LIBRARY OF PARLIAMENT

Canada. Parl. Senate.
Special Comm.on Land
Use in Canada, 1958.
Proceedings.

J
103
H7
1958
L3
A1

DATE	NAME - NOM

Canada. Parl. Senate. Special
Comm.on Land Use in Canada, 1958.

J
103
H7
1958
L3
A1

1958

THE SENATE OF CANADA

PROCEEDINGS

OF THE

SPECIAL COMMITTEE OF THE SENATE

ON

LAND USE IN CANADA

No. 1

RECEIVED
JUL 25 1958
Library of Parliament

THURSDAY, JULY 17, 1958

The Honourable Arthur M. Pearson, Chairman

WITNESSES

Messrs. Vernon E. Johnson, President, F. A. Harrison, Vice President and Manager Woodlands Division, and D. A. Wilson, Forest Economist, all of the Canadian International Paper Company.

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1958

60876-0—1

SPECIAL COMMITTEE OF THE SENATE ON LAND USE IN CANADA

The Honourable Arthur M. Pearson, *Chairman*

Barbour	Hawkins	Pearson
Basha	Horner	Power
Bois	Inman	Smith (*Westmorland*)
Boucher	Leger	Stambaugh
Bradette	Leonard	Taylor (*Norfolk*)
Cameron	MacDonald	Taylor (*Westmorland*)
Crerar	McDonald	Turgeon
Emerson	McGrand	Vaillancourt
Gladstone	Methot	Wall
Golding	Molson	White—30.

(Quorum 7)

ORDER OF REFERENCE

Extract from the Minutes of the Proceedings of the Senate.

THURSDAY, June 12, 1958.

"The Honourable Senator Aseltine moved, seconded by the Honourable Senator Macdonald, P.C.—

That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people and, in particular, to increase both agricultural production and the incomes of those engaged in it;

That the Committee be composed of the Honourable Senators Barbour, Basha, Bois, Boucher, Bradette, Cameron, Crerar, Emerson, Gladstone, Golding, Hawkins, Horner, Inman, Leger, Leonard, MacDonald, McDonald, McGrand, Methot, Molson, Pearson, Power, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon, Vaillancourt, Wall and White.

That the Committee have power to engage the services of such counsel and technical and clerical personnel as may be necessary for the purpose of the inquiry;

That the Committee have power to send for persons, papers and records, to sit during sittings and adjournments of the Senate, and to report from time to time;

That the evidence taken on the subject during the two preceding sessions be referred to the Committee.

After debate, and—
The question being put on the motion, it was—
Resolved in the affirmative."

J. F. MacNeill,
Clerk of the Senate.

60876-0—1½

MINUTES OF PROCEEDINGS

THURSDAY, July 17, 1958.

Pursuant to adjournment and notice the Special Committee of the Senate on Land Use in Canada met this day at 10.30 a.m.

Present: The Honourable Senators: Pearson, *Chairman*; Bois, Bradette, Gladstone, Inman, Leger, MacDonald, Power, Taylor (*Norfolk*), Taylor (*Westmorland*), Vaillancourt and Wall—12.

In attendance: The Honourable Senator Burchill and the official reporters of the Senate.

On motion of the Honourable Senator Taylor (*Westmorland*) the Honourable Senator Bois was elected Deputy Chairman.

On motion of the Honourable Senator Taylor (*Westmorland*) it was resolved to report recommending that the Committee be empowered to adjourn from place to place as they may determine from time to time.

The following representatives of the Canadian International Paper Company were heard:—

Mr. Vernon E. Johnson, President.

Mr. F. A. Harrison, Vice President and Manager Woodlands.

Mr. D. A. Wilson, Forest Economist.

At 12.30 p.m. the Committee adjourned until Wednesday, July 23rd, 1958, at 10.30 a.m.

Attest.

James W. MacDonald,
Clerk of the Committee.

THE SENATE

SPECIAL COMMITTEE ON LAND USE IN CANADA

EVIDENCE

OTTAWA, Thursday, July 17, 1958.

The Special Committee on land use in Canada met this day at 10.30 a.m.

The CHAIRMAN: Senators and gentlemen, I have pleasure in calling upon Mr. Vernon E. Johnson to give us at this stage an informal talk or brief summary of the contents of his submission and we shall be able later on to ask him questions.

Mr. VERNON E. JOHNSON: Mr. Chairman, I have a summary of my brief which I should like to read at this time, but before doing so it might be well if I gave you my qualifications. I am president of the Canadian International Paper Company and my qualifications for speaking on land use in Canada I base on the fact that I am the owner of a Laurentian woodlot. I have owned that property for 25 years or so and I must admit that I have spent more time on that woodlot learning how to grow fish than how to grow trees. In the last few years I have turned my attention to trees for I realized then what the possibilities were in the conservation and development of our forests. In my experience with trout, for example, I have said more than once that I have heard that you can grow trout as easily as you can grow trees; the problem is going about it properly. I have been in the forestry end of the business, having grown up in it. Forty years ago I started in the woods, and Fred Harrison was close behind me, with 30 odd years in the woods. We both started on snowshoes.

Mr. Harrison is vice-president and manager of Woodlands and he is probably the biggest tree farmer in Canada at the moment, managing some 20 million acres of forest land. We handle upwards of 2 million cords of wood a year, employing as many as 17,000 people in our forestry operations. Dave Wilson originally came from Vancouver Island and he seems to like it in the east. He is our forest economist. He is trying to help us in our efforts to learn all we can about the handling of our forests. End products is another approach we should like to interject into this. If you are interested, we have at Hawkesbury the industrial cellulose research organization which is making a thorough study of wood products and the end uses of pulp and paper. That organization is on the main road at Hawkesbury and if anyone wishes to go there, if anyone here is interested in seeing what we do there, we shall be glad to have them. You can visit the laboratory and the Harrington Forest Farm, which I shall speak of later. Having made that introduction, I should like to turn now to my summary. This is a resume of the materials I have dealt with in my brief, and with your permission I will now read it.

It gives me great pleasure to appear before this committee. You have all received copies of my formal presentation of this vital subject as I see it. The photographs taken in Argenteuil County which accompany the statement—showing examples of good and of bad land use in this area—illustrate my point better than words can do. I will not take the time to read that brief now. But I would like to summarize a few points briefly to set the stage for our discussion.

My interest in conservation goes back a long way. For over 25 years now, I have been growing fish in my own lake and trees on my own place near Harrington, Quebec, in Argenteuil County. And there are some lessons which I would like to draw from the work of Canadian International Paper Company in that county with farmers and other land owners to help them to put their soil to better and more profitable use.

We have a similar research situation in the Gaspe Peninsula which has to do with a different type of forest.

The central conviction which lies behind this program is that trees are a crop. They are a crop which can provide a lasting and reliable cash income for the farmer who knows how to grow them well.

Our pulp mill at Hawkesbury, Ontario—across the Ottawa River from Argenteuil County—was first built in 1898. Its production capacity has expanded since then from 75 tons of unbleached chemical pulp per day to its present capacity of 260 tons of dissolving wood cellulose per day. So has its needs for wood.

Dissolving wood cellulose is a substance which is just as clear as that water you see there, and in the liquid state it is used for rayon for tire cord. In recent years that has been the largest use of that particular product. It is used in rubber belts also, and of course we are every day studying more and better uses. The big market, however, has been for automobile tires.

Initially, only softwoods were used to manufacture pulp, the Hawkesbury mill had to reach out further and further to obtain the spruce and balsam it needed, to the point where the long haul to the mill became uneconomic. We were able to keep the mill running by converting it—in 1951—to the manufacture of hardwood pulp, spending some $8 million for this conversion. The hardwoods which abound in the area—largely beech, birch and maple—then became a raw material source.

As a matter of fact, we can actually use 17 different species which grow in that particular area.

A modern pulp and paper company realizes that it must protect its investment by insuring a perpetual supply of its raw material. It must be a tree farmer—and it must lead the way in spreading the tree farming gospel.

To accomplish this goal, we opened our Harrington Forest Farm on the Rouge River, about 25 miles from Hawkesbury, in June, 1952. There we hold some 4,000 acres of land of our own adjacent to another 14,000 acres under lease from the Quebec Government.

The forest farm is described in detail in the brief which I have submitted to you.

Senator BRADETTE: We are grateful to you for having sent that to us.

Mr. JOHNSON: The summary goes on: And I hope you will have the opportunity to see it for yourselves. It is primarily a place where tree farmers from the area—who are also our wood suppliers—can learn new and better techniques. It is also a research centre—a place where new and exciting studies in the growth potentialities of hybrids, and the use of fertilizer, are being carried on. It is a fish and game management laboratory. It contains a tree nursery geared to produce one million seedlings per year.

We could show you more there in a day than you could possibly picture to yourselves or read about. The possibilities are untold.

Above all, I want to emphasize the importance of Harrington as a demonstration forest. We are anxious to share with others all the knowledge we gain there.

