	257	4,650	7
MACTP	12	N/A	9
	1,250	11,152+	

Source: Department of National Defence, 17 May 1989.

200,000 Greek Cypriots fled the northern 40% of the island which subsequently came under Turkish Cypriot control. Since then, UNFICYP has patrolled a buffer zone known as the "green line".

Canada has maintained the second largest contingent in UNFICYP since 1964, the largest being that of Great Britain with almost 800 troops. The Canadian contingent patrols the section of the buffer zone that runs through Nicosia, the narrowest and potentially most dangerous area on the island. On 1 January 1988, Sweden withdrew all of its military personnel from UNFICYP and Canada assumed responsibility for about half of the Swedish contingent's former area just east of Nicosia in March.

The UN Disengagement Observer Force (UNDOF) was created in 1974 to supervise the Israeli-Syrian Disengagement Agreement of July the same year. It is headquartered in Damascus and patrols an "area of separation" on the eastern edge of the Israeli-occupied Golan Heights, still legally part of Syria. This zone is about 70 kilometres long and varies in width from one to seven kilometres. Canada set up the communications infrastructure when the force was created and is now responsible for all of its tactical communications, including the necessary equipment.

The Multilateral Force of Observers (MFO) is responsible for supervising the implementation of the Egyptian-Israeli Peace Treaty of 1979. It patrols a strip of territory on the eastern edge of the Sinai peninsula that varies in width from 20 to 40 kilometres. Canada contributes a helicopter squadron which helps verify compliance with the treaty. 10 Tactical Air Group provides four squadrons on a rotational basis, each for 6-month periods. Seven Canadians are assigned to MFO headquarters at El Gorah, with the remainder of the contingent responsible for reconnaissance, verification, movement of personnel, logistic support, and search and rescue. The MFO claims Canada's largest equipment contribution of any peacekeeping force, comprising eight CH-135 helicopters in June 1988, although the exact number depends on which 10 TAG squadron is fulfilling the commitment.

On 28 April 1988, Canada agreed to supply observers to the **UN Good Offices Mission in Afghanistan and Pakistan (UNGOMAP)** which began observing the withdrawal of approximately 115,000 Soviet troops starting 15 May, the first of which had entered Afghanistan in December 1979. UNGOMAP has headquarters in Kabul and Islamabad.

The withdrawal, based on a four-country agreement signed by Afghanistan, Pakistan, the United States and the Soviet Union, was completed on schedule by 15 February 1989. All of the seven major rebel groups comprising the mujaheddin, who fought against the Soviet occupation of Afghanistan, rejected the accord, which makes it highly unusual, if not unique, in the annals of peacekeeping. Canadian officials have admitted that the UN force was too small and too dependent on the co-operation of the Afghan and Pakistani armed forces to mount a comprehensive independent monitoring of the withdrawal, but it was carried out without significant disruption. The rationale for Canadian participation was based solely on diplomatic and political considerations, following soundings in Washington and Moscow as well as pressure from the UN Secretary-General.

There have been accusations by both sides of violations of the non-interference aspects of the agreement. The UN is currently reviewing a joint Afghan-Soviet proposal to monitor those non-interference aspects with peacekeepers. To this end, Canada has been asked to provide three observers to UNGOMAP until January 1990.

The UN Iran-Iraq Military Observer Group (UNIIMOG) was set up by the Security Council immediately following the announcement on 8 August 1988 by the UN Secretary-General that a ceasefire would begin 20 August in the eight-year Iran-Iraq war. Canada sent almost 500 communications and support personnel to set up a communications infrastructure to support the 350-man observer force, which included 15 Canadians. The observers are tasked with monitoring the ceasefire zone along the 1,200 kilometre border between Iraq and Iran.

Difficulties were initially encountered in getting the peacekeepers to Iraq and especially Iran, so the communications structure was not in place when the ceasefire came into effect.[4] In spite of concerns that the ceasefire would not hold, there have been no major violations. The Canadian communications personnel were replaced by civilian signallers of the UN Field Services Organization and most had returned to Canada by the end of December. Sixteen Canadian observers remain with the force, whose original six-month mandate has been extended while peace talks continue.

The **United Nations Transition Assistance Group (UNTAG)**, Namibia was established following a 22 December 1988 agreement among Angola, Cuba and South Africa, linking Namibian independence to the withdrawal of Cuban forces from Angola. The agreement provided for Namibia (formerly South West Africa) to come under UN administration on 1 April 1989, with elections for a constituent assembly tentatively scheduled for November. The transition is to be monitored and implemented by 4,650 peacekeeping troops and 1,880 police and civilian administrators, which makes it one of the largest operations in UN history. Canadian involvement in the Namibian process began as a member of the Contact Group of five Western countries which helped draw up UN Security Council Resolution 435 that provided the framework for the agreement. UNTAG includes 257 Canadians in a logistics support unit.

The ceasefire broke down almost immediately as South West Africa People's Organization (SWAPO) guerillas entered Namibia from Angola in contravention of the December agreement.[5] SWAPO was not a party to the agreement, but had indicated that it would abide by the ceasefire terms. UNTAG's deployment was behind schedule because of disputes over the size of the force and its financing. As a result, it was unable to intervene to prevent fighting which left over 300 dead. UNTAG speeded up its deployment, which was completed by 10 May. A ceasefire was agreed for 3 May and South African troops returned to their bases in the last week of May. The transition process has been restarted, but UNTAG still appears to be struggling to impose its authority.

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4. Aileen McCabe, "UN troops tied in red tape," *The Ottawa Citizen*, 27 August 1988, p. B1.
5. Paul Koring, "SWAPO broke accord, Clark acknowledges," *The Globe and Mail*, 7 April 1989, p. A4.

A 12-person (three women, nine men) Canadian contingent joined the UN **Mine Awareness and Clearing Training Program (MACTP)**, Pakistan on 20 March 1989. Soviet and Afghan troops laid thousands of land mines during the protracted Afghanistan conflict. The programme has a four-month mandate to teach Afghan refugees, mostly women, how to recognize and disarm the mines.

Potential Commitments

Apart from the 10 forces to which Canada is currently committed, there are other potential peace settlements or ceasefires which may lead to a request for additional Canadian personnel. There has been speculation, for example, about a possible Canadian peacekeeping role in Central America. Canada has provided considerable advice on verification procedures both to the Contadora Group countries that for several years were attempting to negotiate a regional peace settlement, and to the five Central American countries themselves. Canada was asked provisionally to participate in a "technical auxiliary group," along with the Federal Republic of Germany and Spain, to design a verification mechanism that would meet the requirements of the Esquipulas Accord, signed by the five Central American countries in August 1987. A Central American ceasefire was agreed in August 1988, but has since been systematically violated. A peacekeeping scheme was submitted to the UN Secretary-General by the five Central American foreign ministers on 31 March 1989 calling for a force of 160 to monitor a regional peace agreement, but it lacked unanimity, and the ministers were urged to try again. In any event, numerous questions regarding the force would need resolution before any Canadian decision to commit troops would be considered. As Brigadier-General George Bell of the Canadian Institute of Strategic Studies emphasized, even an observer force in Central America should report to a competent political authority, such as the UN, capable of acting on the force's observations if violations occurred.(10:16)

On 5 April 1989, the governments of Vietnam, Cambodia and Laos invited Canada, along with India and Poland, to set up an "international controls and supervision commission" to monitor the withdrawal of Vietnamese troops from Cambodia by September 1989, and the cutting off of foreign aid to Cambodian resistance groups. Canada responded cautiously, maintaining that certain conditions would have to be met before Canada would agree to participate, including support of all parties for the commission, and a clear mandate with a set lifespan. Previous unfavourable experiences with control commissions in Indochina in the 1950s and 1970s are causing the government understandable concerns, though MPs and diplomats with recent experience believe that conditions are quite favourable at present.[6] Canada would prefer to be part of a UN force, but the UN does not recognize the current government in Phnom Penh.

Finally, the prospect of an end to the war in the western Sahara increased substantially when both Morocco and Polisario Front rebels gave conditional approval on 30 August 1988 to UN peace proposals. War broke out in 1975 when

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6. Ross Howard and Charlotte Montgomery, "Canadian monitoring of Cambodian pullout called vital to peace," *The Globe and Mail*, 18 May 1989, p. A9.

Morocco annexed the Western Sahara which had previously been a colony of Spain. Polisario Front supporters, backed by Algeria, proclaimed the Saharan Arab Democratic Republic in 1976. The United Nations is proposing a ceasefire, likely involving a peacekeeping force, which would be followed by a referendum on self-determination.

Benefits

General Manson told the Committee, "there is no question that we welcome the opportunity to send our people to the United Nations peacekeeping operations." He went on to explain that peacekeeping offers:

> training of the sort that is difficult to provide in an artificial setting....Young officers and young non-commissioned officers are, from time to time, placed in a most difficult situation between the two sides — situations in which initiative and human resources are extremely important.(1:36)

Major-General Evraire emphasized its value for junior leaders, even if it involves only observation or supervision.(16:12) He also noted its importance in enhancing unit cohesiveness and teamwork, and underlined that Canadian soldiers return to Canada with a much greater understanding of the world. A special advantage of UNFICYP is that the Army deploys complete units in Cyprus, allowing unit officers to be in charge of an entire platoon, company, or battalion and thereby "exercise a large number of important officer functions."(16:27) In short, peacekeeping is "an experience from which...every soldier gets a great deal, both professionally and personally."(16:28)

Reservists

There has been a concerted effort to increase the number of reservists involved in peacekeeping, although the actual number remains low. As of 15 June 1989, there were 100 authorized Reserve positions within the Canadian UNFICYP contingent, all of which were filled. This compared to 32 and 23 authorized positions within the Canadian contingents of UNDOF and UNTAG respectively, with the actual numbers in the field 13 and 23. The UNIIMOG force had 35 reservists in the field. One problem with further increases is that no legislation exists guaranteeing reservists their civilian jobs once they return from overseas duties. The absence of such a guarantee is the main reason for authorized Reserve positions remaining unfilled.(16:23) This is compounded by the fact that considerable additional training is often required for peacekeeping beyond the six-month leave of absence for military duties that Reservists normally take.(16:23) Such training is important because peacekeeping involves politically sensitive situations which often require diplomatic skills in addition to military experience. In addition, not all of the Canadian contingents to UN peacekeeping missions are treated equally insofar as some such as UNFICYP are "nationally funded" by National Defence headquarters, whereas others such as UNDOF

require the individual commands to provide the requisite funding to fill authorized positions. This places an extra financial burden on the reserve budgets of those commands that are most often affected, such as Mobile Command, a burden which is sure to grow if more emphasis is laid on deploying more Reservists in peacekeeping operations. It is an anomaly that demands correction.

Given the importance that the Government and people of Canada place on peacekeeping, the Committee suggests that the Department of National Defence appoint a task force to investigate ways and means of encouraging greater use of Reservists in peacekeeping operations. Among the issues that such a task force should consider would be: 1) whether a special dispensation can or should be made for reservists involved in peacekeeping duties to ensure that neither their careers nor job benefits are jeopardized as a result of additional training or actual service, and; 2) the feasibility of national funding for Canadian contingents in all peacekeeping missions to ensure that all Reserve authorized positions are filled.

Cyprus

The Committee is particularly concerned about the length and size of Canada's commitment to Cyprus. At considerable cost, Canadian troops have been in Cyprus for one-fifth of Canada's history as an independent nation. Although Canada has been involved in missions for longer periods of time — in UNTSO since 1954 and UNMOGIP since 1949 — the number of personnel involved is minor by comparison. UNFICYP shows signs of becoming a permanent obligation, a point that Fred Bild, Assistant Deputy Minister at External Affairs, appeared to confirm in remarks to the Committee when he agreed that "the lack of political progress toward permanent solutions of the disputes is regrettable," but that, "the consequences of withdrawal of the forces concerned ... would be even more regrettable."(16:27) He added, "until one can come to an alternative arrangement ... we are stuck with it."(16:21)

There are indications of renewed movement toward a political settlement in Cyprus. Canada should do everything it can to encourage such a settlement as well as rapprochement between Greece and Turkey. At Canada's request, the United Nations Security Council called in June 1989 for redoubled efforts to find a political solution. The Council noted that 25 years had passed without significant progress between the opposing parties and urged the two sides to demonstrate maximum flexibility in seeking a rapprochement.

Past results should lead one to be sceptical, however, of the progress likely to be made in talks between the Greek and Turkish communities in Cyprus. There is no reason to expect that the latest round of talks will succeed. The Committee is well aware of the frustrations that Canadians feel when 25 years of peacekeeping seems to have brought the two sides no closer together.

But, like all forms of insurance, the cost of Canada's contribution has to be balanced against the cost if Canadian forces — which occupy the most sensitive and potentially explosive ground running through the divided city of Nicosia — were to be withdrawn and civil war on the island and possibly further fighting between Greece and Turkey were to break out.

It is arguable that Canada's most important contribution to NATO, for which it is uniquely qualified, is preserving peace in Cyprus and thereby preventing the outbreak of inter-allied violence on NATO's southern flank.

If genuine détente with the USSR is achieved, it might then be possible to contemplate withdrawal. If there were not a risk that the USSR might profit from tension and even conflict in the southeastern Mediterranean, a withdrawal of Canadian forces from Cyprus might be considered. In such an environment, pressure to achieve a compromise settlement might be greater than it now is, because the two sides would be aware that the strategic importance of Cyprus would be diminished.

It may indeed be that, "The greatest threat to the continued existence of UNFICYP remains the perilous state of finances."[7] The cost of financing the force for each 6-month period in which the mandate is extended is about $46 million, 70% of which is met by the countries contributing troops which cover regular pay, allowances and other expenses. Direct UN costs currently average $13 million for six months, but voluntary contributions generally amount to only $3 million. Thus at the end of February 1989 the deficit was estimated at $167 million, with the UN able to meet troop contributing countries' claims only up to June 1980.

Canada, along with the other troop contributing countries, sent a letter to UN Secretary-General Javier Perez de Cuellar on 24 May 1989 calling on the United Nations to assess all UN members instead of relying on voluntary donations. Many nations, including the Soviet Union and France, while paying their obligatory UN assessment for peacekeeping, have refused voluntary contributions to UNFICYP. Indeed, only one-quarter of the member states have made such contributions. Unfortunately, there appears to be little consensus in the Security Council to permit a change from voluntary to assessed funding for UNFICYP.[8]

It is to be hoped in a period of greatly reduced tensions between East and West, and when the Soviet Union is professing new interest in the concept and practice of peacekeeping, that some arrangement can be found to ensure that UNFICYP becomes part of the regularly assessed contributions of all UN member states.

Peacekeeping in the Future

It is government policy to provide up to 2,000 troops for the purposes of international peacekeeping. Taking into account the current numbers in the field, little more than 750 troops are presently available for other potential commitments. Moreover, the troops involved in current peacekeeping operations are all

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7. Robert Mitchell, "Peacekeeping and Peacemaking in Cyprus," Canadian Institute for International Peace and Security, Background Paper No. 23, October 1988, p. 7. The following section is drawn largely from Colonel Mitchell's observations as well as from "Levy on all UN members urged to cover cost of Cyprus troops," *The Globe and Mail*, 25 May 1989, p. A8.

8. It should also be noted that although most NATO countries contribute to UNFICYP, a few — specifically France, the Netherlands, Portugal, and Turkey — do not.

double-tasked which, as Brigadier-General Yost pointed out, inevitably creates problems for units in Canada which are depleted of members away on missions. (11:15) Major-General Evraire explained that "the largest proportion of Canadian forces serving in peacekeeping operations are logistics, maintenance and communications tradesmen who are already in short supply... ." The General continued:

> The requirement to replace these specialists from a small rotational base every six months over a prolonged period has placed a significant strain on the Canadian forces. Critical positions in Canadian-based units have gone unmanned to a disturbingly high degree, disrupting the support system at home and posing a greater burden on those who remain. While it may be possible to provide proportionately large numbers of logisticians, maintainers and communicators for operations of short duration, prolonged commitment involving personnel rotation seriously reduces the ability of the service support units to sustain the operational elements of the forces in Canada.(16:12)

The Department of National Defence recently commissioned an internal study to explore various ways that Canada's peacekeepers could use their expertise most effectively in the future. The study remains incomplete, but according to press reports the alternatives under discussion include the following: 1) a concentration on developing new technology, such as remote sensing and infrared vision, in order to reduce risk; 2) a concentration on training other countries at peacekeeping; 3) assistance in the formation of a standing multinational brigade which could be assembled rapidly to secure the ceasefire line, set up communications, and then withdraw as soon as a permanent UN force was established; and 4) restructuring the forces to create a "peacekeeping army."[9]

The Committee is very conscious of the special advantages that peacekeeping can offer the armed forces in terms of training, leadership and "esprit de corps." Canada can be extremely proud of the excellent work its soldiers do in an eminently just cause. The Committee supports continued peacekeeping activities by the Canadian Forces for military as well as for diplomatic and political reasons. It is also evident that Canada's capability and expertise in telecommunications is already a significant asset in peacekeeping missions and will continue to be. This can clearly rebound to Canada's benefit as well.

The Committee believes that the requirements of future peacekeeping operations and of Canada's contribution to them deserves closer investigation. Accordingly:

> **The Committee recommends that, in the near future, a Senate committee conduct an investigation of Canada's various peacekeeping activities as well as an examination of the United Nations' role in peacekeeping. Close attention should be paid to i) the financing of peacekeeping operations; ii) the use of Reservists in peacekeeping, and iii) future options for Canadian peacekeeping, particularly how such options might be adapted to a new structure for Canada's armed forces.**

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[9] Andrew Cohen, "Canada's role in keeping world peace is now likely to change," *The Financial Post*, 31 July 1989, p. 11.

Chapter IX

EQUIPPING AND FUNDING THE LAND FORCES

Role Defines Structure

The structure of any armed force depends upon the roles it is assigned. In turn, such an assignment should logically derive from the threat or threats as they are perceived by the government of the day. Thus, although structure defines the needs of the armed force in terms of equipment and personnel, the structure's organizing principle ought to be the roles and commitments of the force. This has been a recurring theme throughout this report. Moreover, our Committee has repeatedly stressed the need for the Government and the Department of National Defence to use the opportunity the changing strategic situation provides in order to reassess the roles it has assigned to Canada's land forces.

It can be argued — and persuasively in the Committee's view — that circumstances have sufficiently changed in the aftermath of the White Paper as a result of the uncertainty created by the budget cuts, as to warrant a fresh look at the entire strategic situation and what is required in terms of Canadian defence. Uncertainties would have been present in any event because of the enormity of change that has been unleashed by the reformist forces in the Soviet Union. It is the Committee's view that in these new circumstances the government should exercise caution in making new commitments of monies or equipment, and instead should seize the opportunity afforded by a period of transition to examine its options and consider new roles more in keeping with the changed realities.

Structure Defines Needs

The land forces are no less dependent on technology and equipment to perform their tasks adequately than are the air and maritime forces. Without sufficient and appropriate types of equipment, from rifles to computers, land forces are of little military use. The quantity of equipment defines the operational capabilities of the land forces as much as for the others. Yet there are important differences in the capital acquisition process for land forces from air and maritime forces. Colonel S. McCormack, Director of Land Procurement and Supply at the Department of National Defence, elucidated them:

> When aircraft and ships are commissioned they generally come equipped with all their related weapons systems. A warship, for example, has weapons, power

> generation, communications, electronic warfare equipment, logistics, surveillance and everything else to make it a self-contained fighting unit.
>
> For the army, we seldom procure at one time all the equipment required by an entire brigade, battalion, company or, for that matter, a platoon. We identify very specific requirements and procure equipment on that basis.
>
> ...Another general characteristic of any procurement is that the quantities of items we purchase are dependent on the structure and size of the force. To give an example...the number of rifles to be purchased depends on the number of soldiers per section...and so on.(19:19)

Colonel McCormack identified four reasons for the piecemeal approach: funding may restrict procurements in a particular timeframe; suitable technology may not exist for all items at the same time; requirements are not all defined at the same time; and equipment does not all wear out at the same time. While these problems apply to air and maritime equipment, land force acquisition permits greater flexibility in responding to them.

This flexibility, however, substantially disadvantages the land forces because their relatively small projects, no one of which would render the force totally ineffective, are vulnerable to budget cuts.(19:19) In order to minimize the problems the land forces have experienced in the past with maintaining equipment programmes, Force Mobile Command has been emphasizing that it is no less an integrated system than air and maritime forces. Brigadier-General Phil Spencer, then Director General of Land Doctrine and Operations, commented in *Aerospace & Defence Technology*:

> We are approaching our equipment needs in a more "total systems" fashion...the army capital program is best reflected as a series of closely inter-related projects, carefully balanced and with clear priorities.
>
> We are seeking total operational capabilities of *units* and not just a series of individual, unrelated projects.[1]

Mobile Command's first priority, then, is to ensure that it creates operationally viable structures in response to perceived threats. The structures then dictate the quantities and types of equipment that will be needed and can be filled out as personnel and equipment become available over the 15-year planning period of the White Paper. Witnesses before the Committee accepted that the Army 2002 structures were logical within the constraints of manpower and funding which were anticipated.(22:17) The 1989-90 budget made those constraints much more acute. It follows, therefore, that the land forces should re-assess its structures and then readdress its equipment needs. Unfortunately, this does not appear to be the approach taken. Instead, lists of equipment cancellations, deferrals, and reductions were produced shortly after the budget cuts were announced, while new structures remain undetermined.

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[1] Tony Keene, "Army 2002: Tomorrow's Land Forces," *Aerospace & Defence Technology*, vol.12, no.3, May/June 1988, p. 9.

The Land Force Capital Equipment Programme

The Army 2002 capital equipment programme was projected to cost $18.1 billion in constant 1987/88 dollars over fifteen years. The $18.1 billion covered over 130 projects of which over 30 were major crown projects (that is, involving expenditures of more than $100 million). A substantial proportion of the costs of some capital equipment programmes is for ancillary items to enable the Canadian Forces to operate the equipment effectively in Canada. These can include spare parts, training manuals and instructors, ammunition, defence industrial preparedness measures, and infrastructure. An example is the recent agreement for BV-206 over-snow vehicles, only 57% of whose cost is for the vehicles themselves.

As a result of the budget cuts, $6.3 billion worth of planned programmes has been cancelled, and $6.8 billion has been scaled back and put on hold for an unspecified period of time. Many other projects have been delayed.(1989:3:8)

Mobile Command's first priority for major equipment acquisitions was a new fleet of **main battle tanks** to replace the Leopard C1s. The most commonly cited figure for the new fleet was 250 tanks with a total programme cost between $2.5-3 billion.[2] The Leopard C1s were to be retained either for a heavy reconnaissance role or for training. As a result of the budget cuts, the Leopard new role project has been cancelled, and the new main battle tank project put on hold and then reduced in scope to replace no more than the tanks currently in Europe.[3] Therefore, 5GBC's armoured regiment would have to deploy to Europe for the foreseeable future with Cougar tank trainers rather than main battle tanks.

The second priority was for a fleet of **Light Armoured Vehicles** to augment the M-113 armoured personnel carriers (APCs) and Grizzly Armoured Vehicles General Purpose (AVGP). The Army 2002 structure required approximately 4,000 infantry carriers, of which 3,350 would be full-size carriers like the M-113 and Grizzly, and 400-600 would be light armoured utility vehicles, essentially armoured jeeps. The full-size carriers would be provided first by upgrading the 1,600 armoured personnel carriers that Force Mobile Command currently has by installing external fuel tanks, a fire suppression system for the crew and engine compartments, and some additional armoured skirts. For the 1,700 new light armoured vehicles, Force Mobile Command favours a "battlefield taxi" (that is, a vehicle used exclusively for transportation) rather than expensive, dual-role infantry combat vehicles. The total cost of the M-113 upgrades, 1,700 light armoured vehicles and 400-600 light armoured utility vehicles was estimated at $3-4 billion, which would make it the largest army project ever undertaken by Canada.

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2. Sharon Hobson, "Gearing up for tank warfare will cost Ottawa $3 billion," *The Financial Post*, 9 May 1988, p. 42.
3. The one armoured regiment in Europe fields 77 tanks. To maintain this number additional tanks are needed for logistic and operational stocks in Europe and for training in individual crew skills, driving and maintenance in Canada. A total of about 114 tanks would be needed, similar to the number of Leopards now held.

The light armoured vehicle requirements of the post-budget army structure will probably be fewer than 4,000. Replacement for the M-113s in Europe have been scaled back to fill only the requirements of 4CMBG and then put on hold, while plans to acquire 221 tracked and wheeled light armoured vehicles for the Militia have been delayed to 1990-91. Again, 5GBC would have to deploy to Europe without modern tracked light armoured vehicles.

The third priority was the **Tactical Command, Control and Communications System** (TCCCS). This was to be a programme to create a state-of-the-art information distribution and processing system, in three phases: 1) the acquisition of 15,000 radios and related equipment; 2) an area communications system for telephone, message and data handling at the brigade headquarters level and above; and 3) the automation of data-handling and the introduction of computers onto the battlefield to integrate battlefield functions automatically. The need for the TCCCS is great since the present radio and message handling system was developed in the 1950s. Since current generations of hardware and software rapidly become obsolete, the new system was to be modular to allow upgrades. The TCCCS was expected to cost approximately $2.3 billion overall with contracts to be awarded in the mid- to late-1990s. As a result of the budget cuts, however, only the forces committed to the European theatre will now receive fully combat-capable radio equipment. The second and third phases of the project have been cancelled, leaving the divisional structure without modern area communications in an era when the electronic dimension of war is becoming increasingly important (see Chapter III).

Force Mobile Command argued that the structure of the force defined its need for equipment; hence, tanks and light armoured vehicles deserved top priority because the structure and capabilities of the armour and infantry would, to some extent, dictate other equipment choices.[4] It is worth noting that the functions of direct fire support, transport, and command and control represented by the priorities outlined above would remain key requirements of any land force structure, including the alternatives described in Chapter VI. However, in the wake of the 1989-90 defence budget, structures are being modified while the "priority" equipment programmes have been substantially reduced, though not in an orderly manner. The relationships between structures and equipment are no longer clear.

The Committee recommends that the Department of National Defence re-establish a clear relationship between commitments, structure and equipment in order to ensure that Canadian land forces are properly equipped for the tasks to which they are committed.

To provide an insight into the nature and complexity of land force equipment, a number of present and future equipment programmes, which have been discussed before the Committee and in public, will be described in more detail. They will focus on combat systems in the following order: a) projects underway, in which some sort of formal agreement has been concluded between the Department of National Defence and a supplier; b) projects in the immediate

[4] "Canada's Army: An Interview with the Commander," *Aerospace & Defence Technology*, May/June 1988, p. 23.

planning or development stages within the Department of National Defence; and c) other areas where a need has been identified but is not likely to be addressed in the near future.

Regardless of changes to the structure of the land forces, most of the projects described in the following sections would be needed to maintain an effective fighting force in any circumstances.

a) Projects Underway

The largest equipment project presently underway for the land forces is the **Low Level Air Defence** (LLAD) project. At a cost of $1.1 billion, it was to supply Force Mobile Command with: 36 air defence anti-tank missile launcher systems (ADATS) mounted in fours on M-113 APCs; 20 twin 35 mm anti-aircraft guns; and 10 Skyguard fire-control radars. The LLAD will equip four air defence batteries, three in Europe and one based in Canada for deployment to Europe. Deliveries started in October 1988 and are expected to be complete by the spring of 1992.

Presently being delivered under the **Small Arms Replacement Project** are 79,935 C7 rifles, 1,568 C8 carbines and 6,750 C9 light machine guns. The C7 and C8 are variants of the United States' M16A2 rifle and they are being manufactured under licence in Canada. They will provide the standard infantry and vehicle crew personal weapons. The C9s were manufactured in Belgium and will provide close machine-gun support for infantry sections. Deliveries will be completed in 1993.

Other deliveries underway include **night observation devices and goggles** for night warfare, and **gun alignment and control systems** for Leopard C1s. The M109 **self-propelled howitzers** are being upgraded to M109A3 standards by American and Canadian depots. Portable artillery computers were acquired recently to improve artillery accuracy and fire control. **Armoured engineer vehicles** and **mine ploughs** are being delivered to Canadian Forces to provide more effective engineer support in combat.

A substantial effort in recent years has been made to improve the **logistics vehicle fleets**. Two major crown projects completed in 1984 and 1986 involved: a $308 million project for 2,750 Medium Logistics Vehicle Wheeled (MLVW), which are American M35 2 1/2-ton trucks (tonnages refer to cross country payload weight) and a $130 million project to provide 2,500 West German Iltis jeeps.

One of two recently agreed contracts is a $260 million project for 1,122 7-9-ton heavy logistics vehicle wheeled (HLVW) to replace the current 5-ton fleet. Deliveries began in April 1989. The other project had been a $420 million one for 820 BV-206 over-snow vehicles. They are made of plastic with rubber tracks and can carry 16 soldiers each. Following the budget cuts, the project has been reduced to about 400 vehicles, with deliveries delayed until 1995-96 at the earliest. Canada already has 91 standard BV-206s, but some of the new ones will be configured as weapons carriers, ambulances and command posts. They will improve Force Mobile Command's ability to operate in the Arctic.