An extension forester at nearby Grenville—where we do our wood buying—works closely with individual tree farmers in the area. We try to encourage

the tree farmer to grow the wood crop which will give him the best return—whether it be sawlogs, plywood logs, poles, posts or pulpwood. We have found that in the long run his best interests are also our own.

Take one capable woodlot farmer in the county with whom we have worked closely Celestin Lauzon. During the period from 1943 to 1956 Lauzon cut 520 face cords of fuel wood; 15,000 feet board measure of softwood saw logs; 12,000 feet board measure of hardwood saw logs; 3,000 feet board measure of hardwood veneer logs; 270 cords of pulpwood; and 200 cedar fence posts. Over this period, the total value of the products was $8,420 or about $650 a year. And, along with this cash income, Lauzon has gotten himself a better woodlot—by selective cutting, by weeding out the bad trees and keeping the good.

Senator WALL: What is the size of this woodlot?

Mr. JOHNSON: Are you referring to the Lauzon woodlot?

Senator WALL: Yes.

Mr. WILSON: It is 30 acres.

Mr. JOHNSON: We have heard a good deal about the term "selective cutting". In my opinion, selective cutting means simply this. A farmer would go into a woodlot and select the best trees he could find and cut that. That is not our intention. Our objective is to leave trees to grow. It is the reverse of what has been the normal practice.

Unfortunately, Argenteuil County contains some classic examples of bad land use. There are many farms which are clearly not economic units—where men struggle to grow poor pasture or thin crops from sandy soil. The figures which show a steady drop in the number of farms and in the amount of occupied and improved land in the county reveal what must eventually come to pass under such circumstances. When the land is badly used, people at last are forced to leave it—as the laws of economics correct human errors.

The photographs which accompanied my brief show some scenes from an area at the top of the Rouge River which was removed from timber limits and transferred to Colonization in 1941. The soil there is poor—almost pure sand. Attempts to farm it failed. Today, rusting machinery is idle, abandoned fields recall this failure. At the same time, the stumps left from the heavy stand of white pine which once covered it remind us that had it been left in forest a new and profitable crop of trees would be there today.

My brief concludes with ten observations as to ways in which the idea that trees are a crop may be furthered through the co-operation of Government, industry, and our forestry schools and universities. I will not repeat these observations here, but I would like to discuss with you any of them which seem of particular interest to this committee.

It has often been said that the recent past average growth of farm woodlots in Eastern Canada has amounted to about one-third of a cord per acre per year. Our work in Argenteuil County has convinced us that this figure is low. I know that we can get much better results than this—and improve the quality of our wood—as the woodlot farmer learns better ways to grow his crop.

As far as our own industry is concerned, I am convinced that we will have heard a good deal about that in the last year.

No doubt you want to know what the use is from farm woodlots. About 10 per cent of the pulpwood supply is purchased from farm woodlots. You have heard a good deal about that in the last year.

The Crown land which we now harvest will not become less important to us. But the farmer is often closer to our mills. He needs help and encouragement. As he gets it, he can grow more wood for his own use, for other markets and for us.

The concern of this committee is the broad field of land use in Canada. There is no more important field for investigation. Our experience shows

that on many soils, trees are far and away the most suitable crop, and the one best calculated to maintain a healthy and productive farm economy. For this crop I would urge from Government the same consideration in terms of encouragement, research, constructive taxation policies, and extension work which other crops receive.

I would like to extend a cordial invitation to this committee to visit us in Harrington, and see for yourselves the great significance of the work which we are carrying on there.

I should like now to make one or two casual comments. Trees mean cash. There was an editorial in the *Montreal Star* discussing the activities of Macdonald College in this field, and I have played a part in establishing there a course in farm woodlot management. We have an administration building. Some of the students come to Harrington once or twice a year. We work closely with Macdonald College and are also keenly interested in the forestry work of the University of New Brunswick and the Forestry School at Fredericton. We have taken an active part in the school at Laval in the province of Quebec, which has had a great deal to do with forestry. I have here a booklet on this subject by Jonathan Daniels, who wrote this story himself. He is a keen observer. We became so interested in it that we published it. If it is of interest to this committee to have copies of it we can send you some. In the meantime, I should like to present this copy to the Chairman. We shall be glad to give a copy to anyone who would like to have it.

Senator INMAN: I should be glad to have one.

Senator BRADETTE: I think every member of the committee would like to have one.

Mr. JOHNSON: We shall see that copies are sent. That concludes my introduction generally and if you have any questions to ask we shall be glad to answer them as best we can.

Senator MACDONALD: May I ask, Mr. Johnson, whether you are working on the federal level, more or less on the Dominion Government level.

Mr. JOHNSON: Perhaps you did not hear me say, sir, that I am president of the Canadian International Paper Company.

Senator MACDONALD: Oh, you have nothing to do with Government.

Mr. JOHNSON: I am engaged in free enterprise. It is my purpose in life to make as much money as I can by the aid of the tools I have to work with.

Senator MACDONALD: In the little province from which I come we have a forestry program, the head of which received his schooling at the University of New Brunswick. I take it that in your capacity you have no supervision over these institutions.

Mr. JOHNSON: I happen to be one of the senators of the University of New Brunswick, along with Senator Burchill, and we do what we can to promote their activities in this connection. Of course, we are not interested in the academic end of it.

Senator MACDONALD: Speaking from my own experience as a farmer, I can remember that some 45 years ago my brother and I trimmed a part of our woodlot, and within the last three or four years we have trimmed it again. It is marvellous what can happen in a woodlot in 35 or 40 years.

Mr. JOHNSON: It is, indeed; it is incomprehensible to most people.

Senator INMAN: I have an equity in a farm of 125 acres and it has produced a great deal of lumber, but of course we have a problem there. In many cases, as Senator Macdonald will bear me out—I come from the same province—our woodlands are being depleted. They have been cut over for pulpwood. The farmers have gone in and taken out the wood.

Mr. JOHNSON: We have grown up in this country with the idea that the forests should be burnt out, that they should be depleted of wood and devoted to the growing of potatoes, corn and other farm produce. That is the concept on which this country was originally developed. We had no planning in the early days. The forests could not be converted into money immediately and they were cut down, and people seemed to think that they would never be depleted.

Senator INMAN: It is something that must cause concern to everyone.

Mr. HARRISON: That is where extension workers come into their own in educating the farmers how to treat their woodlots instead of cutting everything down for the dollar today.

Senator BRADETTE: Is there any connection between your activities and those of a large undertaking such as the Spruce Falls of Kapuskasing Reforestation scheme? Are you working together?

Mr. JOHNSON: I would not say together, but we learn from each other. The Spruce Falls area is an entirely different type of forest, all softwood, and that would not apply to us anywhere from Abitibi county east. We have a different type of problem because we have a different type of soil.

Mr. HARRISON: One of the biggest problems we had in the Matapedia Valley was to find out how to handle the superabundance of reproduction. The natural reproduction comes up so thick that there is a condition of stagnation. There is a long period of stagnation before you have matured wood, and we are trying to solve that problem through research studies on an economical basis.

Mr. JOHNSON: And the trouble is aggravated by the fact that once we have got a nice crop coming along the bud worm appears.

The CHAIRMAN: In your opinion, what type of soil is best for forestry?

Mr. JOHNSON: I am afraid there is no answer to that. Different types of trees grow in different places and nature has already indicated what that is.

Senator LEGER: How long would it take to grow a natural crop of wood?

Mr. JOHNSON: It all depends on the species you start with.

Senator LEGER: Spruce.

Mr. JOHNSON: If you start with black spruce it will take 75 to 100 years. You can grow a crop of white spruce in nearly half that time. Balsam will grow in 40 years. It should be harvested after that length of time.

Senator LEGER: Under supervision?

Mr. JOHNSON: In the natural state.

Senator MACDONALD: In 1910 my brother and I cut down logs in an area of woodlots behind the buildings and we have mowed down the same area within the last couple of years. In other words, it had grown up again in about 40 years. I am speaking of softwood.

Senator LEGER: The natural growth would take place in 40 years in the Maritimes, in New Brunswick particularly, and I was wondering if under management they would grow any faster.

Mr. JOHNSON: Of course they would. At one stage good management uses the axe and the saw to cut out trees, leaving the trees that should be left to grow.

Senator LEGER: Would you say that they would mature about five or ten years faster under management?

Mr. JOHNSON: I think so. If you are talking about planting, however, what might now be vacant areas, hybrids are ideal; they will grow rapidly. Some of the hybrids x crops cut for pulp will grow in 15 years.

Senator BRADETTE: In Northern Ontario the great problem is the draining of low lands. When the land is properly drained it is surprising how well the trees grow. Where there is no careful draining they are stagnant.

Senator LEGER: Is the use of fertilizer economical in the growing of trees?

Mr. JOHNSON: We do not know yet. We have been carrying out some rather substantial experiments. Do you recall the rate of growth, Mr. Wilson?

Mr. WILSON: There has been a great improvement.

Mr. JOHNSON: I think it is ten to one. We are still experimenting.

Senator LEGER: What is the amount of fertilizer used for trees?

Mr. JOHNSON: I cannot tell you offhand. We can give you complete details at Harrington.

Mr. HARRISON: We have been experimenting in Gaspe and in New Brunswick with fertilizing the ticket-type of reproduction to see which of the trees will become dominant and break through. It is an interesting experiment and possibly it may work.

Senator LEGER: Have you any experience with burned land?

Mr. JOHNSON: Yes.

Senator LEGER: Does it grow trees?

Mr. JOHNSON: Yes, but the problem is to get it restocked with the type of forest you want. Sometimes it takes two or three generations.

Senator INMAN: What is the best size of tree to transplant—trees of three or four years' growth?

Mr. JOHNSON: You should not try to transplant anything that is too big. It is not economical to handle. Once the tree gets growing it catches up with others in size.

Senator BRADETTE: Mr. Johnson, would you care to comment upon the situation in the Ottawa Valley? Giant white pines that flourished some 50 years ago were burnt down and the new growth has been coming up very slowly. What would you suggest as a means of accelerating the growth?

Mr. JOHNSON: The Ottawa Valley has been an interesting area, and it has helped to build the country, but the people there have treated the forests badly.

Senator BRADETTE: There have been disastrous fires too.

Mr. JOHNSON: Yes. We have made great headway in the management of forest lands in this area. Across the river here we have a big mill which I am sure many of you have seen. There we use everything that grows in the forest. We make newsprint, dissolving pulp, masonite, plywood, alcohol for various uses and so on. We use pretty nearly everything that wood is capable of being used for. We have several thousand square miles of white pine, such as there is left in the country, in the limits we hold. It is a very valuable product. It is coming back in some areas, but the old white pine stands are sadly diminishing. White pine is better after a hundred years, no matter what the size is, because it goes through a seasoning process. Let me say here that I am not complaining about what the lumbermen of former days did. They built up the country. From a forestry standpoint, one can perhaps criticize them, but the overwhelming advantage in the fact that they used the forests to build the country outweighs the disadvantages.

Senator BRADETTE: For several years our forefathers thought the forest was their enemy.

Mr. JOHNSON: That is right.

Senator WALL: I wonder if I can come back to Celestin Lauzon. I do not want any specific information, but let us use him as an example. Let us look at the problem of the management of woodlots—farm woodlots. You have

stated that regeneration, if managed properly, might be better than one-third of a cord per acre. You would have to relate that to the price per cord and you would have to assess the amount of the lot, the size of the holding that I, for example, or somebody else, would need to have, in order to be able to do that, on a full-time basis rather than on an incidental basis. If it is going to be possible for private enterprise, small people, to do this kind of thing, one would have to arrive at some size of holding that would make it profitable, otherwise that type of management would have to be carried out by big corporations. What for example would be the size that Lauzon would need?

Mr. JOHNSON: He would have to have more than 40 acres.

Senator WALL: What size would you suggest? What I am trying to point out is that in effect the management of farm woodlots will be incidental to something else.

Mr. JOHNSON: As farm woodlots exist today.

Senator WALL: Then where should we be going to? You made a statement about land which was transferred to colonization evidently by the provincial Government, I assume.

Mr. JOHNSON: Yes.

Senator WALL: It was taken away from the corporation.

Mr. JOHNSON: Yes, that is right.

Senator WALL: And turned into farming—

Mr. JOHNSON: Yes.

Senator WALL: —probably without any survey, made maybe under political pressure. I do not know what the circumstances were. That was a bad thing to do.

Mr. JOHNSON: It was thought at the time that it was the way to help people make a living.

Senator WALL: Where you have an area of 50 square miles, either some big corporation will take it and grow trees or else it will have to be done by private persons.

Mr. JOHNSON: That is right.

Senator TAYLOR (*Westmorland*): Your suggestion is that the farmer receives part of his cash crop in this way.

Mr. JOHNSON: I would say that 400 or 500 acres would be needed, answering Senator Wall's question.

Senator WALL: Then you run into this problem: Should Government at the two higher levels encourage people like Lauzon or others to somehow assemble 400 or 500 acres, and should we be working towards a concept of that kind of tree farming in certain areas of Canada? I am referring to something that is not incidental, as in the case of Lauzon.

Mr. JOHNSON: You have to have both. In the first place, you will have farmers who insist on having a cow and some pasture land and there are lots of farmers who must have a pair of horses and a plow to grow a crop of oats to feed the horses. That is the mentality that you must deal with. For some reason or other they must have a farm and must grow oats and feed horses. They do not make money out of either enterprise; they do a lot of work for nothing. You will find many of them across the river in the county there. You will have to have both types—for example, the young fellow who wants to make a business out of it. That is the concept of young people coming out of forestry schools. In other words, education is in my opinion basic. Perhaps you have had the experience that I have had with some people. They go into the forest and they see nothing but black stumps and so on. They do not see the picture as it really is. They do not understand that the forest is a living organism with trees and individual birds and animals.

Senator BURCHILL: Provincial taxation bars out commercial enterprise in many of the provinces.

Mr. JOHNSON: I have mentioned taxation.

Senator BURCHILL: That has a direct bearing on this subject.

The CHAIRMAN: On the idea of the 400 acres?

Senator BURCHILL: Yes.

Mr. JOHNSON: Reorganization and taxation are two important questions.

Senator POWER: The sort of land holding I had in mind was such as one saw in the First War. The price of pulpwood in the area I know of in Kamouraska went up to $40 a cord, with the result that there was tremendous pressure on Crown lands for colonization and a very large number of lots were taken from different limit holder's holdings in the area. I can remember some three or four people who thought it would be a good idea after a while to try to buy back these lots and put them in freehold. As a matter of fact, their guess was right to some extent because four or five years after the war the lots were sold for municipal taxes. They sold for $3 or $4—virtually for nothing—just to pay the taxes. It could have been possible five years after the first war to purchase 5,000 acres of land—land which had been cut off for pulpwood. It was not done because the people who were interested found that they would have to wait a long time to get their money back—30 years—and the tax situation faced them. I do not know whether it would have been commercially practical, but today that is forestry land and you can get a pulpwood crop off it. It has been abandoned land all these years.

Mr. JOHNSON: There are many examples of the same thing in that area. People bought land for 25 cents, certainly a dollar, an acre.

Senator POWER: It would not have been an economic proposition for anybody who might have bought the land. They would have had to hold it too long.

Mr. JOHNSON: Do you say it would not have been economic?

Senator POWER: I am asking.

Mr. JOHNSON: I think it would. I wish I had bought more than 180 acres in 1934.

Senator POWER: You think it would have been economic?

Mr. JOHNSON: Absolutely. I had a chance at that time to buy 1,500 acres at a price of $1,320 but I did not have $1,320.

Senator POWER: You would have held that land and paid taxes on it and would have got no return during all that time.

Mr. JOHNSON: Twenty years. I had a different purpose in mind from that of the average person.

Senator POWER: It would not have been an economic proposition for many people.

Senator BOIS: I agree. We checked that a dozen times in our province.

Mr. JOHNSON: The legislation has to be reorganized to make it possible to do that sort of thing.

Senator BRADETTE: I should like to ask Mr. Johnson a question and he need not answer unless he wishes to do so. I made some trips through Russia and studied their unlimited forest resources. They have a system of reforestation under Government jurisdiction and direction. I wonder if we could not have a system of co-operation between the provinces and the federal Government. What would be your idea of that, Mr. Johnson? What assistance do you think the federal Government and the provinces could give in that regard throughout Canada?

Mr. JOHNSON: Perhaps education is not your sphere, but that is where I would start. I suggest that the important thing is basic education. It goes back to the schools, the undergraduate schools and colleges such as Macdonald, and you should have a conservation engineer going around giving the farmers the advice they should have. We have a man in Hawkesbury who does that sort of work.

Mr. HARRISON: The emphasis has been on agriculture rather than on the cultivation of trees. That aspect has been neglected, whereas trees are a crop just as other crops are.

Senator BRADETTE: As far as the provinces are concerned, you will realize the position of this committee. Would it be best for the federal Government to help in reforestation as well as in agriculture?

Mr. JOHNSON: You have picked on two important subjects there, taxation and education. Taxation is an important question. You cannot make more than a dollar a year without some Government getting after you for 50 per cent of it.

Mr. WILSON: There has been a good deal of education through the Canadian Forestry Association.

Mr. JOHNSON: That is a useful source and the Canadian Government is helping, but not enough. They have never fully recognized the value of that association. It is not an industrial organization; it really represents the public, the people of Canada. It needs support because it is doing a good job. They have taken hold of the tree farm movement and we joined with them, and as a result of that, in the county of Argenteuil, there are over 100 certified tree farms, and there are not more than 500 in all Canada. A great interest is being shown in the west and in New Brunswick. People are becoming more than more interested, but it takes time.