Two current **anti-armour capability** improvement projects are a $19.2 million contract to licence produce Norwegian TOW turrets for 64 M-113 armoured personnel carriers, and a co-production agreement with France to produce Eryx short-range anti-tank missile systems. The TOW turrets will allow TOW operators to fire their weapons under armour protection rather than in the open. Force Mobile Command's TOWs were recently upgraded with the addition of thermal imaging sights for night combat and improved fire control. The Eryx, a $220 million project to provide 350-400 launchers and 15,000 missiles, has been put on hold. Because the Department of National Defence cannot afford to acquire the 800 Eryx launchers it really needs, $30 million was to be spent to upgrade the Carl Gustav rocket launcher with a larger rocket and a lighter launch tube, but this is also on hold following the budget cuts.

b) Planned Future Projects

The 5/4-ton **Light Support Vehicles**, which presently carry 60-70% of the command, control and communications systems, are rusting away and need replacing. Approximately 5,000 will be acquired, costing more than $500 million, in 1991-95.

Despite the programmes to improve the TOW long-range anti-tank missile system and acquire the Eryx, Force Mobile Command still lacks a **medium-range anti-tank weapon** system (600-2,000 metres). A project to address this deficiency after 1995 has been cancelled, so the role will have to be performed by the TOWs and tanks.

A considerable quantity of new training equipment and facilities will be needed by the Army 2002. Because of the greater importance of the Militia, training can no longer be as centralized, but Force Mobile Command cannot afford to provide all units with full sets of equipment and facilities for training. In the wake of the 1989-90 budget equipment cuts, the Department of National Defence intends to acquire more training equipment than it would have under Army 2002 plans. Sophisticated **simulators** are being considered, both to teach soldiers how to operate large systems and to simulate battlefield conditions without expending live ammunition. One such system is the MILES which simulates combat through the use of lasers attached to weapons, and laser receivers on equipment and soldiers.

As well as training equipment, Force Mobile Command is developing a number of new **training bases** such as the four Militia training and support centres equipped with full battle group sets of equipment for combined arms training. One has opened, but the other three are on hold. Another is a northern training centre for Arctic operations. Initial studies have indicated that the Nanisivik-Arctic Bay area on Baffin island is one of the sites being considered.[5]

New types of **ammunition** are under development for the land forces. One programme is looking at developing ammunition that is more resistant to external detonators such as fire or shock, in order to reduce the risk of secondary explosions in tanks or transport vehicles. Another project is examining the possibilities of adding precision-guidance mechanisms to artillery projectiles to

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5. Department of National Defence, *Defence Update 1988-89*, (Ottawa: Supply and Services, 1988), p. 14.

allow them to be guided in flight. Such systems would have to be able to withstand tremendous firing forces. These projects are also on hold. Canada is also involved in a NATO joint project to develop such precision-guidance for 155 mm munitions.

Finally, Mobile Command needs new **support helicopters** to replace the CH-136 Kiowa light observation helicopter and the CH-135 Twin Huey utility tactical transport helicopter. Technically, these are Air Command projects, but as Force Mobile Command has operational control of such helicopters in 10TAG, it is intimately concerned with the choice. MBB Helicopters and Bell Helicopters are likely key contenders for the $670 million programme to acquire 50-75 light observation helicopters. The helicopters will have extensive electronic systems including night sights and mast-mounted sights, and may have detachable weapons pods.

c) Other Equipment Needs

The most common equipment need mentioned before the Committee that is not presently being addressed is for **attack helicopters**. These are helicopters optimized as weapons platforms, particularly for anti-tank weapons. They are highly agile, usually armoured, and equipped with an array of sensors, but they are extremely expensive per unit.(23:17;15:27) Replacements are needed for the **very low-level air defence** system, the blowpipe. Since these weapons remain reasonably effective, however, this is not likely for some time. Other frequently mentioned needs are for: more **artillery**, even after improvements to the self-propelled howitzers are complete; more and improved **nuclear, biological and chemical decontamination equipment** which is in chronically short supply; **electronic warfare** (EW) equipment both to disrupt enemy communications and protect our own; **artillery-delivered mines** for rapid anti-tank barrier construction; and **mechanical digging equipment**, as the more mobile an army becomes, the more often it will have to dig in at a new location.

All these projects are in the earliest stages of consideration because they are less vital to the performance of the army's mission. Because of funding reductions resulting from the 1989-90 budget and changing developments in Europe, it is unlikely that any of them will be addressed for the foreseeable future.

Future Funding

The aim of the land forces has been to create a balanced, general-purpose force of effective structures filled out with the best combination of both role-specific and multi-purpose equipment to deal with the varied combat environments. That objective, coupled with sizeable increases in personnel strengths, would require substantial expenditures and a large number of projects over the next fifteen years, even after the changes to Army 2002 plans occasioned by the budget cuts. These projects, however, will be competing with air and maritime projects within a finite capital equipment budget. The Minister of National Defence remarked when he appeared before the Committee:

> The pace at which we implement will depend, obviously, on the shape of the economy. I do not know, say, in 1995, what the debt to GDP will be, for example. If it is low, we can move ahead more quickly; if it is not, we may take more time.(25:44)

It was precisely this predicament which confronted the Canadian Forces in the 1989-90 budget. The White Paper proposed "a base rate of annual real growth in the defence budget of two per cent per year after inflation, for the fifteen-year planning period." It also indicated that increased resources over those provided by the funding floor would be necessary in some years as certain major projects are introduced.[6]

In the interests of deficit reduction, however, the 1989-90 defence budget grew more slowly than the rate of inflation. It is not expected to grow by the White Paper's base rate for the next five years either. As a result, a gap will develop between funding available and funding expected under the White Paper formula. The structure changes and equipment cancellations described throughout this report are in response to this gap. The army's weapon acquisition programmes are particularly affected because, as Lieutenant-General de Chastelain, then Vice Chief of the Defence Staff, explained:

> the capital program for the next few years is already filled with contracted naval projects as well as the balance of some almost-completed army ones like the low level air defence, the heavy trucks and ammunition.(1989: 3:8)

Witnesses before the Committee suggested that even the White Paper funding formula would not have been enough to implement its structure and equipment plans under Army Structure 2002.(10:15, 15:9, 23:18)

Only a portion of total defence expenditures is devoted to capital equipment purchases. Table 6 (on page 95) indicates that, although the capital programme has increased as a proportion of the total budget since the early 1980s, it had remained steady at approximately 26% since 1984 and was not expected to increase much in the near future. Indeed in the 1989-90 budget, capital expenditures have fallen to 23%. Yet C.R. Nixon estimated that the capital budget would have to increase to 32% of the total in order to meet the plans laid out in the White Paper.(23:13) His estimation appears reasonable given a number of structural factors which combine to enlarge the capital budget even before any new equipment can be purchased. These include the intricate evaluation and selection process that new weapons systems require as their sophistication and complexity increase. Contract design, administration and monitoring also demand considerable bureaucratic vigilance. These factors, plus the construction and acquisition of land, buildings and works relating to new machinery and equipment amount to nearly 20% of the capital budget itself, a relatively high proportion because of Canada's inability to take advantage of scale economies owing to its small production runs.

Major-General Richard Evraire pointed to the fact that the White Paper had provided "effective tools to manage both programme and costs." One such

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[6] Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada, op. cit.*, p. 67.

TABLE 6

*NATIONAL DEFENCE MAIN ESTIMATES**
(current year dollars)

Year	Defence Estimates		Personnel, Operations & Maintenance			Capital Programme		
	Amount $ Million	Growth %	Amount $ Million	Growth %	Fraction %	Amount $ Million	Growth %	Fraction %
79/80	4389.3		3105.0		70.7	852.8		19.4
80/81	5077.1	15.7	3528.7	13.6	69.5	978.4	14.7	19.3
81/82	5922.2	16.6	4049.8	15.3	68.7	1186.3	21.2	20.0
82/83	7041.3	18.9	4780.1	17.4	68.1	1510.6	27.3	21.4
83/84	7840.0	11.3	5248.9	9.8	66.9	1814.5	20.1	23.1
84/85	8752.7	11.6	5613.0	6.9	64.1	2316.1	27.6	26.5
85/86	9367.7	7.0	5946.5	5.9	63.4	2535.0	9.6	27.1
86/87	9938.4	6.1	6430.6	8.1	64.7	2584.1	1.9	26.0
87/88	10340.0**	4.0	6606.5	2.7	63.8	2745.1	6.1	26.5
87/88	10555.2***	6.2	6618.4	2.9	62.7	2900.1	12.2	27.5
88/89	11200.0	6.1	7118.1	7.7	63.6	2931.1	1.1	26.2
89/90	11340.0	0.9	7497.3	5.3	66.1	2669.0	–8.9	23.5

Notes:

* Statutory payments such as the Minister's salary, civilian and military pensions, and contributions to employee benefit plans account for the discrepancy between Personnel, Operations and Maintenance and Capital Expenditures and the total Defence Estimates. They consistently account for 10% of the defence budget and are not subject to discretionary change.

** Main Estimates as presented should be ignored in this comparision table.

*** Revised 87/88 includes $215.7 million provided in Supplementary Estimates so as to make up $200 million initially withheld in original Main Estimates for 87/88.

Source: *Proceedings of the Special Committee of the Senate on National Defence*, 31 May 1988, p. 23A:1.

instrument was the five-year budgetary commitment which closely linked government financial planning with the multi-year realities of modern weapons system acquisition programmes. A multi-year approach would enhance flexibility in managing the variables of major projects. Another tool was the built-in review process which would allow the government to achieve accountability on the performance of equipment projects underway; to receive timely warning of new developments in technology, operations or commitments; and to have the time to make reasoned decisions.(21:10)

Unfortunately, there is no evidence that the multi-year approach was applied to 1989-90 defence budgeting. The cuts were so sudden that there was not adequate time to prepare the Defence Estimates documents.[7] As a result, the Department of National Defence is in a state of confusion.[8] At a media roundtable following the 1989-90 budget cuts, Fen Hampson — the author of the recent book, *Unguided Missiles*, an analysis of U.S. defence procurement — proposed that major capital spending programmes be carefully costed out with the active assistance and support of Treasury Board and the Department of Finance and within a realistic spending envelope tailored to the government's macroeconomic and fiscal policies and priorities — all this before commitments are finally declared. This does not appear to have been done in any systematic way prior to the publication of the 1987 White Paper. Hampson also called for accounting and budgeting methods for costing all major weapons programmes to be made public. "If the public is to support major capital equipment expenditures it is important to demonstrate that there is a credible basis for the figures chosen."[9]

The Committee is concerned by the apparent lack of coherence in current defence planning. It is especially concerned that the five-year rolling budgetary review process was jettisoned in the preparation of the 1989-90 defence budget. Finally, the Committee is concerned about the drop in that portion of the defence budget devoted to capital expenditures in view of the substantial equipment needs of the forces. Accordingly:

> **The Committee recommends that the rolling five-year budgetary review process be reinstated, and adhered to, as an essential element in the defence budgeting process. The Committee also recommends that accounting and budgeting methods for costing all major weapons programmes be made public.**

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7. "Defence estimates overtaken by cuts," *The Globe and Mail*, 26 April 1989, p. A9.
8. James Bagnell, "Fierce budget attack makes Armed Forces scramble to regroup," *The Financial Post*, 8 May 1989, p. 8.
9. Fen Hampson, "Notes for Media Roundtable on the Implications of the Federal Budget for Defence and Foreign Policy," Canadian Institute for International Peace and Security, Ottawa, 2 May 1989, pp. 2-3.

Chapter X

MOBILIZATION AND SUPPLY

The Need for Mobilization

War has been described as a system of logistics. Logistics — the practical art of moving military forces and keeping them supplied — remains a critical component of conventional defence. But it is inappropriate to maintain all military forces at all times in a condition to undertake their war tasks immediately. It would be expensive, it could raise tensions with possible adversaries, and it would prevent resources from being devoted to peacetime tasks. Most military forces, including the Canadian Forces, are maintained in peacetime at a percentage of their wartime establishment. During a crisis, measures are taken to fill out the establishments as fast as possible or necessary. Whichever side reaches full readiness first will have an advantage. Thus mobilization rates themselves are a significant factor in calculations of the military balance, deterrence and crisis management.(13:24-5)

Once a force is initially mobilized and prepared to carry out its wartime tasks, it will need to be supplied continuously in order to maintain field operations. Food, ammunition, casualty replacements and all types of equipment from rifles to armoured vehicles are essential. The provision of such supplies during a conflict is called sustainment. The longer the conflict, the greater the need for continuous supplies; first from prepared stocks of manpower and equipment and later from wartime production.

In view of the growing appreciation that nuclear warfare would be mutually suicidal, sustainment has taken on new importance in recent years since it has meant avoiding a choice between surrendering after a few days due to lack of supplies or resorting to nuclear weapons. The 1987 Defence White Paper endorsed this principle, stating:

> The Government must have in place organizational structures which will make it possible, in a crisis, to mobilize the human and material resources of the country. It must also have the legal authority to respond appropriately in crisis or war. The armed forces must have the industrial base to supply them with essential equipment and materiel.[1]

[1] Department of National Defence, *Challenge and Commitment: A Defence Policy for Canada*, (Ottawa: Supply and Services Canada, 1987), p. 69.

Mobilization essentially takes place in three phases, each of which will be detailed in this chapter in the context of the Canadian land forces. The first phase is the preparation and committing of immediately ready military units, fully equipped, trained and organized to fight; the second phase is the supply and sustainment of committed forces from stockpiles and reserves of trained manpower and equipment; and the third phase is the bringing on stream of manpower and industrial potential to sustain commitments indefinitely as well as take on new commitments.[2]

Phase One: Immediate Mobilization

Comprehensive war establishments are required to identify where men and equipment must be added to render each unit combat-ready and a mobilization plan is required to identify immediate sources for those men and equipment. The only land force elements with comprehensive mobilization plans are: 4 Canadian Mechanized Brigade Group in Germany, which has an approved war establishment with augmentation personnel all earmarked for transfer to Europe in a crisis; and the Canadian Airborne Regiment which, as Canada's quick reaction force, has to be maintained at a high readiness.(2:9) Other Regular force brigades in Canada will fill out with Militia to the level necessary.

The army 2002 structure was to include a larger and more comprehensive mobilization plan than at present. Rather than the current practice of providing a general manpower pool, Militia units would be given specific wartime tasks either to augment, as sub-units, the European force, the Defence of Canada Task Force and the three readiness brigades or to fill out the infrastructure of bases and training schools. The infrastructure would prepare new forces. The 1989-90 defence budget cuts affected mobilization planning by eliminating the readiness brigades from the structure.