Senator INMAN: In your opinion, Mr. Johnson, would it be worth while for the colleges to have short courses?

Mr. JOHNSON: I have already mentioned Macdonald College, and the University of New Brunswick has also taken action. It has a forestry school. Laval has done the same thing, and you have the ranger school, which gives the equivalent of a two-year course.

Senator INMAN: I was thinking of short courses which the farmers' sons could attend.

Mr. JOHNSON: Macdonald has that too.

Senator INMAN: It would help.

Mr. JOHNSON: Undoubtedly.

Senator BRADETTE: The Russian Government has created and is developing the cult of the tree. It is instilling into the people throughout the country the importance of forest conservation. Children are taught that they must not do anyhing that would result in injury to the trees.

Mr. JOHNSON: We could do that ourselves.

Senator BRADETTE: We have not yet got that cult.

The CHAIRMAN: Many farmers in the back areas of Quebec and Ontario have a certain amount of wood which they are cutting for pulp, but they cannot make enough out of it. Has that question come before you, Mr. Johnson?

Mr. JOHNSON: Yes, it has.

The CHAIRMAN: Is there such a thing as increasing the price of wood?

Mr. JOHNSON: It is not up to industry to subsidize the farmer. That question has been brought up. Pulpwood has to be governed by economics. There is need to sell it, just as there is need to sell wheat. It is an economic item of trade. Many of the causes for the present situation which come to

the attention of the public as a result of investigation turn out to be something like this. The farmer gets up in the morning and does his chore, smokes his pipe, and about 8.30 he hitches up the horse and goes to the woodlot, where he remains until half-past one, or two or three o'clock, and then he comes back and does his chore again, and he says to himself, "I did not earn $10 today, I could only get half a cord. I think I should get double the price I am getting". Of course, he worked only half a day, but he should get more than $10. That is one of the fallacies that are prevalent among people who cut pulpwood. If they went and did a day's work on the woodlot they would make a decent living.

Mr. HARRISON: The same man going into a lumber camp would cut two cords a day. On the farm it is different.

Senator BRADETTE: I belong to a colonization section and I think the trouble with pulpwood was that the company would pay much more than they gave the settlers.

Mr. JOHNSON: A man can earn as much money from one source as the other. We speak of $20 a cord for wood, and he wants that at his door, whereas it costs us that at the mill. Of course, it costs more than twice as much to get it at the mill as on the farm. Any industrialist is willing to see that the farmer gets what his time and efforts are worth, that he gets what is reasonable under the economic circumstances.

Mr. HARRISON: There is another thing that the farmer does not realize, and that is the importance of the quality of the wood he sells to us. He has not managed his woodlot. He has taken advantage of the time when the market is good and he wants to keep on cutting wood continuously, and he ends up with a very inferior quality of wood. As I said before, he has done selective cutting. He has cut the best and sold it from time to time and he wants to turn over his pulpwood to us at standard prices. I suggest that the identification of what a cord of wood consists of is an extremely important question. We can take a cord of wood from one area and it will yield 1,500 pounds of pulp whereas from another area, from the same quantity, you would get 2,500 pounds. The important question to us is: what do we get out of it?

Mr. HARRISON: It is like buying eggs by the dozen if no grade is insisted on.

Mr. JOHNSON: You have to grade pulpwood as well as anything else.

Senator POWER: The quality depends to a large extent upon the climatic conditions of the area from which it is cut.

Mr. JOHNSON: You can overcome that by properly cutting the forest. Your quality is good only if the tree is good. You must cut out the poor ones and let the good ones grow.

Senator POWER: But is it not a fact that on a particular watershed, that of the St. Lawrence, let us say, the fibre—I do not know what the technical term is—the quality is better than on another watershed, let us say, the watershed going to Saint John.

Mr. JOHNSON: The specific gravity is higher, but that is part of the land content.

Senator POWER: It depends on the soil.

Mr. JOHNSON: Yes, the soil produces wood of a different specific gravity.

Senator BRADETTE: Northern black spruce has a certain quality.

Mr. JOHNSON: It has a greater fibre content.

Senator MACDONALD: In your opinion, is there an overproduction of pulpwood cut in Canada today?

Mr. JOHNSON: Let me answer it this way. There is an overconstruction of pulp and paper mills in the world today and therefore less paper and pulp being produced by some people. The demand for pulpwood at the moment is relatively low. We are making as much pulp and paper as before, but it is made by more people.

Senator MACDONALD: My son is interested in pulpwood but he cannot afford the time to cut it himself and so he hires a man who has a chain saw and he pays him $5 a cord to get it out, and all that he gets is $9 on the spot. There is not much in that. There is quite a difference between that and what it costs at the mill.

Mr. JOHNSON: Let me interject this comment. Suppose we wanted to bring wood from, let us say, Senator Burchill's home town to Hawkesbury. The rate would be 37 or 40 cents a hundred. In other words, the rate there is $16.00 a cord for freight. The Maritimes are absolutely priced out of existence so far as pulpwood is concerned.

Senator MACDONALD: That is our trouble—freight.

Mr. JOHNSON: There is no question about it. We in Hawkesbury were pricing ourselves out of existence. We could not ship wood from Abitibi to New Brunswick because it cost $16 for freight.

Senator LEGER: What about your mill in New Brunswick?

Mr. JOHNSON: It has doubled production in the last ten years. In 1930 we built the mill to produce 500 tons and now it makes 1,000 tons a day. Does that answer your question?

Senator LEGER: Should it not go to the Maritime mills?

Mr. JOHNSON: We are situated on the Bay of Chaleur and half the wood comes from Quebec and half from New Brunswick. We buy any wood that is offered in the area by any settler.

Senator WALL: I wonder if I could probe into the problem of taxation? As I gather, one of the difficulties, if I had a woodlot, would be that if I had to wait for 30 years before the natural growth had taken place, I would be paying in the meantime the municipal taxes that would be levied. That is the problem, and those taxes would be onerous. I would have to pay a good deal of money in taxation before I could get any money back in return. But there must be other problems. I have heard it mentioned before, and I infer, that there are other taxes when the lumber is actually harvested. Reference was made at a previous meeting to the desirability—at least there was such a suggestion—of changes in taxes—provincial taxes, I would gather. Would you care to comment on that problem?

Senator POWER: There would be a tax on profits.

Senator WALL: There might be suggestions for alleviation.

Senator POWER: The profit would accrue only after 30 years and the tax would be paid in the same year. Take the man who took $8,000. Suppose he had cut it all in one year: he would be hard hit in the matter of income tax, and he would be one of the few farmers to pay income tax.

Senator WALL: I have heard the tax problem mentioned before. There must be notions about the kind of changes that people like Mr. Johnson regard as reasonably satisfactory, having regard to the fortuitous nature of things, as far as the long-term view is concerned.

Mr. WILSON: This is an important problem. One thing that we are trying to avoid in forestry and woodlot forestry is clear-cutting of land. That happens, and the person who owns it has no more interest in it. He says, "I cannot get anything for it for 30 years", and so it is abondoned. We wish to encourage people to cut a little at a time so that there shall always be a crop. The federal

income tax authorities say that if you cut your timber every year the income you get from it is taxable income, and you pay income tax on it. On the other hand, if you sell the land to somebody else, then what you get is capital gain and you do not pay taxes.

Mr. JOHNSON: And the purpose we are talking about is defeated.

Senator TAYLOR *(Westmorland):* Suppose you clear-cut the land even though you still own it. Let us say I have a lot and have not cut it for 20 years and then I go and clear-cut it. I still own the land and I do not have to pay income tax.

Mr. JOHNSON: Yes.

Senator LEGER: On the revenue.

Mr. JOHNSON: Even the stumpage is included.

Senator LEGER: I bought a piece of land 17 years ago and kept it all that time and then sold it and made a profit of $1,098. I sold the whole thing and had a capital gain.

Mr. JOHNSON: The fellow who brought that land would deplete it and, as I say, that would defeat the purpose we are now discussing.

Senator LEGER: But it had been cut three years before I bought it. I bought it at a reasonable price and paid the taxes and sold it this year and made a profit.

Mr. JOHNSON: You are defeating the purpose we are talking about, because the fellow who bought it has to get his money back, and he would strip it.

Mr. WILSON: The present federal income tax law encourages a man to sell his land to someone who is going to cut it, and the man in the cutting business cannot have a permanent interest in it and therefore adbandons it, and consequently you have land that is not looked after. We feel there has been too much of this. This problem has been brought up by the Canadian Institute of Forestry and it is an important one in forest management in Canada.

Senator WALL: Was there any suggested change in the structure?

Mr. WILSON: I do not know what the ideal solution is but a change in the valuation of timber for income tax purposes would be appropriate. If you allowed the farmer or the small woodlot owner to charge off depletion in connection with current values for income tax purposes, that would be a solution. Whether that is feasible, I do not know.

Mr. JOHNSON: I am afraid that people have not yet acquired the proper attitude. We have to start with the youngsters and educate them, as Senator Bradette has pointed out is the case in Russia. We must impress upon them the importance of conserving our forests. But the general attitude in the country has been, "Burn it". Colonization schemes would include regulations forbidding the cutting, unless accidently the land was burned, and what happens? A woodlot would be accidentally burned and the owner would say, "I have no more woodlot; give me another". And so it went on and on.

Senator POWER: Good salvage.

Mr. JOHNSON: We are defeating the purpose we have in view.

Senator WALL: I gather there is a suggestion that we should put into the federal income tax structure something bearing upon the principle of depletion.

A SENATOR: But would this be difficult to administer?

Mr. JOHNSON: But it is no more difficult than administering a farm. Do you have any difficulty, Mr. Chairman?

The CHAIRMAN: I do my own without any trouble.

Mr. HARRISON: Of course, this woodlot has value besides its crop; it is valuable because of water, wild life, game and many other things of real value.

Mr. WILSON: There was a very good study made on this subject by the Canadian Tax Foundation a short while ago, and published in book form.

Mr. JOHNSON: I should also like to mention that we have a report from the Ontario Committee which studied woodlots and reported three or four years ago. That report concludes with some information on fenced and unfenced woodlots. It is as follows:

> Fenced woodlots compared to unfenced woodlots produced more than twice as much net income per acre. The return on investment on fenced woodlots was twice that on unfenced woodlots.

	Unfenced Woodlots	Fenced Woodlots
Value per acre	$120.	$148.
Gross income per acre	$ 7.18	$ 17.50
Labour and operating expenses per acre	$ 3.30	$ 8.05
Net income per acre	$ 3.88	$ 9.45
Return on investment	3.2 per cent	6.4 per cent

> Net income and return on investment per acre between fenced and unfenced woodlots, 40 farms, Bruce and Middlesex counties, Ontario, 1952.

That type of information is available for your committee.

Mr. HARRISON: And that is independent from us entirely.

Mr. JOHNSON: I should say, that extension relates to the Ontario Department of Agriculture, and is complete in every detail.

The CHAIRMAN: Could you give us some information on grades and types of soils best suitable for the development and raising of different types of trees?

Mr. JOHNSON: That type of information can of course be secured. I do not like to speak about it, because the matter of soils is for the experts, who can solve them very quickly and specify the type of soils required for any purpose.

The CHAIRMAN: That information would be of some benefit in improving woodlots?

Mr. JOHNSON: No question about it.

The CHAIRMAN: In other words, there should be a forest representative in that field, as there is an "ag. rep." in agriculture.

Mr. JOHNSON: Yes. It is the same as the Harrington Farm does: we will tell any farmer what the soil needs, and what types of soils are suitable.

Mr. HARRISON: I can cite one example in that respect: one of the large pulp and paper companies in Georgia went into the transplanting of trees in a big way. They cleared 10,000 acres, planted a new species that had not been grown there before; they spent a tremendous amount of money, but had less than 1 per cent survival, because they had not tested the soil. Then they planted native species and had wonderful results.

Senator BURCHILL: To go back for a moment to the fenced woodlots, I take it the reference in the article would be to small areas?

Mr. HARRISON: Yes.

Senator BURCHILL: Very small, as against the unfenced.

Mr. HARRISON: Yes.

Mr. WILSON: The unfenced woodlots are also small, but they are on farms and are not looked after.

Senator BURCHILL: It is the difference between management and non-management.

Mr. WILSON: Yes—where the cattle and the pigs are kept out.

Senator MACDONALD: Mr. Chairman, I have one question to put. If you have a piece of land not much good for agriculture and you want to set it out for tree planting, what advice do you give for planting?

Mr. JOHNSON: That is the kind of subject we are interested in. You should have extension agronomists or foresters to advise on it; in other words, it takes a soil specialist to start with, and to advise you how to prepare the soil, and whether it is an acid or a non-acid soil. These are matters which affect different trees in different ways.

Senator MACDONALD: Let me follow that up by giving an experience of my own. Back some 35 years ago we had two acres on a slope, with a type of soil we called "gravely", not much good for anything. We took a very poor crop of grain off it; the spring rush of water ran over it and left only little pebbles of rock or what we call sandstone. We decided to let it stand, and after 35 years we are today able to cut junipers 6 to 8 inches thick from that gravely soil.

Mr. JOHNSON: What do you call junipers? Are they commercial or non-commercial trees?

Senator MACDONALD: I don't know what they are properly called; we use them for fence posts and that kind of thing.

Senator BURCHILL: Would it be larch?

Mr. JOHNSON: No. It looks like a fine-needled cedar?

Senator MACDONALD: That is it. But those trees were not planted there, they just grew.

Mr. JOHNSON: If you had put some hardwood or spruce in there, they might have done the same thing.

Senator MACDONALD: On that kind of soil?

Mr. JOHNSON: You might have had to put in an application of fertilizer.

Senator MACDONALD: Surely not!

Mr. JOHNSON: Maybe not. You are talking about only a couple of acres?

Senator MACDONALD: Yes.

Mr. JOHNSON: You could have afforded a bag of fertilizer for that.

Senator BURCHILL: Mr. Chairman, I am not a member of the committee, but may I have permission to ask Mr. Johnson a question? It seems to me that most of these problems come under provincial jurisdiction; the various provincial Governments have the say in regard to the land use in their provinces. It seems to me, therefore, that if this committee is to make any practical recommendations that will be of value, it must be careful not to impinge on provincial jurisdiction. The difficulty, as I have seen it throughout my lifetime, in making recommendations on the subject of forestry in Canada, is that one runs into a stone wall with the provinces—especially yours, Senator Power.

Senator POWER: The other provinces are the same; they want to protect their natural resources.

Senator BURCHILL: But Quebec is the worst.

Senator POWER: Quebec looks after itself. Charity begins at home!

Mr. JOHNSON: This may give a partial answer to the question, and indicate what I have argued for years: 47 per cent to 52 per cent of the profits of the pulp and paper industry during my time have been coming to the treasury in Ottawa, and what is done with them? Surely, there is something in that pot

that might be considered. You have to have funds to undertake these things. The question is, how do you get some of those funds back to the provinces? I don't know.

Senator POWER: You were briefed by Maurice before you came here?

Mr. JOHNSON: I have argued that point for years before coming here, Mr. Senator. We don't get any help from that source either.

Senator POWER: You pay for education by a 25-cent tax on every cord you cut.

Senator WALL: Mr. Chairman, may I follow the line to some extent raised by Senator Burchill, and perhaps pinpoint one generalized sentence which I should like the witnesses to comment on. Let us assume that we have all been educated and well informed in this respect; perhaps if that were so the subject would not be as pertinent as it is.

This is the statement I would like to have you comment on: you say that trees are a crop, and need recognition from the Government—the Government is a fluid word—and I take it should receive the same consideration, *vis-a-vis* agriculture, as such, in terms of encouragement—and that is a very wide word, capable of many interpretations—and develop research and constructive policies —I don't know whether we are finished with that topic or not—in extension work. Would you care to comment on that?

Mr. JOHNSON: The extension work is one thing I am driving at.

Senator WALL: By the federal authorities or the provinces, or by both?

Mr. JOHNSON: Somebody has to start. The Chairman will tell you that he has gone to the nth degree in his province on wheat and other grains. We have none of that kind of assistance here on forestry matters. Let me refer for a moment to the question of research. The former Government was very closely associated with industry—the Government still is, for that matter—and a research station known as P.P.R.I.C. has just been finished at Valois, where the Government spent $2½ million on a building. They said to us, get McGill and put some machinery in there and operate it. The Pulp and Paper Research Institute has been going for many years, and is a very important function. You also have right here in Ottawa the Forest Products Building now going up; you have another new one on the West coast.

So, the Government is taking an interest in this industry and is doing certain things for it, but it is perhaps not doing those things which I am talking about. It is helping in a different way. I believe we have to come back to assistance at the raw material source; that is where our future lies.

Mr. HARRISON: This started under the Canada Forestry Act, which has been expanding very slowly. A good deal has been done with regard to forest fires and the conservation of forests, something that we are tremendously interested in. Certainly we want to save what is there, and we don't want it to burn up over night. The Canada Forestry Act provides for financial help to the provinces in this way. We think the amount that is coming through this act is very meagre with respect to what is directed in other channels.

Mr. JOHNSON: Senator Wall, I think we have an apathy to overcome there, because the public and the Government has come to regard the pulp and paper industry as big and strong and not in need of help; they regard us as being smart enough to look after ourselves. You gentlemen are kind enough to listen to us.

Senator BRADETTE: The feeling is that you are big and powerful.

The CHAIRMAN: Before we adjourn I would like to ask Mr. Johnson if he has anything to say that would help in the employment situation in the wintertime in forestry.