The transition from peace to war would likely be chaotic. Therefore, the structures necessary to prosecute a war should be prepared well in advance.(20:7) Accordingly:

> **The Committee recommends that the Government of Canada and the Department of National Defence develop comprehensive national wartime mobilization plans that are in line with new structures for the armed forces in order to provide for an orderly transition to a war footing, should that contingency arise.**

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2. Colonel W.N. Russell, "The Need for a Viable Canadian Defence Industrial Base," *Canadian Defence Quarterly*, vol. 15, no. 4 Spring 1986, p. 20.

Phase Two: Supply and Sustainment

Once the forces are mobilized, equipped and committed, the structures must be in place to supply them in the field. It was noted in Chapter III that modern high-intensity warfare will be very destructive and that logistical factors will be crucial. Recent wars have provided evidence to support this. At the beginning of the 1973 Arab-Israeli war, the belligerents were fully prepared, but were running out of supplies within a week. "The intensity of the war took the quartermasters' staff by surprise. The expenditure of ammunition was inordinately high, the losses of aircraft were serious, and the figures of tanks destroyed were alarming...."[3] Similarly in the Iran-Iraq war, Iraq was able to gain virtually complete air superiority over the apparently larger and more capable Iranian air force, partly because the latter was short of spare parts.

Canadian service support structures are organized into four "lines" of support which indicate the types of facilities provided. First-line service support consists of service support personnel organic to units; e.g., cooks and mechanics. Second-line service support includes service support personnel and units assigned to combat formations; e.g., service battalions and medical companies. Third-line service support consists of units which link combat formations to their bases; e.g., field hospitals and transport battalions. Fourth-line service support is the bases themselves.

In Canada's case, supply structures at present are decidedly ad hoc. To supply troops on the Central Front in Europe, reliance has to be placed on Allied forces for third and fourth-line support, plus whatever Canadian service support units could be spared from Canada.

For defence of Canada operations, there is again little beyond second-line support, but they have the advantage of operating in the national infrastructure. To remote areas of operations, supplies would be transported by aircraft of the Air Transport Group and by over-snow vehicles, both of which are in short supply. A new contract was let to increase Canada's inventory of medium over-snow vehicles from less than 100 to more than 900, but it has since been reduced to 400 and delayed.

The storage and distribution of supplies is the responsibility of the Canadian Forces Supply System which operates a number of depots across Canada and in Europe. Automated assistance is provided by a computer system, designed in the 1960s, which has numerous shortcomings including often inaccurate information. Most importantly, it is not an operational system for war. The 1987 Report of the Auditor General on the Department of National Defence Materiel Support was highly critical of many aspects of the supply system against a criterion of whether it would work in a conflict.

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3. Chaim Herzog, *The Arab-Israeli Wars: War and Peace in the Middle East from the War of Independence to Lebanon*, Revised Edition, (London: Arms and Armour Press, 1984), p. 322.

A number of other deficiencies with current supply arrangements were identified before the Committee. Several witnesses pointed out that so-called "self-supporting" brigade groups, around which the land forces are currently organized, are not efficient in their ratio of combat to support resources. Redundancies are often created in support functions at the expense of combat functions.(2:8, 3:20) A second deficiency is a pervasive shortage of support personnel throughout the Canadian Forces, which has a particularly negative impact on the land forces that is described under "Manpower issues" in Chapter IV. The effect is that when combat formations leave their bases taking with them their service battalions and other field support units, the bases responsible, in part, for third and fourth-line support to the formations now in the field find themselves as much as 50% understaffed.(4:8-9)

Measures are being implemented to address some of these deficiencies in the supply and support structure. The consolidation of commitments in Europe will eliminate duplication of the support structure in Canadian Forces in Europe. As part of the Reserve Force Development Plan, Militia logistics and medical units will be increased significantly more than combat arms to reduce the shortages of support personnel. New logistics vehicles such as heavy trucks, ambulances and medium over-snow vehicles are being acquired. Finally, a number of initiatives are underway to improve the supply system in accordance with the "Supply Concept Paper — An Operational Framework for the Canadian Supply System — 1990s" that was approved by the Department of National Defence in 1984. The primary initiative is an upgrade project which addresses the concerns identified by the 1987 Auditor General's Report. Nevertheless, that Report expressed concern that the project's timetable was overly optimistic.[4]

A new project is planned to organize, man and equip the combat service support units required to support the defence of Canada operations task force. Designated CALMS (Canadian Logistics and Medical Support), it consists of 500 personnel in Canadian Support and Medical Groups whose role will be primarily "to liaise with, and arrange support from, the existing civilian or military organizations in the support base areas."[5] The analogous Allied Logistics and Medical Support structure (detailed in Chapter VI), designed to provide a comprehensive support network for Canadian Forces in Europe, has been cancelled as a result of the budget cuts. Canadian Forces in Europe will continue to rely predominantly on allied supply networks, whose concern in wartime will undoubtedly be with their own forces first.

There are two aspects to sustainment. The first is the provision of trained manpower to replace combat casualties. The second is the provision of consumables — food, ammunition, fuel — and equipment to replace those used, destroyed or damaged. There is a need for stocks of manpower and equipment to fill the gap until industry can alter production to meet wartime military needs. Yet the acquisition of large stocks of ammunition and equipment is expensive.

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4. Report of the Auditor General on the Department of National Defence Materiel Support, 1987, paragraph 10.48.

5. MGen. W.E.R. Little, "Field Army Logistics Support: Closing the Commitment-Capability Gap," in *Canada's New Field Army*, edited by Thomas St. Denis, (Ottawa: Conference of Defence Associations, 1989), pp. 24-25.

While Reserve manpower costs less to train and maintain than Regular force manpower, the cost of equipment for either is the same. As a result, NATO has developed a sustainment criterion of 30 days from the commencement of hostilities for most types of stocks. This represents what is thought to be attainable rather than what may be necessary.

Canada has adopted the 30-day criterion for sustainment of its own forces. Calculations conducted for the Reserve Force Development Plan have indicated that approximately 90,000 army and a total of 180,000 Canadian Forces Regular and Reserve personnel are required to sustain the Canadian Forces in its planned commitments for 30 days. This assumes that 7-8% will not be available on mobilization for one reason or another. Also included are cadres needed to reconstitute units from new recruits if the war lasts longer than 30 days.(21:23) Independent analyses agree with these target figures.(22:10)

As a result of the budget cuts, the Canadian Forces will not attain the levels of personnel required by White Paper planning. The full extent of the shortfall is not yet clear; however, the army will no longer include three dedicated readiness brigades. Instead, the three brigade groups to be based in Canada and not committed to Europe, will be double-tasked with defence of Canada and readiness functions. This represents a substantial downgrading of the army's planned personnel sustainment capability. Equipment stocks at present are below those needed for 30 days and the existing stocks are often badly positioned. Expensive capital equipment items such as tanks are in particularly short supply. This situation is not expected to improve significantly over the next several years. It provides further evidence of the need to re-evaluate the current structure of the land forces.

A number of witnesses argued that, given the present roles and structure of the armed forces, a 30-day sustainment criterion was seriously inadequate and could become a self-fulfilling prophesy: that is, if NATO only has the capability to sustain itself for 30 days, then that is how long a war would last. Colonel Brian MacDonald pointed out:

> the white paper has not gone far enough in that it projects essentially to D + 30 but no further. This, then, leads to some very uncomfortable questions, such as what do we do at D + 30 when we have run out of reinforcements? Do we then, as an alliance...go nuclear...? Do we engage in pre-emptive surrender, or do we sharpen our pencils and go back and do the planning which should have been done?(22:10)

He observed that between 90 and 120 days would be needed to prepare a newly-recruited civilian for effective service in a field unit. Over that period of time, at least 230,000 personnel would be required to sustain the Canadian Forces. While the planned army structure does contain provisions for maintaining a training infrastructure once the field force is deployed, the process of selecting and preparing new recruits for combat during war has not been given much emphasis.

The other question that could be asked instead of those posed above by Colonel MacDonald is whether the basic mobilization problem arises with the very commitments that Canada has undertaken. Whereas those commitments

may at one time have been eminently sensible, are they still? Are Canadians — is the government — any longer persuaded that a major conflagration in Europe is in the offing? Should we be preparing instead for a defensive defence structure or for greater air mobility, along the lines that were outlined in Chapter VI? How, in turn, would alternative roles of these kind affect mobilization planning? The challenge for Canada is first to settle these fundamental questions, whereupon a logical framework for mobilization and sustainment can be devised.

Phase Three: Defence Industrial Preparedness

The defence industrial production necessary to support forces in peacetime is considerably different from that required in wartime. During peace, relatively small numbers of consumables and equipment can be produced each year at pre-arranged rates for specific periods of time. During war, there is a need to produce as much as possible for a potentially indefinite period, and to expand production facilities as quickly as possible. This is likely to be difficult because some productive processes can be expanded faster than others which can lead to bottlenecks and shortages. These problems are compounded by global economic interdependencies which result in critical production components or raw materials coming from abroad. Some may come from allies who will want to divert production to their own wartime needs, while others may even come from enemies. In essence, industry's transformation from peace to war is likely to be chaotic. Therefore, measures need to be taken in peacetime by industry, the military and government to ensure as smooth a transition as possible. This planning process is known as defence industrial preparedness.

Defence industrial preparedness is an essential contributor to conventional deterrence. The ultimate objective is to be able to sustain military forces indefinitely. If an opponent knows that his enemies can only sustain their forces in the field for a period of time, then he can prepare to maintain his forces for a little while longer and thus obtain a significant advantage in war. An aggressive state that believes it has such a critical advantage in war is more likely to start one.

In 1985, as part of its new policy of readiness and sustainability, the Department of National Defence constituted a **Defence Industrial Preparedness Task Force** mandated to "...develop the Department of National Defence plans, systems and procedures upon which defence industrial preparedness can be based."[6] Shortly afterwards, the Department of Supply and Services, which is responsible for ensuring that the defence industrial base can meet the requirements of the Canadian Forces, began a review of Canada's base. Its purpose was "...to study the current capabilities and capacities and systems that would be required to support and facilitate defence preparedness through the provision of uninterrupted industrial support for Canadian forces requirements.[7] The review provided a snapshot of Canada's current ability to mobilize its industrial base to

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6. Defence Industrial Preparedness Task Force, *Defence Industrial Preparedness: A Foundation for Defence*, (Ottawa: Supply and Services Canada, 1987), p.i.
7. Defence Industries and Emergency Planning Branch, DSS, *The Defence Industrial Review 1987*, (Ottawa: Supply and Services Canada, 1987), p. 1.

support Canada's wartime commitments. This has substantially improved in the last 10 years.

Over the last 10 years, 66% of defence national procurement has been contracted in Canada, with a growing proportion of Canadian-manufactured content. Initiatives such as the "$5K Referral Program," which requires that any Department of National Defence purchase valued at $5,000 or more must be made from a Canadian supplier if it is economical, to further assist the development of a Canadian defence industrial base. Nevertheless, the task force concluded in 1987 that, "...the Canadian defence industrial base is fragmented, highly specialized, and not geared to meet the operational requirements of the Canadian Forces."[8]

After surveying the 2,000 companies in Canada which produce defence items, the Department of Supply and Services in its defence industrial base review concluded:

> Generally, Canadian manufacturers could increase military production substantially without affecting civilian production. With reallocation of civil output, they could double production of military hardware within six months. Key exceptions would include forgings for ammunition, nuclear fuel, standard machine tools, certain medical equipment, electronic computers and new weapons systems computer software.[9]

Among the more capable sectors are munitions, commercial vehicles and textiles, clothing and leather products. In most cases, the factors limiting production surge would be shortages of skilled labour and raw material inventories until sources could be reallocated and additional raw material supplies found. Canada does not produce many of its major defence systems. It is also doubtful that even a doubling of production represents an adequate sustainment capability.

The task force recognized that the creation of a comprehensive domestic defence industrial base would be prohibitively expensive, unless it could be maintained through significant export sales. This last would be difficult to achieve because of a highly competitive international arms market, and the likely public objection to Canada's becoming a major arms supplier. The task force developed a "sourcing concept" aimed at establishing assured and strategic sources of supply for critical components whose availability in wartime could not be guaranteed by the market. An "assured source" is one for which preplanned arrangements have been made to meet the Department of National Defence requirements. A "strategic source" is one where the assured source must be a domestic producer. The task force also recommended a 7-step process to identify critical components and the measures that should be taken to ensure their availability. Among the measures that can be employed are built-in excess capacity in plants, production stockpiles and substitution of commercial items.[10]

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8. Defence Industrial Preparedness Task Force, *op. cit.*, pp. 2-5.
9. Defence Industries and Emergency Planing Branch, DSS, *The Defence Industrial Review*. *op. cit.*, p. v.
10. Defence Industrial Preparedness Task Force, *op. cit.*, pp. 3-1-3-11.

The immediate results of the task force's work were the establishment of a 12-member Directorate of Defence Industrial Resources within the Department of National Defence, and of a Defence Industrial Preparedness Advisory Committee, a small group of chief executive officers who meet periodically with the Minister of National Defence to discuss defence industrial preparedness issues. The Directorate has the task of implementing the task force's recommendations, and supporting the advisory committee. Colonel Cal Hegge, the task force leader, described its function in more detail:

> [The Directorate] provide[s] a departmental focal point for industrial preparedness planning, including, among other things, industrial analysis, identification of appropriate industrial preparedness measures, the identification of those critical operational requirements and technologies for which industrial support is so essential, and the forming of industrial development policies from a Department of National Defence perspective.(19:13)

Canada cannot go it alone in defence industrial preparedness and procurement, not least because a significant amount of Canadian defence equipment is manufactured abroad. The increasing cost of defence equipment is leading to more and more co-operative ventures among NATO countries. Canadians are involved on NATO bodies such as the NATO Industrial Advisory Group and Canada is participating in a number of programmes to increase transatlantic collaboration in defence procurement.

Nevertheless, the United States remains Canada's largest and most easily accessible defence market — receiving $1.28 billion in exports in 1987 (71% of Canada's total defence exports). Following on the defence co-operation initiated in the Second World War, the Defence Production Sharing Arrangement of 1958 and the Defence Development Sharing Arrangement of 1963 in theory give Canadian firms access to the U.S. defence market on terms equal to U.S. firms, as well as easing the transfer of technology. No other nation enjoys this treatment; but, over time, legal and procedural barriers have developed. The Americans are concerned to protect their own defence firms, especially the smaller ones, despite the fact that most Canadian defence firms are small by American standards. The United States is also increasingly protective of military-industrial secrets.[11] The greatest obstacle to U.S.-Canada defence industrial co-operation seems to be a lack of knowledge of the opportunities available in each country. In an effort to improve the flow of information, the task force assisted in the setting up of the North American Defence Industrial Base Organization which involves government and industry on both sides of the border. Two of its recent initiatives are the Precision Guided Munitions Task Force Production Base Analysis and a Munitions Task Force to identify how the Canadian and U.S. defence industrial bases complement each other in these industries in peace and war.