Mr. JOHNSON: Well, I could make a comment on that. We are a free-speaking group here. You have to remember that in the wintertime productivity is probably 25 per cent less than it is at any other time of the year. If winter work is going to be done and you are going to suffer a 25 per cent reduction in the production per man hour, you just cannot afford to do it unless some adjustment is permitted in payment for that work. That would be my reaction to the problem. I know that unions argue "Give us 20 per cent more now in the summertime so you can cut us back 20 per cent in the wintertime," and that sort of thing, but that is not possible in Canada. The best possible way to get work done is to pay for it, and I mean to pay for it by cutting back in what you have to put out. I mean, you have to pay the relative dollar for the same production you get at any time of year. That would be my general thinking on the matter. You may say that you have to have specific projects put into operation at certain times of the year, and that sort of thing. Well, if a company can afford to pay the going rates all right, but if you can't pay the going rates you have to do something else.

Senator BRADETTE: It cost less to haul in the wintertime than it does in the summertime.

Mr. JOHNSON: Well, I am speaking about the things you do not normally do between December 15th and April 15th. That is the period, roughly, that you want to find this employment for, is it not?

The CHAIRMAN: Yes.

Mr. JOHNSON: And it is for work that people have not been doing during that period because it has cost so much.

Senator BRADETTE: The average farmer in my section sincerely believes that it is cheaper to do forestry work in the winter than in the summer.

Mr. JOHNSON: Not cutting but hauling, because you are prepared for it.

Senator BRADETTE: I know that when you have two or three feet of snow, of course, it is impossible to go ahead.

Mr. HARRISON: We have up to 10 feet of snow in our operations and we have shorter days too.

Senator POWER: Mr. Chairman, I came in a bit late during the discussion, but was there any suggestion as to when we will expect an invitation from the company to visit Harrington?

The CHAIRMAN: Yes, we were discussing it informally before the meeting and Mr. Johnson suggested that we should go up either in the fall or the spring. Perhaps Mr. Johnson would like to say something about it.

Mr. JOHNSON: I would like to have you at a time when everything is comfortable and pleasant and you can get the most out of it. I think the best time would be in September or October or in May. We could pick you all up here in Ottawa and take you there and put you up for a night or two and properly feed you and so on. We would give you a good show. August is not a good time; perhaps we could decide on some date in the fall or spring.

Senator WALL: What problems would we face if we visited Harrington in August?

Mr. JOHNSON: Flies and dirt; physical problems. There are so many leaves on the trees in August that you would get only a limited insight into what is being done.

Senator TAYLOR (*Westmorland*): In your fertilizing program it may turn out, I suppose, that it will be necessary to weed out or thin out these thickets of woods. I understand that you have not gone far in that?

Mr. HARRISON: No, it is an experiment that is just getting under way now.

Mr. JOHNSON: We have been doing ever so many things to try and economically thin out these stands so that we will have a shorter crop rotation, and so the trees will grow faster and get to maturity sooner. This fertilizing program occurred to us as a possibility but it is just one of a whole series of things we are trying to do.

Senator TAYLOR (*Westmorland*): I would like to ask you something about this hybrid development that you spoke about before.

Mr. JOHNSON: I am not an expert on hybrids but we have many species, more than 30 or 40.

Senator POWER: In soft woods?

Mr. JOHNSON: These are poplar that we are working with at the moment, but in the south we are working with many types. We have been grafting from small fast-growing trees and we get cones on them in one or two years. At this stage we are getting a cone crop. They are growing like mad. It is a different type of experiment.

Mr. HARRISON: What they are trying to do is take the super trees and propagate them so they will change the whole species structure.

Mr. JOHNSON: We could show you all the hybrids and poplars that you could shake a stick at up at Harrington. I might say that the spraying operation that has been carried out in New Brunswick and Quebec is the biggest project of forest management that has ever been carried on in the world.

Senator BURCHILL: How much money has been spent up to date?

Mr. JOHNSON: $12 million.

Senator POWER: Who has spent that?

Senator BURCHILL: Forest Protection Limited, a Crown company.

Mr. JOHNSON: We have green forest in New Brunswick and if you fly over it I am sure you will agree it is the best looking forest you ever saw.

Senator POWER: Have you destroyed all the fish and partridge and other game?

Mr. JOHNSON: No, the spraying has no effect on wild life. There is no question, however, that if the stuff washes into the water it will affect the water.

Senator POWER: If it is washed in off the trees?

Mr. JOHNSON: It can be washed in off the trees by a sudden downpour.

Senator POWER: Then it would destroy the fingerlings and that sort of thing?

Mr. JOHNSON: Yes.

Senator INMAN: How satisfactory is this spraying?

Mr. JOHNSON: Very satisfactory.

Senator POWER: How has the amount of $12 million been divided?

Mr. JOHNSON: In New Brunswick the cost is divided three ways, between industry, the provincial Government and the federal Government. In Quebec it has been a fifty-fifty affair between industry and the Government. Industry has managed and operated the whole show. I am well satisfied. I do not know what you have to say about it, Senator Burchill, but I believe the forest is in A-1 condition in New Brunswick as a result of this undertaking.

Senator BRADETTE: Mr. Chairman, I move a vote of thanks to Mr. Johnson, Mr. Harrison and Mr. Wilson for having appeared before our committee this morning.

Hon. SENATORS: Hear, hear.

The committee thereupon adjourned until Wednesday, July 23, 1958.

1958

THE SENATE OF CANADA

PROCEEDINGS

OF THE

SPECIAL COMMITTEE OF THE SENATE

ON

LAND USE IN CANADA

RECEIVED
JUL 31 1958
Library of Parliament

No. 2

WEDNESDAY, JULY 23, 1958

The Honourable Arthur M. Pearson, Chairman

WITNESSES

Mr. Russell L. Hall, Vice-President, Sparton Air Services Limited.
Mr. W. G. E. Brown, Resources Engineering Department, Sparton Air Services Limited.

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1958

60895-0—1

SPECIAL COMMITTEE OF THE SENATE ON LAND USE IN CANADA

The Honourable Arthur M. Pearson, *Chairman*

The Honourable Senators

Barbour	Hawkins	Pearson
Basha	Horner	Power
Bois	Inman	Smith (*Kamloops*)
Boucher	Leger	Stambaugh
Bradette	Leonard	Taylor (*Norfolk*)
Cameron	MacDonald	Taylor (*Westmorland*)
Crerar	McDonald	Turgeon
Emerson	McGrand	Vaillancourt
Gladstone	Method	Wall
Golding	Molson	White—30.

(Quorum 7)

ORDER OF REFERENCE

Extract from the Minutes of the Proceedings of the Senate.

THURSDAY, June 12, 1958.

"The Honourable Senator Aseltine moved, seconded by the Honourable Senator Macdonald, P.C.—

That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people and, in particular, to increase both agricultural production and the incomes of those engaged in it;

That the Committee be composed of the Honourable Senators Barbour, Basha, Bois, Boucher, Bradette, Cameron, Crerar, Emerson, Gladstone, Golding, Hawkins, Horner, Inman, Leger, Leonard, MacDonald, McDonald, McGrand, Methot, Molson, Pearson, Power, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon, Vaillancourt, Wall and White.

That the Committee have power to engage the services of such counsel and technical and clerical personnel as may be necessary for the purpose of the inquiry;

That the Committee have power to send for persons, papers and records, to sit during sittings and adjournments of the Senate, and to report from time to time;

That the evidence taken on the subject during the two preceding sessions be referred to the Committee.

After debate, and—
The question being put on the motion, it was—
Resolved in the affirmative."

J. F. MacNEILL,
Clerk of the Senate.

60895-0—1½

MINUTES OF PROCEEDINGS

WEDNESDAY, July 23, 1958.

Pursuant to adjournment and notice the Special Committee of the Senate on Land Use in Canada met this day at 10.30 a.m.

Present: The Honourable Senators:— Bois, Deputy Chairman; Barbour, Bradette, Horner, Inman, Leger, MacDonald, McDonald, Molson, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon and Wall—13.

In attendance: The official reporters of the Senate.

The following representatives of Spartan Air Services Limited were heard:—

Messrs. W. G. E. Brown, Resources Engineering Department, and Russell L. Hall, Vice President.

At 12.00 Noon, the Committee adjourned to the call of the Chairman.

Attest.

James D. MacDonald,
Clerk of the Committee.

THE SENATE

SPECIAL COMMITTEE ON LAND USE IN CANADA

EVIDENCE

OTTAWA, Wednesday, July 23, 1958.

The Special Committee on land use in Canada met this day at 10.30 a.m.

Senator HENRI CHARLES BOIS in the Chair.

The Deputy CHAIRMAN: Honourable senators, we have the pleasure of having with us this morning Mr. W. G. E. Brown, of the Resources Engineering Department, Spartan Air Services Limited. I understand that Mr. Brown will address us on the importance of aerial photography in connection with land use. Mr. Brown, it is the practice here for the witnesses to give us a picture of their background and qualifications.

Mr. W. G. E. BROWN (*Resources Engineering Department, Spartan Air Services, Limited*): Mr. Chairman and honourable senators, I am at present in charge of soil, forestry and agricultural surveys for the Resources Engineering Department of Spartan Air Services Limited. I graduated from the Ontario Agricultural College in soil chemistry in 1943, and from the University of Toronto in forestry in 1947. Following that I was associated with G. A. Hills, who I understand was a previous or supporting witness before this committee. He was with the Ontario Department of Lands and Forests, and I was associated with him on land use surveys and soil surveys in northern Ontario in the areas of the clay belt, Long Lac and Port Arthur.

Following that I was chief soil survey and site specialist for the Forestry Branch of the federal Department of Northern Affairs and National Resources, specializing in forest soils covering all provinces in Canada.

In 1957 I joined Spartan Air Services in my present position, carrying on mainly soil surveys, inventories and engineering soil surveys having to do with dams, canals, air strips and town sites in connection with projects undertaken for industry or federal or provincial Governmental departments.

The business of land use in Canada has been a sore point with me for quite a while, especially thinking back to a lot and a house I occupied north of Toronto, on a first-class agricultural soil. Then I moved to Ottawa and I now live in a house on a first-class agricultural soil. In both cases, within a distance of eight miles, there is some extremely aesthetic areas, good building sites which could well have been developed as urban areas. Instead of that we are pushing out into the best agricultural land, of which we have very little proportion-wise to what our population will probably be.

Senator HORNER: I agree.

Mr. BROWN: Mr. Chairman, would you like me to read this brief?

The Deputy CHAIRMAN: Yes.

Mr. BROWN: As a result of attending several previous meetings of this committee, and discussions with Dr. R. N. Radforth, of McMaster University, and others,—and I presume that possibly you will have Dr. Radforth as a witness if it can be arranged—I wrote briefly to the committee chairman early this year on the subject of land use research in Canada.

The reports of Professor H. S. Spence-Sales of McGill University, of Dr. R. L. Nicholson, Director of the Geographical Branch of the Department of Mines and Technical Surveys, Mr. G. A. Hills, of the Ontario Department of Lands and Forests, and Mr. F. L. MacKenzie, Chief of the Prairie Farm Rehabilitation Administration, and there are numerous others, such as Dr. Leahey, the urgent need for greater effort in the study of land capabilities and land use in Canada has been brought forward. Dr. Radforth especially brought back a wealth of information on the detailed site studies being carried on in the northern districts of the U.S.S.R. for planned development; and it has amazed me, the concentrated effort that is being made to analyze the various climatic, geological, biotic and cultural features of the land forms constituting the various districts.

Senator WALL: You are referring there to the U.S.S.R.?

Mr. BROWN: Yes, the U.S.S.R. No stone or peat hummock is left unturned as university faculties in co-operation with government agencies carry on an almost assembly-line attack on the various physical chemical and biotic properties of land, and this seems to be regardless of current economical value. Canada is fast lagging behind in the study of land use, as compared with other countries. I am not supporting their governments by any means, but I am just a little jealous of what they are doing in digging more holes in the soil than we are.

Canada is growing by leaps and bounds and our greatest period of expansion is yet to come, following the maximum growth period expected in the United States in the near future, which I imagine will not last too long.

Our northern areas (within the Boreal Forest and Forest-Tundra transition)—and I have a forest region map, if anyone would like to look at it—will, in all probability, be much more highly populated than at present. Aside from mining and hydro, the development required in these regions is not entirely one of agriculture.

In the Ontario-Quebec clay belt and in portions of the Prairie provinces and British Columbia, agricultural development should have a definite place in conjunction with multiple land use, including forest and wildlife management, on an individual or co-operative basis.

An excellent example of research and planning for a farm-forest-wildlife multiple development is just being completed by Mr. Hills of the Ontario Department of Lands and Forests, adjacent to the town of Cochrane. It is a masterpiece of work, I think. There are some 20 maps on a large and detailed scale, and there is a complete revision suggested as to the allotment of size of farms and as to the distribution of private and community woodlots, and also quite a lot of detail on the management of wildlife. I think his main idea is that in the past the area which was allowed to reach farmer or settler was not large enough, and that if you get a good man you should give him something that will support him, and I think actually he was behind a plan to bring Scandinavian people to Cochrane, which did not develop.

In general, the development of our northern areas is a one-shot type in each specific location, either mining, pulp and paper, national defence, or communication facilities. On the average, mining development is not permanent—and this is on the average of the number of starts that are made—and, in addition, may have an up-and-down prosperity; pulp and paper development has proven more stable, but in the north the agricultural development associated with it has generally not flourished. Now, I do not mean here that the multiple development of an area for a pulp and paper worker, say, a bushworker in the winter, and a farmer in the summer, is not desirable, but I think the method of distribution of land has been wrong. Mining, national defence and transportation developments have all been extremely expensive and little attempt has been made to develop local resources for mutual assistance and general development of the area.

Now, granted a lot of this has been necessary because of the great rush of the development during the last war and in the prosperous years after the war, but I do not think it has all been necessary, by any means.

Canada has vast quantities of these underdeveloped northern areas, and population pressure is destined to develop them one way or another.

Canada must export in order to maintain and improve the standard of living we all enjoy. We are in competition with other countries, some highly populated, some under populated, as we are.

In order to maintain a healthy position in world trade, we must keep our costs down. This requires larger population and good land use in conjunction with the development of natural resources. Our northern developments for resources are costing far too much, and if this situation continues, we shall be priced out of the world market. I think the northern developments cost far too much because of the one-shot system we are using. What I mean by that is that there will be a forest research project in one part of the north, and maybe 50 miles away there will be an agricultural soil study, the two surveys are not brought together. With mining exploration and development, and where communication and national defence centres are constructed there could be consideration given to the land as a whole in an overall plan for the area.

The only alternative is to put a concentrated organized effort into the study of our land and its resources. We must develop the north, but at a reasonable cost, by making the utmost use of all the natural resources. In order to do this, we must understand our geology, climate, soils, forests and wildlife, and their relationship. Granted, there are numerous agencies investigating these at present, but there is no concentrated effort or overall co-ordinated plan. Land use studies should be carried out in detail and the effort of all agencies equipped to do the work is required; for this maximum effort, a centralized coordinating body is required to eliminate overlap and one-shot surveys.

I was associated on forest and soil surveys, and land use surveys from 1947 to 1951 with Mr. Hills of the Ontario Department of Lands and Forests; from 1951 to 1956, I was Chief Soil and Site Officer for the Federal Forestry Branch, covering all of Canada. In both cases I resigned chiefly because of the difficulties encountered between departments in the federal Government, between dominion and provincial Government agencies, and between industry, Government and university research organizations. I was mainly occupied with practical level of research and I became very discouraged with the difficulties one ran into when trying to set up research projects and land use studies in an area with other agencies. These difficulties are most discouraging and wasteful of time and money. In view of the developments in the U.S.S.R., these difficulties must be overcome if we are to carry out the research necessary to develop our resources, plan good multiple land use, build up our population and produce for export at competitive prices.

Now I come to my present occupation. Private survey companies operate on the same basis as private industry in general, the ability to turn out an economical product of good quality, otherwise they do not stay in business. Especially during the present period of international crisis, and generally to assist in the development of Canada it is important that survey companies maintain a high calibre in all departments.

This is particularly true of air survey companies equipped to take and interpret air photographs, carry out Shoran and other map control work and mapping surveys, offer specialized airborne detection services, fly geophysical surveys as well as offer specialized transportation, training and repair services. The air survey industry feels that it has a definite place in Canada to carry out surveys quickly, competently and economically. If there is to be a master plan of land use in Canada, the air survey industry has an important

part to play. In order to maintain a strong enterprise, the survey companies require assurance of steady business—a large part of this steady business can originate from a plan such as this. In our industry, the volume of business goes up and down drastically. To maintain a live organization it is necessary to have a steady supply of business so that the company can keep on its staff professional people on a continuing basis.

In the plan mentioned previously, a centralized co-ordinating body was proposed to head up land use research in Canada. In my present position as head of the Resources Engineering Department of Spartan Air Services Limited, I can speak for part of the industry at least, and offer assistance in most of the services normally required for land use surveys, such as forestry, agriculture, land use and engineering soil and site surveys. It would be possible to co-ordinate all the services of all the survey companies and all the Government and university agencies under an efficient control or direction aimed at carrying out the research necessary for the best development of our land. We believe that we can assist and cooperate with government agencies in the study of land capabilities and in land use planning.

The accompanying brochure reviews the development, organization and some of the work of Spartan Air Services Limited.

As you can see, we have been engaged in this type of work for the past ten years and we would be pleased to put the skills and abilities of our organization to work in such a far-reaching and visionary plan.

I have with me Mr. Hall, vice-president of Spartan Air Services Limited, who knows the organization better than I do. There are many things about Spartan Air Services that I am not familiar with, in regard to flying, helicopters, geophysical surveys and so on. My main field is agriculture, forestry and soils.