The fragmented, specialized and generally unprepared condition of the Canadian defence industrial base and the reliance of the Canadian Forces on offshore sources of equipment undermine the credibility of Canada's deterrent posture. Without improvements in this area and in mobilization and supply

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[11] Colonel R. Van Steenburg (U.S. Army), "Troubled Partnership," *Forum*, July-August 1987, p. 3.

arrangements, the build-up of personnel and materiel for the army will be inadequate.

The Committee recommends that the Department of National Defence implement the recommendations of the Defence Industrial Preparedness Task Force to include defence industrial preparedness considerations in the acquisition process of all Department of National Defence purchases, emphasizing the Canadian defence industrial base to the greatest extent possible, but making use of allied capabilities where necessary.

Chapter XI

THE ARMY AND SOCIETY

The military historian Desmond Morton observed before the Committee:

> Perhaps it is comforting to Canadians to grow up and live and die without more than an occasional glimpse of a uniform or a military vehicle. It is, however, the basis of an alienation which is as bad for military professionals as it is for the mass of Canadian citizens....(20:10)

The new emphasis placed by the 1987 Defence White Paper on increasing the numbers and importance of the Reserves within a Total Force Structure should go some way to alleviating the alienation referred to by Professor Morton. Although the significance of the Reserves, and specifically the Militia, has steadily declined in Canadian life, the point made by Colonel Brian MacDonald remains valid, namely: "...by their presence in the local community [the Reserves] are a living manifestation of the link between defence and the citizen...."(22:27)

In many respects the army is the most visible to the general population of all the services in the Canadian Forces through the presence of the Militia in numerous towns and cities. While the Regular force is housed on bases often remote from urban centres, Militia units usually occupy a central location in their respective municipalities.

This fact may make recruiting the large numbers required under the Total Force Structure relatively easy. Certainly, recruiting for the Regular force has not been a problem in recent years. Yet although the Department of National Defence's Director of Military Manpower Distribution, Colonel Donald MacKay, declared, "we are able to man the existing establishment quite nicely," he continued, "it is the establishment that is out of kilter."(7:26) The greatest challenge undoubtedly lies ahead. Major-General Evraire declared that finding personnel for the planned increases in manpower could cause considerable difficulty over the next 15 years.(21:27) Desmond Morton agreed that meeting new requirements would be "tough," but observed that in 1914, "when the country was allegedly disarmed," the Militia numbered 50,000 out of a total population of 8 million.(20:21) Even if the manpower targets were reached by 2002, Canada's land forces would still be smaller as a proportion of the Canadian population than they were throughout most of the 1960s. In spite of a growing total population, however, the demographic base from which the army recruits most of its members is declining because of an aging society. Yet there are relatively untapped recruiting pools. One of these is ethnic minority groups. Another is women. And still another factor may be the perception of Canada's land forces and the roles it is expected to perform.

Women in the Army

While women have served in the Canadian Forces since World War I, they have always been a relatively small proportion of total personnel, particularly in the army. By the end of the Second World War, the Women's Army Corps constituted 2.8% of the army. Throughout the 1960s, the numbers of women were arbitrarily restricted to 1,500, or slightly less than two per cent. In 1971, following the Royal Commission on the Status of Women's recommendation that all occupations in the Canadian Forces be opened to women, the Department of National Defence introduced equal pay, benefits and terms of service and removed all occupational limitations except "...primary combat roles, at remote locations or at sea, and...military service colleges."[1]

By 1978, the number of women had risen to 4,800 and they formed 6% of the Canadian Forces. In response to the passing of the Canadian Human Rights Act in 1978, the Canadian Forces launched the Service Women In Non-Traditional Roles trials in 1979 on a fleet diving tender at sea, in service battalions and field ambulances of 4CMBG in Germany, as pilots and crew in Air Command, and at Canadian Forces Station Alert, N.W.T.

These trials were completed in 1985 just as the Parliamentary Sub-Committee on Equality recommended that all trades and occupations in the Canadian Forces be opened to women. The Department of National Defence set up a Charter Task Force whose interim report resulted in 12 additional sectors, including service battalions, military police platoons and field ambulances, being opened to women. In 1989, 35 of 137 military occupations still remain closed to women, but the Charter Task Force felt further evidence was needed that opening these additional occupations would not adversely affect operational effectiveness. Another set of trials was announced in February 1987 to test the effect of women on the operational effectiveness of combat units, subsequently dubbed CREW (Combat Related Employment of Women). In July 1987, all restrictions on mixed-gender employment in Air Command were lifted because it was felt that they had enough experience of women as aircrew already. As of 30 April 1989, there were 8,469 women in the Canadian Forces, or 9.8% of total personnel, which is the second highest proportion in NATO, behind the United States. The land forces employ 1,932, or 23% of the total of women in the Armed Forces. The Primary Reserves account for 4,711 women (18% of the Reserves), of whom 3,079 are Militia (14.3%). The vast majority are in the air environment.

In the army's case, the CREW trials planned for 249 places to be opened to women. They were distributed among arms of service in 4 infantry platoons, 4 artillery and air defence troops, 4 armoured troops, 3 signals troops, and 4 engineer troops. The distribution was chosen to represent a "critical mass" from which meaningful scientific results could be drawn: women were intended to constitute half of each unit, represented throughout the rank structure.[2]

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1. James Hale, "Recruiting for CREW," *Legion*, May 1988, p.8.
2. BGen. Lewis W. MacKenzie, "*The Canadian Forces Evaluation of Mixed-Gender Combat Units*," *Canadian Defence Quarterly*, Winter 1988, p. 29 and "Lack of candidates delaying army's mixed-gender trials," *The Ottawa Citizen*, 8 February 1988, p. D3.

The first of the land forces CREW trials, in a signals unit, was due to begin in late 1989. Difficulties in recruiting and training women for the artillery and infantry would have forced postponement of their trials. Recruitment of women for engineer, air defence and armour trials was due to begin in 1989. The shortages of volunteers was variously blamed on cultural programming of women, inadequate advertising, and the fact that most of the jobs are difficult, dirty and unattractive to men or women.

It was argued before the Committee and elsewhere that the Canadian Forces did not need to conduct more trials and that there is already enough evidence on the effect of women on the operational effectiveness of military units.(20:34) The army did not accept this, as Lieutenant-General de Chastelain explained:

> much is not known about mixed gender *combat* [emphasis added] units. We know a little about the experience of three of the NATO nations which do have mixed combat units [Norway, Denmark, and the Netherlands], but the numbers in them are small, and deliberately so.
>
> The experience of some of the western and non-western nations that have had women in combat and have gone away from it [eg. Israel and the Soviet Union] would tend to lead us in the opposite direction. So we want a trial for ourself [sic], as to whether or not the combat effectiveness of those units will be affected.(20:34)

Nevertheless, on 20 February 1989, the Canadian Human Rights Commission ruled that women must be integrated into combat units of the Canadian Forces. The three-person tribunal ordered that, "full integration is to take place with all due speed, as a matter of principle, for both active and reserve forces," with an external and internal monitoring process.[3] The only exception was service on board submarines, from which women were excluded on the grounds of lack of privacy. The Canadian Forces and the Canadian Human Rights Commission are to devise a mutually acceptable plan for complete integration of women within 10 years.

The Canadian Forces accepted the Canadian Human Rights Commission ruling on 1 March 1989, and indicated that all combat positions would be opened to women. The CREW trials were halted and the experience gained will be used to guide the implementation process. Units designated for the trials will be the first to integrate women as they enrol into combat occupations.

There are many both inside and outside the Canadian Forces who oppose the introduction of women into combat. Their chief concerns are of double standards, preferential treatment resulting from, for example, relationships crossing ranks and inadequate physical stamina. The decision by the Canadian Human Rights Commission was denounced by numerous Canadian Forces veterans, led by General Jacques Dextraze (ret.) who argued that the soldiers who participated in the Canadian Human Rights Commission review process had no personal experience of combat. Furthermore, "the reasons invoked by the tribunal to

3. "Admit women to combat units, rights panel tells armed forces," *The Globe and Mail*, 21 February 1989, p. A1.

exclude women from service on board submarines are, to a far greater extent, applicable to service within an infantry combat unit."[4]

Combat conditions are a different and difficult environment even within the military. Stresses of all kinds, physical and mental, are heightened perhaps beyond any other experience. To survive and operate effectively in these conditions, the military has evolved special techniques, in a predominantly male environment, to cope with them. The processes by which these techniques are studied and altered to accommodate females must be a graduated and controlled one.

The Committee is concerned that the Canadian Human Rights Commission ruling has circumvented the CREW trials process on the basis of incomplete information, at least in the case of the land forces, before the trials had got off the ground. The Committee also finds the provision to exclude women from submarine service on the grounds of privacy an anomaly, especially in view of the extremely confined conditions of combat in infantry and armoured units. The Committee further hopes that the process of integrating women into land combat roles will be implemented with due regard for the need to maintain the operational capability of the forces.

Peacetime Activities

The army engages in a variety of peacetime tasks which are classified in two ways: 1) assistance to civil authority; and 2) aid of the civil power.

The extent of the army's peacetime duties is often underestimated; assistance to civil authority alone covers a plethora of activities. The air and maritime forces have a higher profile than the army because of their more frequent involvement in search and rescue operations. Nevertheless, the army's peacetime assignments are of significant benefit to the Canadian economy, despite the fact that they are seldom recognized by the public at large. Among their engagements have been the 1988 Calgary Olympics, various international summits, expositions and exhibitions of varying size, air shows, and marathons and other sporting events. Assistance provided has included security, communications, medical and safety assistance, as well as a range of other facilities.

Army military engineers have also undertaken both large, long-term and smaller, more limited, projects which have been either completely non-military or only of partial military benefit. Among those outlined to the Committee were the following:

1) Construction of airfields in the far North which have included the building of 8 airfields for the Department of Transport as well as Operation Caesar in which military engineers were air-dropped and built an airfield on Arctic ice.

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4. "Women in combat: one old soldier says it won't work," *The Ottawa Citizen*, 2 March 1989, p. A9.

2) Bridge construction such as the building of bridges across the Ogilvy and Eagle Rivers as part of the Dempster Highway up to Tuktoyaktuk.

3) Topographic surveys in the Arctic which have included involvement in the Arctic Survey and Mapping Program.

4) Demolition, mainly of water towers and smokestacks throughout Canada, as well as of ice build-ups on rivers during spring.(7:6, 16, 21)

Army uniforms are also in evidence after serious terrorist incidents, clearing away the carnage. Similarly, the army has been a vital part of the national and international response to several recent disasters, both natural and man-made. Bhopal, Chernobyl, Ethiopia and Armenia are perhaps the most notorious recent examples. To believe that such disasters can never happen in Canada is to overlook incidents such as the 1987 tornado that swept through Edmonton, and the 1988 fire of polychlorinated biphenals at St. Basile-Le-Grand.

Obvious military skills of use in such crises include the provision of logistics support, medical facilities, and communications systems. But the reconnaissance, navigation, first aid and communications skills of combat troops would also be valuable. The local knowledge that the Militia would provide could also be helpful. The uses for formations trained to respond in a disciplined and coordinated fashion to crisis situations are numerous. Moreover, responding to such situations can have a positive impact on training:

> getting a unit out at short notice, many miles away from base and in the face of a killing threat tests all the skills of war apart from shooting, concealment, and air defence.[5]

The importance of prior planning and preparation for the performing of social defence tasks was amply illustrated by the Soviet response to the Armenian earthquake. In spite of the existence of a massive civil defence organization, the Soviets themselves admit their response was "not so good."[6] While Canada's response to a similar disaster fortunately remains untested, there is no doubt that the army would be a crucial element of that response if the need ever arose.

The Committee recommends that the Department of National Defence investigate ways of introducing greater training for Canada's land forces — both Regular and Reserve — in social defence roles such as disaster relief and rehabilitation activities.

The declaration of a national emergency by the federal government and the implementation of emergency legislation may or may not involve the Canadian Forces. If it does, the primary operational responsibility rests with the land forces and, more specifically, Mobile Command. The new Emergencies Act, which became law in July 1988 replacing the War Measures Act, establishes four

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5. T.C. Willett, "The Canadian Militia: A Heritage at Risk," in *Canada's New Field Army*, edited by Thomas St. Denis (Ottawa: Conference of Defence Associations, 1989), p. 51.
6. Michael Elmquist, "Ready for a Disaster? — Civil Preparedness in NATO," *NATO's Sixteen Nations*, April 1989, p. 54.

degrees of emergencies, with appropriate responses to each. They are in order of increasing severity: natural disaster; insurrection; international crisis; and war. Assistance to civil authorities includes natural disaster relief, while provision of forces in aid of the civil power describes an armed response to insurrection.

Unlike the War Measures Act, which was a rather blunt instrument, the new legislation allows for a series of graduated responses, and thereby represents a substantial improvement. Many emergencies are handled by provincial authorities. If a situation is beyond their capabilities, however, they can request assistance from the federal government. Assistance to civil authority could also be provided in the absence of the Emergencies Act being invoked since it may only be a case of a local emergency, but still beyond the capabilities of provincial authorities.

The regional structure of the Canadian Forces has already been described in Chapter IV. There is a specific chain of command associated with this structure which activates military resources in local and national emergencies. In the case of an insurrection, the provincial Attorney General would request the Chief of the Defence Staff to authorize the provision of resources to the regional commander. In past practice, resources have come from FMC and, therefore, if the regional commander has not been an army officer, he delegates authority to the highest ranking such officer. In the case of a natural disaster, the command structure remains within the region and the Chief of Defence Staff is not involved. The regional commander would authorize resources at his own discretion. Under the new structure, the role of the Chief of Defence Staff will not change in the chain of command for regional operations. Since the highest-ranking FMC officer in each of the four new areas will also be the regional commander, the Chief of Defence Staff will now give orders through land force headquarters to those directly in charge of regional operations.

The Canadian War Museum

For many Canadians, their sole contact with the army or the armed forces as a whole is limited to a visit to the Canadian War Museum when they travel to the national capital. The War Museum provides a cherished link between the armed forces and society, particularly with respect to Canada's military history. In essence, the War Museum is the only federal institution other than the Canadian Institute for International Peace and Security with a mandate to raise the consciousness of Canadians about the need for national defence, including the price that has been paid for it in the past.

The museum is also a significant tourist attraction in the National Capital Region, ranking sixth in popularity among the various sites. Some 227,000 visitors toured the museum in 1988, up from 200,000 in 1987. The Capital Tourist Bureau is projecting as many as 500,000 visitors per year in the next few years, which present facilities will be unable to handle.

Unfortunately, the Canadian War Museum is an associate museum of the Canadian Museum of Civilization and, although fully autonomous in public

programmes and curatorial activities, it has no separate budget.(11:32) Its total budget is approximately $2 million per year, and it employs 31 staff to care for 750,000 artifacts. This compares with the Australian War Memorial in Canberra which, with a similar mandate and 40% fewer visitors, has a budget of $10 million and 200 staff.

In recent years, the War Museum has been neglected and abused. Its budget was frozen, its property diminished and its annex torn down to make way for the art gallery. It has been left without resources to conduct travelling exhibitions. Only its survival has been assured by the Minister responsible.(11:32) It remains overcrowded. Only a tiny portion of the collections can be displayed. Thousands of its treasures — gifts from families and heirs of veterans — remain unpacked in storage. The country's finest collection of war art has only token exhibition.

There have been suggestions that the museum expand into the facilities which currently house the Royal Canadian Mint. This would ensure that it remained in the Ottawa core area.

New legislation has been introduced into the House of Commons which will make the four major National Museums (Gallery, Civilization, Science and Technology, and Natural Sciences) autonomous institutions with their own boards. A similar status for the War Museum, with its own budget, would allow it to expand its activities to inform Canadians better about their contributions to the peace of their country. The devotion and determination of its core staff would guarantee the high standards expected.

The Committee supports the Canadian War Museum and recommends that it be made autonomous from the Canadian Museum of Civilization, with a larger budget under its own control.

The Committee further recommends that the name of the Canadian War Museum be changed to the Canadian Museum of Military History, which more accurately reflects the actual content of the Museum's collection.

Chapter XII

POLICY OPTIONS FOR CANADA

An army can be many things. It can be a projection of national power, the defender of the state or civil authority, the protector of those in need or distress, the upholder of certain social values, the ultimate guarantor of political alliances or commitments. The Canadian army fulfils many of these roles, sometimes in conjunction with the other branches of the armed forces, and sometimes on its own. It is a complex and multi-faceted force which has had a diversity of tasks, but too often insufficient resources to carry them out. That, notwithstanding these impediments, it has met the many challenges confronting it as well as it has, is a testimony to the dedication and professionalism of the men and women who make up the army.

Yet the challenges that the Canadian land forces will face in the next decade are likely to be considerable. The land forces are in transition and their ultimate shape remains uncertain. The 1987 Defence White Paper built on certain strengths the army already possessed without major alterations to its roles. The army was to maintain the commitment to Europe, but concentrate its strength through consolidation on the Central Front. An immense infusion of personnel and greater sustainment of all land force commitments was planned by a vast increase in the Reserve element through the Total Force Concept. The regional operations of the Canadian Forces were transferred to the land forces, thereby streamlining those operations and improving the effectiveness of aid of the civil power and assistance to the civil authorities.

During the course of its hearings, however, the Committee became aware of alternative views about the future of Canada's army. Admiral Falls and others were against consolidation in the Central Army Group area as it involves cancelling the Norwegian commitment, except for the Allied Command Europe Mobile Force (Land) battalion group. They argued that Canada has an affinity with Norway as an Arctic nation, while the Canadian commitment has visible weight as the only dedicated external reinforcement. Admiral Falls did recognize that the Norwegian deployment might well be impractical, however, a view the Committee has held for some time and first expressed doubts about in its initial report, *Manpower in Canada's Armed Forces* in 1982.(12:26) Moreover, Canada retains a more limited commitment to Norway through the Allied Command Europe Mobile Force (Land) battalion group and our contribution to the NATO Composite Force.

John Honderich, an editor and the author of *Arctic Imperative*, argued that Canada should adopt a specialized role in NATO because, "With the extremely

high cost of maintaining a high-tech military...it is not fiscally possible for most NATO countries, such as Canada, to sustain a comprehensive military."(15:7) He suggested a rapid deployment force specializing in cold-weather combat, without tanks, which could also be useful in Canada in a way that heavy mechanized forces are not.

John Honderich and John Marteinson, the editor of *Canadian Defence Quarterly*, suggested that the Canadian force in West Germany should be relocated to Schleswig-Holstein near the border with Denmark (which like Norway also forbids the stationing of foreign troops on its soil in peacetime), either to act as a rapid deployment force for Allied Forces Northern Europe or as a reserve for the Northern Army Group, which is in greater need of reserves than Central Army Group.(15:7; 22:14). Canadian forces had been deployed under Northern Army Group until 1969 when the European-based forces were reduced by half and converted to the Central Army Group role. Mr. Marteinson did recognize that such a move would involve heavy infrastructure costs to provide Canadian forces with the facilities which they would need in order to perform their assigned roles.

Roger Hill of the Canadian Institute for International Peace and Security, the academics Paul Buteux, David Cox and Fen Hampson, as well as Admiral Falls all suggested that Canada should not change its present commitments to Europe.(12:6-7; 18-19;13:13; 18, 31; 15:27-29) They were loathe to rock the boat at a time when conventional arms control shows promise and NATO is trying to establish its position on future conventional arms reductions. David Cox was concerned that funding might not prove available to make 5 Groupe Brigade du Canada a fully mechanized formation, which would leave it worse off in the higher-intensity combat environment of the Central Front than it would be in northern Norway. Since then the reductions in defence spending contained in the April 1989 budget, the unlikely prospect of substantial changes in spending patterns over the next few years and, even more importantly, the changes in the strategic context lead the Committee to recommend that the government consider significant changes in role for Canada's land forces.

The Committee is also impressed by the prospect of major changes in the balance of East-West military forces in Europe. Precisely because we have no special insight into the future and no way of predicting the fate of President Gorbachev and his reform movement in the Soviet Union, the prudent course for the West is to institutionalize lowered levels of military forces in Europe and confidence-building measures which reduce the risk of war or, at least, surprise attack. As one seasoned observer has commented, we should attempt to structure forces on both sides at much lower levels of deployment, and in ways that present a minimal offensive threat. Structurally defensive deployments at the lowest achievable levels would be the best outcome for both sides.[1]

In the near-term, the Committee agrees with those who recommend continuity. The possibility of sizeable force reductions in Europe is too important and the implications too far-reaching for Canada to do anything to muddy the waters by major rearrangements to its European contribution at this juncture. At

[1] William Pfaff, "Debating arms cuts in Europe," *Winnipeg Free Press*, 6 June 1989, p. 6.

the same time, Canada should be re-examining its current arrangements in order either to reaffirm current policy with regard to the land forces or to reshape it, as the case may be. To this end, the Committee offers certain alternatives which, from its perspective, lay out at least the major policy options open to the government.

The **first option** is the status quo which can be defined as maintaining current land force commitments in Europe, but without the capability to meet them adequately. This, in effect, is the situation aggravated by the April 1989 budget as the preceding pages of this report have amply demonstrated. It is a tempting solution in the short term — say for the duration of the conventional arms reduction talks in Vienna — but it raises two problems which cannot be ignored in the longer term. One is that the conventional arms talks may be prolonged — a not inconceivable eventuality given the range and intricacy of the matters under discussion. Second, a "stand pat" approach involves a certain indifference to the possible dangers faced by our soldiers in Europe, especially if nothing is done to bring land force structure, commitments and equipment into line.

A **second option** might be called "status quo plus." It would involve no change in our commitments in Europe, but in this case would provide the capability to carry them out. This is essentially the Army Structure 2002 plan which was based on the 1987 Defence White Paper: consolidation in Europe with sufficient equipment to do the job effectively. In other words, the three top priorities the army's leadership had recommended — 250 new main battle tanks, 4,000 light armoured vehicles, and all three phases of the Tactical Command, Communications and Control System — would be met. In addition, the host of ancillary programmes that would also be necessary simply to maintain its effectiveness as a lightly-armoured general purpose force acting as Central Army Group's strategic reserve would also be met — at a total cost of $18 billion over the next 15 years.

In effect, the government, along with the senior military, have themselves decided against the "status quo plus" option by cancelling two of the three components of the Tactical Command, Communications and Control System project and by reducing the number of new tanks to be acquired from 250 to replacement of current numbers at best and in due course, if at all. While the 1987 White Paper has not been officially abandoned and Canadian commitments remain unchanged, the budget cuts do appear to have been applied without much thought about the policy implications and without setting an effective new course.

The **third option** would be to withdraw the land forces from Europe. Unable to meet our commitment, the government would decide unilaterally that its contribution to conventional arms reduction in Europe would be to leave altogether. This appears to be the only remaining alternative for some military officers who, embittered by the government's vacillation over the spending required to equip a general purpose force in Europe, cannot conceive or will not contemplate any other role for the army in Europe but the one it has always had. This could be described as the "all or nothing" school of opinion and is redolent of bureaucratic inflexibility and monumental pique over the dashing of increased expectations. The other school favouring withdrawal is that which calls for

abandoning NATO as an unwelcome relic of the "cold war" they fervently hope is over. This body of opinion hankers after a neutral Canada, stripped of alliances, ready perhaps to soldier on as peacekeepers, but otherwise without much of an army at all. This view is not shared by the Committee. As the *Economist* magazine recently reminded us, "The cold war is a non-lethal struggle for advantage. After long years of immobility, it has moved into a period of rapid manoeuvre...but a struggle for advantage it still is."[2]

The Committee believes Canada should continue its involvement in NATO. The advantages of multilateral diplomacy outweigh any conceivable short-term benefit that might be derived from withdrawing from our traditional commitments and, even in the short term, would weaken Canada's position in the conventional arms negotiations. Precipitous withdrawal could also seriously damage political relations with both Europe and the United States. But beyond that, Canada has a stake — and an important one — in the European political and security system. Canadians are bound by ties that go beyond trade considerations or even the normal political intercourse of nations, to the historical roots of the Canadian nation and the values shared in common with other liberal democratic states. This is reason enough for maintaining Canada's commitment to NATO.

What form that commitment should take, however, is another matter. In Chapter VI, the Committee described two possible alternatives that would involve substantially reshaping the land forces to give them a different role within the European theatre. One would involve restructuring for *defensive defence*; the other restructuring for *air mobility*. Beyond these possibilities, however, there are other configurations that could also be considered. In general, the whole range of alternative proposals might collectively be called the **fourth option**, which could be summarized as restructuring Canada's land forces.

In the first instance, restructuring for defensive defence would entail establishing a light armoured defensive division of 6 manoeuvre elements or battalions, without a brigade structure, for use on the frontline as part of an allied corps. These elements could be formed into 3 combined-arms battlegroups, two of them "light" (of two motorized infantry battalions each) to form an infantry anti-tank defensive belt, and one "heavy" (of one armoured and one mechanized infantry battalion) which would form an armoured counter-attack force. Such a formation would require additional anti-tank weapons. In due course, it would also require replacing the 77 tanks now in Europe or upgrading them sufficiently for a frontline role.

The second alternative described in some detail by the Committee — an air mobile force — could consist of a brigade of 3 air mobile battalions plus support elements for contribution to a putative multinational air mechanized division which would serve as an operational reserve for Northern Army Group. This would entail considerable equipment purchases, chiefly of light and heavy transport helicopters plus a squadron of attack helicopters and an array of anti-tank weapons.

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2. "Here we go," *The Economist*, 3 June 1989, p. 15.

Neither of these alternative proposals is without cost, but neither, on the other hand, would likely be as costly, in terms of equipment, as the Army Structure 2002 plan — what we have called "status quo plus" and described above as the second option. All the programmes cancelled by the budget cuts would remain cancelled, except for the medium anti-tank weapons and, for the air mobility structure, the 120 mm mortar programme. Both alternative structures would also require more TOW 2 missile systems, but none of these weapons is particularly expensive. The defensive defence structure would need new, or upgraded tanks, and air mobility would require at least 10 attack helicopters (which would be cheaper than a fleet of new tanks) and 40 transport helicopters. Both structures would require cheaper and more easily maintained wheeled armoured personnel carriers to replace their tracked ones as they wore out. Between 1,000-2,000 personnel would be saved over Army 2002 structures because of the reduced need for divisional units and headquarters. The air mobility structure would save even more to the extent that 5 Groupe Brigade du Canada was demobilized once it was no longer committed to Europe. A more complete analysis of projected equipment costs is provided on pp. 176-177 in Appendix II. It should be noted, however, that these estimates do not reflect the organizational costs that any future restructuring would inevitably entail.

The Committee believes that these and other possible alternatives deserve careful consideration by the Department of National Defence; hence our recommendation to this effect in Chapter VI. We underline that the time has come when the Department must attempt to devise a role for Canadian land forces in Europe that provides an effective and sustainable fighting force there, and that has some relevance and applicability to other roles the land forces play both in Canada and abroad. These include the territorial defence of Canada, domestic "social defence" activities such as disaster relief and rehabilitation, protection against terrorist attacks, peacekeeping functions and, finally, possible future verification activities should a conventional arms control regime become established in Europe. All of these elements need to be considered in shaping the future of Canada's land forces.

At the same time, the Committee is convinced of the urgent need for a comprehensive examination of the future direction of Canadian defence policy as a whole. The April 1989 budget has clearly left the structure outlined in the 1987 White Paper inadequate. It is time to reconsider our options not only for land forces, but for the armed forces. The previous practice of bringing out a White Paper every 10 or 15 years is no longer adequate in a rapidly changing world. Although the Department of National Defence has published a Defence Update to the White Paper the last two years, this process should be institutionalized and not left to the discretion of the Minister. Instead, the Department of National Defence should be obliged to produce a Defence White Paper at least every five years.

At the same time, there is a separate role and need for the Senate to maintain a continuing scrutiny of Canadian defence and security. The study by our Committee of Canada's land forces has made this need all the more apparent.

With the publication of this report, the work of the Special Committee of the Senate on National Defence has now come full circle. It began in June 1980 as a

Sub-Committee of the Standing Senate Committee on Foreign Affairs and published its first report, *Manpower in Canada's Armed Forces*, in January 1982 and its second, *Canada's Maritime Defence*, in May 1983. The Sub-committee's status was changed in November 1984 to that of a Special Committee when it undertook a study of *Canada's Territorial Air Defence* which was published in January 1985. This was followed by another in February 1986 on *Military Air Transport* and, finally, by *Canada's Land Forces*.

The Committee began its work nine years ago, in part because of the need for a new Defence White Paper, a need which was confirmed by its initial study. The long hiatus between official government pronouncements on Canada's defence needs, from 1971 to 1987, exacerbated a tendency towards ad-hocery, towards the kind of trimming and patching that is a natural predisposition of governments beset by innumerable and often conflicting demands and bureaucracies preoccupied with short-term solutions to immediate and pressing problems. In the circumstances, it seemed appropriate for the Senate to establish its own committee, able to make political judgements and familiar with the policy-making process. It remains appropriate today.

The value of such a committee in peacetime is considerable and has been widely recognized. The Senate has the capacity to take a long-view, within a political framework. The Committee's utility would be especially significant at a time when defence planning and priorities appear to be at a crossroads and it could be enhanced still further by weaving larger security concerns into an assessment of Canada's specific defence needs both at home and abroad.

The Committee recommends that the Government undertake to produce a Defence White Paper at a minimum of every five years in order to provide a comprehensive and regular review of Canada's defence policy.

The Committee recommends that the Senate establish a Special or Standing Committee on National Defence in order to maintain a continuing scrutiny of Canada's defence and security policy.

Appendices

APPENDIX I

SUMMARY OF RECOMMENDATIONS

1. **The Committee recommends that:**

   i) **an interdepartmental arms control verification unit be organized, with External Affairs as the lead agency, but to operate in collaboration with National Defence and other relevant departments;**

   ii) **the Departments of External Affairs and National Defence commit sufficient additional personnel to ensure that Canada is well represented, both on-site and in-house, in the Negotiation on Conventional Armed Forces in Europe and the parallel negotiations on Confidence-and Security-building Measures between East and West;**

   iii) **the verification unit should train additional personnel to be able to perform inspection and observation roles once a conventional arms control regime has been finalized since verification measures are certain to be a major ingredient of any agreement; and**

   iv) **adequate resources should also be devoted to verify other potential future bilateral and multilateral arms-reduction agreements such as that pertaining to chemical weapons. (p. 18)**

2. **The Committee recommends that the Department of National Defence reconsider the findings of the review group regarding double-hatting and examine its manpower requirements to beyond the year 2000 with a view to reducing incompatible double-hatting in both combat support and combat service support units. The Department should also find ways to address problems of incompatible double-tasking within the combat arms units of Canada's land forces. (p. 38)**

3. **The Committee recommends that the Department of National Defence investigate measures to improve the quality of Militia training in general, and recruit training in particular. The Committee is concerned that the implementation of the Total Force Concept may encounter difficulties if it vastly increases individual training time. The Committee recommends that the Canadian Forces concentrate on Militia training for particular skills especially since it is expected that skilled Militia specialists may be in far greater demand in any future land force structure. (p. 41)**

4. The Committee notes the benefit provided to Canada as a whole, and the Department of National Defence in particular, by the Army Cadet League, by helping to promote qualities of good citizenship and maintain a military presence in Canadian society. The Committee therefore recommends that the Department of National Defence as a minimum: a) increase the budget for cadets in line with inflation, and b) assure the various cadet groups of training facilities across the country on a regular basis. (p. 48)

5. The Committee recommends that school boards, particularly those in urban centres which have demonstrated significant lack of enthusiasm, be encouraged to take a more positive attitude toward the cadet movement. The Cadet Leagues should seek to increase the involvement of school boards in the cadet movement. (p. 48)

6. The Committee recommends that, in view of the limited value of an ill-equipped Militia and the likely need for sustainment equipment as well as manpower for deployed Canadian Forces in wartime, the Department of National Defence acquire for the Militia, as a matter of policy, equipment of similar quality and on a comparable basis in terms of numbers as that which it provides to the Regular Force and that such purchases be identified as earmarked for the Militia in the annual Defence Estimates. (p. 51)

7. The Committee recommends that full pay parity between the Regular Force and the Reserves be implemented in the near future, and that the Department investigate the possibility of providing pension plans and education or other benefits to reservists as incentives both to recruitment and retention. The Committee further recommends that a disability insurance scheme be established for Reservists and that other financial incentives be investigated for those Reservists who remain in the Reserves for a certain length of time. Such a system would likely improve retention rates and thereby lower long-term expenditures, given the additional investment that the Department of National Defence is planning in terms of Militia training to achieve Total Force Concept standards. (p. 52)

8. The Committee recommends that the Government of Canada and the Department of National Defence encourage employers, to the greatest extent possible, to provide leave voluntarily to their employees for reserve service, without prejudice to their careers, pensions or holidays. A particular effort should be made to enforce existing provisions for leave within the federal public service, agencies and crown corporations, which are frequently overlooked or disregarded, and to encourage similar provisions and treatment within provincial public services and local governments. (p. 53)

9. The Committee recommends that the Government give consideration to developing specific incentives to encourage the private sector to give leave for reserve service. (p. 53)

10. The Committee recommends that the Department of National Defence prepare a comprehensive publicity campaign for expanding the Reserves involving all forms of media. (p. 53)

11. **The Committee recommends that the Canadian Officers Training Corps, the University Reserve Training Plan and the University Naval Training Division be re-established on Canadian university campuses as soon as possible to provide a military presence in university life and to increase the knowledge and involvement of future leaders in the Canadian Forces. (p. 54)**

12. **The Committee believes that in this period of possible transition in the balance of strategic and conventional armaments in Europe, Canadian troop levels should not be diminished in any way. (p. 64)**

13. **The Committee recommends that the Department of National Defence explore alternative roles for the Canadian land forces in Europe, perhaps of a more specialized nature, with a view to reducing the current disparity between stated land force commitments in Europe and actual capabilities. The Committee also believes that, in any investigation, the Department of National Defence should take into account other potential roles for Canada's land forces outside of Europe, ideally in order to ensure that equipment acquired for Europe has viable uses elsewhere. (p. 69)**

14. **The Committee recommends that, in the near future, a Senate committee conduct an investigation of Canada's various peacekeeping activities as well as an examination of the United Nations' role in peacekeeping. Close attention should be paid to: i) the financing of peacekeeping operations; ii) the use of Reservists in peacekeeping, and iii) future options for Canadian peacekeeping, particularly how such options might be adapted to a new structure for Canada's armed forces. (p. 86)**

15. **The Committee recommends that the Department of National Defence re-establish a clear relationship between commitments, structure and equipment in order to ensure that Canadian land forces are properly equipped for the tasks to which they are committed. (p. 90)**

16. **The Committee recommends that the rolling five-year budgetary review process be reinstated, and adhered to, as an essential element in the defence budgeting process. The Committee also recommends that accounting and budgeting methods for costing all major weapons programme(s) be made public. (p. 96)**

17. **The Committee recommends that the Government of Canada and the Department of National Defence develop comprehensive national wartime mobilization plans that are in line with new structures for the armed forces in order to provide for an orderly transition to a war footing, should that contingency arise. (p. 98)**

18. **The Committee recommends that the Department of National Defence implement the recommendations of the Defence Industrial Preparedness Task Force to include defence industrial preparedness considerations into the acquisition process of all Department of National Defence purchases, emphasizing the Canadian defence industrial base to the greatest extent possible, but making use of allied capabilities where necessary. (p. 105)**

19. **The Committee recommends that the Department of National Defence investigate ways of introducing greater training for Canada's land forces — both Regular and Reserve — in social defence roles such as disaster relief and rehabilitation activities. (p. 111)**

20. **The Committee supports the Canadian War Museum and recommends that it be made autonomous from the Canadian Museum of Civilization, with a larger budget under its own control. (p. 113)**

21. **The Committee further recommends that the name of the Canadian War Museum be changed to the Canadian Museum of Military History, which more accurately reflects the actual content of the Museum's collection. (p. 113)**

22. **The Committee recommends that the government undertake to produce a Defence White Paper at a minimum of every five years in order to provide a comprehensive and regular review of Canada's defence policy. (p. 120)**

23. **The Committee recommends that the Senate establish a Special or Standing Committee on National Defence in order to maintain a continuing scrutiny of Canada's defence and security policy. (p. 120)**

APPENDIX II

Estimates of the Total Impact on the Defence Budget and Gross Domestic Product of Proposals from the Committee's Five Studies

Costs of the Five Reports by Year (in $ millions)					
Year	Manpower	Maritime	Territorial Air	Air Transport	Land Forces
1990/91	464.0	951.9	385.3	293.8	31.8
1991/92	464.0	951.9	317.9	373.1	35.2
1992/93	464.0	951.9	317.9	395.1	38.8
1993/94	464.0	951.9	317.9	301.9	42.5
1994/95	464.0	951.9	317.9	426.3	46.5
1995/96	232.0	951.9	561.9	426.3	50.5
1996/97	232.0	951.9	427.0	426.3	54.8
1997/98	232.0	951.9	427.0	461.3	59.2
1998/99	232.0	951.9	427.0	296.3	63.9
1999/00	232.0	951.9	427.0	699.4	68.7
2000/01	232.0	951.9	427.0	699.4	74.0
2001/02	232.0	951.9	427.0	676.4	79.1
Totals	3,944.0	11,422.8	4,780.8	5,475.6	645.0

Total additional cost of the Committee's recommendations for 1990/91 to 2001/02:	$ 26.268	billion
Average annual cost of increase:	$ 2.189	billion
1990/91 defence appropriations (1989/90 level + 5%):	$ 11.907	billion
Increase needed to meet the recommendations of the Committee's five reports:	$ 2.189	billion
Estimate of annual defence budget including recommendations:	$ 14.096	billion
Increase as a percentage of the defence budget:		18.7%
Approximate GDP in 1990/91 (1987 GDP + projected growth of 9.5% in 1988-1990):	$602.0	billion
Defence expenditures in 1990/91 as a percentage of GDP:		1.98%
Committee's recommended defence budget as a percentage of GDP:		2.34%
Annual increase resulting from the recommendations of the Committee's five reports:		0.36%

Costs Associated with the Manpower Report

Annual P, O & M costs of increasing Canadian Forces in Europe personnel by 2,520 (10,000 minus current level of 7,480), in 1988/89 dollars:	$ 128.7 million
in 1989/90 dollars (multiplied by a factor of 1.033 for inflation):	$ 133.0 million
Annual P, O & M costs of increasing Force Mobile Command personnel by 2,405 (22,500 less current level of 20,095), in 1988/89 dollars:	$ 96.2 million
in 1989/90 dollars (multiplied by a factor of 1.033 for inflation):	$ 99.4 million
Initial capital and infrastructure costs for 4,925 personnel in 1981/82 dollars are:	$ 762.0 million
in 1989/90 dollars (multiplied by a factor of 1.52 for inflation):	$1,159.0 million

Assuming the capital costs are phased in over five years, the costs per year would be as follows:

1990/91 to 1994/95	$ 464.0 million
1995/96 to 2001/02	$ 232.0 million

The total cost over the twelve years is $3,944 million above current manning levels. However, the Department of National Defence plans to reduce the size of the Regular force over the next several years.

Costs Associated with the Maritime Defence Report

Costs of capital equipment recommended by the report but which the Department of National Defence does not currently intend to buy in millions of dollars (adjusted by a factor of 1.033 for inflation):

17 Conventional Submarines	5,707.3
18 Auroras	2,375.9
12 Fast Patrol Boats	795.4
10 ASW Helicopters	774.8
AAMs for 18 Auroras	38.1
ASMs for 18 Auroras	129.1
Rockets for 18 Trackers	1.7
Torpedoes for Oberons	93.0
SSMs for Oberons	14.5
3 Armed Merchant Ships	103.3
50 Harpoon ASMs for CF-18s	51.7
Total	10,084.8

The 4 minehunters and 9 minesweepers recommended are not included in the table because they are covered by current plans to buy 12 Maritime Coastal Defence Vessels. It is also assumed that plans exist, in one form or another, to at least replace the 3 Oberon submarines.

There seems to be no reason to believe that the initial estimate of additional P, O & M costs contained in the report ($80 million per year) is out of line, and so appropriately adjusted for inflation (a factor of 1.32), it amounts to $105.6 per year.

Annual P, O & M costs for increasing the Naval Primary Reserve by 740 (4,500 minus current level of 3,760) in 1989/90 dollars: $4.9 million.

The Supplementary Reserve is already in the Department of National Defence plans, but the Fisherman's Reserve of 1,200 personnel would cost $1 million per year in P, O & M.

Assuming the capital costs are spread evenly over the next twelve years, at $840.4 million per year, the cost per year would be $951.9 million from 1990/91 to 2001/02.

Costs Associated with the Territorial Air Defence Report

Acquisition of one AWACS, or one-third share of three AWACS in 1988/89 dollars:	$196.0 million
In 1989/90 (adjusted by a factor of 1.033 for inflation):	$202.5 million
Acquisition of 24 additional CF-18 aircraft in 1988/89 dollars:	$653.0 million
In 1989/90 dollars:	$674.5 million

Cost of initiating a military space programme, in 1984/85 dollars:	$150.0 million per year for five years
In 1989/90 dollars (adjusted by a factor of 1.22):	$183.0 million per year for five years
Continuing costs for a military space programme in 1984/85 dollars:	$350.0 million per year
In 1989/90 dollars:	$427.0 million per year

Assuming the AWACS is bought in the first year, and costs for the CF-18 are apportioned over the next five years, the costs additional to the Department of National Defence plans over the next twelve years would be as follows (in millions of dollars):

1990/91	385.3
1991/92	317.9
1992/93	317.9
1993/94	317.9
1994/95	317.9
1995/96	561.9
1996/97 to 2001/02	427.0

Total costs over the twelve years would be $4,780.8 million above current plans.

Costs Associated with the Air Transport Report

The tables below represent essentially additions to the Department of National Defence fleet and known planned procurements. The costs of 2 replacement Hercules, 3 Chinook helicopters, and 6 additional Challengers have therefore been excluded. However, costs have been included for CH-113, CH-135 and CH-136 replacements, all of which the Department of National Defence presumably is planning to replace at some future time, but it is not known when. Where possible, the original report timetables for acquisition have been adhered to, otherwise they have been distributed to avoid front-loading the cost schedule unduly.

Air Transport Group								
Year	C-130	C-137	C-142	CH-113 Repl.	Sim.	Upgr.	PO&M	ATG Total
1990/91	130.0	31.0	93.2	0.0	5.2	0.0	22.0	281.4
1991/92	130.0	0.0	93.2	0.0	0.0	93.5	44.0	360.7
1992/93	130.0	0.0	93.2	0.0	0.0	93.5	66.0	382.7
1993/94	130.0	0.0	0.0	0.0	0.0	93.5	66.0	289.5
1994/95	130.0	0.0	0.0	124.4	0.0	93.5	66.0	413.9
1995/96	130.0	0.0	0.0	124.4	0.0	93.5	66.0	413.9
1996/97	130.0	0.0	0.0	124.4	0.0	93.5	66.0	413.9
1997/98	195.0	0.0	0.0	124.4	0.0	93.5	66.0	448.9
1998/99	0.0	0.0	0.0	124.4	0.0	93.5	66.0	283.9
1999/00	0.0	0.0	0.0	0.0	0.0	0.0	66.0	66.0
2000/01	0.0	0.0	0.0	0.0	0.0	0.0	66.0	66.0
2001/02	0.0	0.0	0.0	0.0	0.0	0.0	66.0	66.0

Tactical Air Group and Air Transport Reserve						
Year	CH-135 Repl.	CH-136 Repl.	PO&M	Reserve PO&M	10 TAG Total	Report Total
1990/91	0.0	0.0	5.2	7.2	12.4	293.8
1991/92	0.0	0.0	5.2	7.2	12.4	373.1
1992/93	0.0	0.0	5.2	7.2	12.4	395.1
1993/94	0.0	0.0	5.2	7.2	12.4	301.9
1994/95	0.0	0.0	5.2	7.2	12.4	426.3
1995/96	0.0	0.0	5.2	7.2	12.4	426.3
1996/97	0.0	0.0	5.2	7.2	12.4	426.3
1997/98	0.0	0.0	5.2	7.2	12.4	461.3
1998/99	0.0	0.0	5.2	7.2	12.4	296.3
1999/00	276.0	345.0	5.2	7.2	633.4	699.4
2000/01	276.0	345.0	5.2	7.2	633.4	699.4
2001/02	253.0	345.0	5.2	7.2	610.4	676.4
Total expenditures over the twelve-year period amount to $5,475.6 million.						

Costs Associated with Canada's Land Forces Report

The following figures represent increments above what it is expected that the Department of National Defence is planning to spend in each case.

RECOMMENDATION 1

Arms control and verification personnel for the Departments of External Affairs and National Defence, and verification training.

Twelve additional personnel are assumed to be sufficient: 6 to set up the interdepartmental verification unit, and 6 to expand the existing arms control units within the two departments. Average costs per person-year for the relevant activities within the departments are approximately $70,000. Twelve additional personnel would costs approximately $840,000 per year. Another $1.1 million per year might be needed to train verification personnel, and for other costs associated with verifying arms control agreements. Therefore, Recommendation 1 would cost approximately $2 million per year initially.

Given the likelihood of a rapidly increasing demand for additional verification capabilities, however, it would be wise to build in fairly substantial increases in expenditures for arms control and verification purposes. Hence, this estimate assumes that expenditures would increase by $500,000 each year over the 12-year period. Consequently, Recommendation 1 would cost roughly $58 million for the entire 12-year period.

RECOMMENDATION 4

Cadet budget to increase in line with inflation.

The current Cadet budget totals $56 million. Assuming an annual inflation rate averaging 5% over the next 12 years, increasing the Cadet budget in line with inflation would cost approximately $264 million over the 12 years.

RECOMMENDATION 7

Implement full pay parity between the Regular force and the Reserves. Investigate benefits.

According to testimony (5:18) before the Committee, full pay parity would have cost $50 million per year in 1987. Since that time, approximately half the gap between Regular and Reserve pay rates has been made up. Therefore, adjusting for inflation, pay parity would now cost an additional $27 million per year. The costs of other benefits are impossible to estimate. The total cost over the 12-year period would be $324 million.

SUMMARY

Excluding the costs of changing the structure of Canadian Forces in Europe land forces, the pattern of additional costs to 2002 would be:

1990/91	$31.8 million
1991/92	$35.2 million
1992/93	$38.8 million
1993/94	$42.5 million
1994/95	$46.5 million
1995/96	$50.5 million
1996/97	$54.8 million
1997/98	$59.2 million

1998/99	$63.9 million
1999/2000	$68.7 million
2000/01	$74.0 million
2001/02	$79.1 million

In total, over twelve years, the recommendations (again excluding structure changes for Canadian Forces in Europe) would cost an additional $645 million above current Department of National Defence plans.

Costs of the Alternative Force Structures for Europe: Defensive Defence Division

On average, a current Regular force brigade group costs approximately $114 million per year in capital expenditures, and $490 million per year in P, O & M (dollars figures in 1989 dollars).

Capital acquisitions to equip one division of one armoured, one mechanized infantry, four motorized infantry and two artillery battalions would cost approximately $202 million less over the next twelve years than a division of two mechanized brigades. Assuming matters could be arranged so that there were no additional infrastructure costs, additional capital costs would come from the following systems:

38 TOW IIs @ $15,000 ea.	=	$570,000
440 Med. ATGWs @ $12,000 ea.	=	$5,280,000
460 Wheeled APCs @ $1 million ea.	=	$460,000,000
48 Towed Howitzers @ $600,000 ea.	=	$28,800,000
Total		$494,650,000

Less savings from not having to buy the following systems:

460 Tracked APCs @ $1.4 million ea.	=	$644,000,000
48 SPHs @ $1.1 million ea.	=	$52,800,000
Total		$696,800,000

The defensive defence division would require approximately 1,000 troops less than the two mechanized brigades structure, because of the absence of brigade headquarters and various other support units. Similarly, the wheeled APCs and towed howitzers would be cheaper to maintain than their tracked counterparts. It would not seem unreasonable to assume a reduction in P, O & M costs of approximately $100 million per year.

Assuming that the additional capital savings of establishing the defensive defence division were apportioned over the whole twelve years, the respective costs of the two mechanized brigade and defensive defence divisions would appear as follows:

	Mechanized Division	Defensive Division
1990/91 to 2001/02	$1,208.0 million	$1,091.2 million

Costs of the Alternative Force Structures for Europe: One Air Mobile Brigade

On average, a current Regular force brigade costs approximately $114 million per year in capital expenditures, and $490 million per year in P, O & M.

Capital acquisitions for one air mobile brigade would cost approximately $126 million more over the next twelve years than for a mechanized brigade. The additional capital costs would come from the following systems:

12 x TOW IIs @ $15,000 ea.	=	$180,000
288 x Med. ATGWs @ $12,000 ea.	=	$3,456,000
12 x 120mm Mortar @ $125,000 ea.	=	$1,500,000
100 x Wheeled APCs @ $1 million ea.	=	$100,000,000
16 Attack Helos @ $15 million ea.	=	$240,000,000
40 Transport Helos @ $7 million ea.	=	$280,000,000
Total		$625,136,000

Less savings from not having to buy the following systems:

59 Tanks @ $3 million ea.	=	$177,000,000
230 Tracked APCs @ $1.4 million ea.	=	$322,000,000
Total		$499,000,000

Maintaining the helicopters would be more expensive than maintaining fleets of tanks and APCs, but the P, O & M costs would be partially offset by smaller personnel establishments, and the lesser cost of maintaining wheeled APCs and mortars over tracked APCs, tanks and SPHs. It would not seem unreasonable, then to estimate P, O & M costs at no more than 25% more than for a mechanized brigade, or $613 million per year.

Assuming that 5GBC (with 4CMBGs armoured battalion replacing one of 5GBCs infantry battalions transferred to the airmobile brigade) was disbanded, and that the additional capital costs of setting up the airmobile brigade were incurred in the first three years, the respective costs of the two mechanized and the one airmobile brigade structures would appear as follows:

	Mechanized Brigades	Airmobile Brigade
1990/91	$1,208 million	$769 million
1991/92	$1,208 million	$769 million
1992/93	$1,208 million	$769 million
1993/94 to 2001/02	$1,208 million	$727 million

APPENDIX III

List of witnesses showing the issue number and date of the proceedings in which their evidence appeared.

Second Session of the Thirty-third Parliament

Name	Issue Number	Date
Rear-Admiral J.R. Anderson Chief Submarine Acquisition Department of National Defence	24	June 7, 1988
Brigadier-General W.H. Batt Commander Canadian Forces Communication Command Department of National Defence	8	November 3, 1987
Brigadier-General (Ret.) Clayton Beattie Former Commander, Northern Region	15	March 8, 1988
Honourable Perrin Beatty, P.C., M.P. Minister of National Defence	25	June 21, 1988
Brigadier-General R.P. Beaudry Director General Reserves and Cadets Department of National Defence	5	June 25, 1987
Brigadier-General (Retired) G.G. Bell President Canadian Institute of Strategic Studies	10	December 1, 1987
Lieutenant-General (Ret.) Charles H. Belzile Former Commander, Mobile Command	4	June 9, 1987

Name	Issue Number	Date
Mr. Fred Bild Assistant Deputy Minister Political and International Security Affairs Department of External Affairs	16	March 15, 1988
Professor Paul Buteux Department of Political Studies University of Manitoba	13	February 2, 1988
Professor David Cox Department of Political Science Queen's University	15	March 8, 1988
Major Richard Cyr Directorate of Air Operations and Training Department of National Defence	6	June 26, 1987
Colonel R.A. Dallaire Director Land Requirements Department of National Defence	*In camera* 3 21	May 19, 1987 May 26, 1987 May 10, 1988
Lieutenant-General John de Chastelain Assistant Deputy Minister (Personnel) Department of National Defence	20	April 26, 1988
Colonel Darrell M. Dean Director Land Combat Development Department of National Defence	*In camera*	March 29, 1988
Major (Retired) C.J. Devaney Executive Director Army Cadet League of Canada	9	November 24, 1987
Lieutenant-Colonel Don Ethell Directorate Military Plans Coordination Peacekeeping Operations Department of National Defence	16	March 15, 1988
Lieutenant-General R.J. Evraire Chief Land Doctrine and Operations Department of National Defence	1 *In camera* 16 21	May 5, 1987 May 19, 1987 March 15, 1988 May 10, 1988

Name	Issue Number	Date
Admiral Robert H. Falls Ex-Chairman NATO Military Committee	12	January 26, 1988
Mr. R.R. Fowler Assistant Deputy Minister (Policy) Department of National Defence	25	June 21, 1988
Lieutenant-General J.A. Fox Commander, Mobile Command Department of National Defence	3	May 26, 1987
Mr. R.D. Gillespie Chief of Supply Department of National Defence	19	April 19, 1988
Professor Fen Hampson Canadian Institute for International Peace and Security	13	February 2, 1988
Mr. Eldon Healey Assistant Deputy Minister (Materiel) Department of National Defence	24	June 7, 1988
Colonel Charles Hegge Director Defence Industrial Resources Department of National Defence	19	April 19, 1988
Colonel A. Sean Henry Senior Policy Analyst Planning Guidance Team Policy Planning Branch Department of National Defence	*In camera* 3	May 19, 1987 May 26, 1987
Major-General C.W. Hewson Chief Intelligence and Security Department of National Defence	*In camera*	March 29, 1988
Mr. Roger Hill Research Director Canadian Institute for International Peace and Security	12	January 26, 1988
Mr. John Honderich Editorial Page Editor The Toronto Star	15	March 8, 1988

Name	Issue Number	Date
Major-General D. Huddleston Associate Assistant Deputy Minister (Policy) Department of National Defence	14	February 9, 1988
Mr. S.P. Hunter Director General Personnel Coordination Department of National Defence	20	April 26, 1988
Dr. Carl G. Jacobsen Professor of Political Science and Soviet Studies Carleton University	13	February 2, 1988
Major-General (Ret.) C. Gordon Kitchen Former Defence Coordinator Cabinet Committee on Foreign and Defence Policy	17	March 22, 1988
Major-General R. Lewis Chief of Reserves Department of National Defence	5	June 25, 1987
Brigadier-General W.E.R. Little Director General Materiel Administration and Programs Department of National Defence	19	April 19, 1988
Colonel G.L. Logan Director Charter of Rights and Freedoms Office Department of National Defence	20	April 26, 1988
Colonel Brian S. Macdonald Executive Director Canadian Institute of Strategic Studies	22	May 17, 1988
Colonel D.I.F. Mackay Director Military Manpower Distribution Department of National Defence	7	October 20, 1987
General Paul D. Manson Chief of the Defence Staff Department of National Defence	1	May 5, 1987

Name	Issue Number	Date
Lieutenant-Colonel John Marteinson Editor The Canadian Defence Quarterly	22	May 17, 1988
Colonel S.A. McCormack Director Procurement and Supply, Land Department of National Defence	19	April 19, 1988
Lieutenant-Colonel S.T. McDonald President Royal Canadian Artillery Association	11	December 8, 1987
Dr. Desmond Morton Principal, Erindale College University of Toronto	20	April 26, 1988
Major J.R. Near Director Land Operations, Training and Resources Department of National Defence	*In camera*	May 19, 1987
Mr. C.R. Nixon Former Deputy Minister Department of National Defence	23	May 31, 1988
Brigadier-General G.J. O'Connor Project Director Army Structure Implementation Department of National Defence	21 25	May 10, 1988 June 21, 1988
Lieutenant-General (Ret.) J.W. Quinn Colonel Commandant Royal Canadian Army Cadets Army Cadet League of Canada	9	November 24, 1987
Mr. Andrew Rasiulis Nuclear and Arms Control Policy Directorate Department of National Defence	14	February 9, 1988
Lieutenant-Colonel P. Renaud Directorate of Cadets National Defence Headquarters	9	November 24, 1987

Name	Issue Number	Date
Mr. Bill Snarr Executive Director Emergency Preparedness Canada	18	March 29, 1988
Lieutenant-Colonel D.P. Snidal Associate Dean of Medicine University of Manitoba and Representative to the Surgeon-General, Defence Medical Association Council	11	December 8, 1987
Colonel (Retired) W.I. Somerville President Army Cadet League of Canada	9	November 24, 1987
Brigadier-General Phillip Spencer Director General Land Doctrine and Operations and Deputy to Chief Land Doctrine and Operations Department of National Defence	3	May 26, 1987
Colonel A. Tattersall Director General Military Engineering Operations Department of National Defence	7	October 20, 1987
Mr. Maurice Tugwell Director Mackenzie Institute for the Study of Terrorism, Revolution and Propaganda	17	March 22, 1988
Lieutenant-General John E. Vance Vice Chief of the Defence Staff Department of National Defence	2 25	May 12, 1987 June 21, 1988
Brigadier-General Jean J. Véronneau Director General Air Doctrine and Operations Department of National Defence	6	June 26, 1987
Brigadier-General William J. Yost Director of Operations Conference of Defence Associations	11	December 8, 1987

Second Session of the Thirty-fourth Parliament

Name	Issue Number	Date
Professor Timothy J. Colton Director Centre for Russian and East European Studies University of Toronto	1	May 2, 1989
Lieutenant-General John de Chastelain Vice Chief of the Defence Staff Department of National Defence	3	May 16, 1989
Professor Carl Jacobsen Professor of Political Science and Soviet Studies Carleton University	2	May 9, 1989
Mr. Phillip A. Karber Senior Vice President BDM Corporation McLean, Virginia, U.S.A.	2	May 9, 1989
Mr. Robert Poetschke Deputy Director (USSR) USSR and Eastern Europe Relations Division Department of External Affairs	1	May 2, 1989