The Deputy CHAIRMAN: Do you wish to say anything, Mr. Hall?

Mr. RUSSELL L. HALL: Mr. Chairman, I think Mr. Brown has covered the subject pretty thoroughly from the point of view of this committee. I would be pleased to answer any questions you have as to the organization as a whole.

Senator MCDONALD: Mr. Chairman, I am sorry that I was attending another committee meeting and did not get in for the first part of this presentation. However, I did catch the witness' statement that there was not a clear line of demarcation between provincial and federal authorities.

Mr. BROWN: Yes.

Senator MCDONALD: I am personally a little surprised at that statement. There are others on the committee who, I am sure, will verify what I say, that there has been an effort made to try to have a clear line of demarcation between the federal and provincial services in the field of agriculture.

When I was with the provincial department in Nova Scotia we used to hold meetings with the officials of the federal department, and later on there was organized a dominion-provincial conference which met annually, and sub-committees of that larger organization meet from time to time to try to make sure that we are not duplicating services. Of course there are some small services that may be duplicated: for instance, at the Agricultural College at Truro, Nova Scotia we do carry on some experimental work which is also carried by the federal Government, but the work we do is such that would help peculiarly our own horticulturalists and growers in the province of Nova Scotia. I do not think you can get away from that sort of thing. However, I would like to have your explanation on what you mean by the need for a clearer line of demarcation.

Mr. BROWN: Most of my experience has been with forestry departments and forestry agencies and the difficulties I have experienced are as a result of my activity in that field. For example, in the Clay Belt of northern Ontario there was a land form or pleistocene geological survey made by the federal

Government, under the Department of Mines and Technical Surveys. There was also such a survey made by the Ontario Department of Lands and Forests. Then there was a soil survey of the Clay Belt made in great detail by the Ontario Department of Lands and Forests. Then, recently a survey has been done by the Agricultural Soil Survey, which is partly provincial and partly federal. They were each done separately; they each had men in the area, and each supported field expenses and vehicles. There was a great deal of expenditure of both money and brains.

Senator HORNER: And duplication?

Mr. BROWN: And duplication, yes. I know what the attitude was in Ontario towards the federal Forestry Branch. It probably originated away back when the Forestry Branch here had control of more forest land than it has now. It practically has no control right now. There tended to be a feeling that "We should not let them do anything because they are trying to take over control".

Senator BRADETTE: The federal Government did not want to control the forests.

Mr. BROWN: This is true but the feeling was there that the federal Government wanted to take over control and management of the forests. I know it is wrong, but it is a serious matter that this feeling exists. Then I came up to Ottawa to the federal Forestry Branch, and I know that their attitude is not to want to take over any land from anybody. They know what the British North American Act provides in connection with resources. But it is true that they do not have enough land to work on properly themselves and a forester without forest is lost. For several years when I was in the branch there was difficulty in arranging locations where they could do research work. Provincial feelings were, "Well, give them some place where they can work. Shove them in a corner and forget about them". This is a horrible state of affairs. You cannot blame anybody. It is just something that has grown. I know that the present Director of the Forestry Branch and the Minister of the Ontario Department of Lands and Forests are doing everything they can to overcome this situation.

Senator BRADETTE: From your experience what would you suggest would be a solution to this problem? You can speak openly here because this is not a political forum. As a result of your wide experience you must have some good advice to give in this matter, for as you say it is not a good or fair thing.

Mr. BROWN: I think the only successful plan would be to get a co-ordinating body set up. There would have to be equal representation of provincial departments on this body where they could have a word in what was being proposed. This central body should not be one of control but one of direction, and it would have to have some very persuasive people on it. A very experienced or intelligent person as far as research is concerned will not completely fill the bill. Persons serving on such an organization must have a great deal of tact. When one works in a provincial Government service one tends to think only of the provincial problems. I think the solution would be to get a co-ordinating body set up, made up of federal and provincial people, and let them direct or advise what should be done.

Senator BRADETTE: And have no duplication of services.

Mr. BROWN: That is right, no duplication of services. Another thing is that the universities would have to come into this picture, for there are many Canadian universities which have excellent facilities to carry on studies on various features of land.

Senator BRADETTE: How does this situation affect your firm?

Mr. BROWN: Our organization, like other survey companies, is in the field of preparing maps, planimetric, topographic soil, forest and other vegetation cover, drainage, etc.; and is equipped to assist land use studies. We could help by putting our services at the disposal of any such co-ordinating body that might be set up.

Senator BRADETTE: It would practically eliminate any outlay by the federal or provincial Governments as far as materials or aircraft are concerned. You could supply all that.

Mr. BROWN: I do not think we would necessarily eliminate all of that, but we are in a position where we could operate at a more reasonable cost. I do not think we can replace everything by any means, but we could co-operate and assist.

Senator BRADETTE: Have the provincial and federal Governments the same kind of equipment you have for the work you are doing at the present time?

Mr. BROWN: To a certain degree, but not entirely.

Senator BRADETTE: Not entirely?

Mr. BROWN: No. Some Government departments use our services a great deal, and other departments do not. As far as photography is concerned I think most departments which have use for it at certain times do use the air survey firms. These firms have the latest equipment and the labs which can turn out the volume at the time it is needed. As to the federal Government, most of the air survey work is tied up with the air force. They have a certain schedule of work to go through and they cannot take people off it and put them on land use or some other use for various Government departments.

Senator HORNER: What has always annoyed me is the matter of good agricultural land being used for industrial purposes. As you have described, the industries could be built up on poorer type soils which are of no use for agricultural purposes. I understand that the most expensive land in Canada is in the Niagara Peninsula, but it is gradually being bought up for industrial sites, and so on. The St. Lawrence Seaway gobbled up a great number of acres of good fertile land. The development of the Fraser River power site will take the best land in the Fraser Valley, of which there is a limited amount along the river. The same thing has happened in England. An awful lot of their good land has been used for building purposes. I saw one good thing that was done over there. We were taken to a huge steel plant in Wales, which was built up on soil that had been bulldozed up from the sea. The plant and, as a matter of fact, practically the whole town was built on this land that was entirely useless so far as agriculture is concerned.

Senator BRADETTE: On page 2 of your brief there is this paragraph:

"Our northern areas—within the Boreal Forest and Forest-Tundra transition—will, in all probability, be much more highly populated than at present. Aside from mining and hydro, the development required in these regions is not entirely one of agriculture".

I know the north country. I live in Cochrane and I was a pioneer in the area as far back as 1908. I have been a fur buyer in the Hudson Bay section and I know the tundra well. We have heard a lot of talk in the House of Commons and in the Senate of the wide open spaces of our northland on which we could establish thousands and thousands of people. I do not believe all that, for I know the tundra. I know the northern section. There are thousands and thousands of square miles there on which there will never be any living person. I know that for a positive fact and you know that too as a result of your surveys.

Mr. BROWN: Yes, I know.

Senator BRADETTE: Then what do you mean when you say it will be much more highly populated than at present?

Mr. BROWN: There is going to be a terrific population pressure in the world during the next 50 years. There are resources in those areas not yet discovered, particularly mineral resources, and there will be more people living in those areas. There will be other developments that can go on up there in conjunction with mining, and so on. For example, Dr. Radforth, in his story about the development in Russia, told us of intensified studies with respect to peat. The Russians are really spending a lot of money to find out exactly what they can use peat for. There are some towns in northern Russia which are actually using peat. They are concentrating it for certain products. As a matter of fact, they are using it in some areas for hydro development. The Russians are also conducting a concentrated study of the chemical and physical nature of the mineral soil. In many cases they have no idea what they are going to use it for but they are confident they are going to find out what it is made of.

Senator BRADETTE: I agree with what you have said about the Cambrian Shield and Hudson Bay areas. These are not agricultural areas and you will find very few farmers 175 miles north of the town of Cochrane.

Mr. BROWN: You are right, I agree with that. That is, at the present time. But let us take the present experiment with crops by Mr. Nowasad, associate of Dr. Leahey. He is carrying on experiments at Great Whale River, Chimo, Knob Lake and Goose Bay. I grant that the results of those experiments are not promising, but we do not know what additional tools we will have to work with twenty years from now. How do we know what we can do with climate in local areas twenty years from now? And now is the time to study soil and general terrain of the area, so that when new methods come we shall know what area is suited.

Senator BRADETTE: But with regard to Russia producing vegetables on the border zone, it just cannot be done. It might be possible with hothouses.

Mr. BROWN: They might have monstrous hothouses.

Senator HORNER: Some years ago I bought some land in the Carrot Valley, on which there were trees, some thirty feet high. There was so much peat in the land that it would make the plow squeak like a pig. Some settlers tried to farm there without success. Later some of those quarter sections caught fire and were burned down so that they were about as bare as a table top, and even old land men did not know how that land would be able to produce, they were not too sure; but it had been producing. That was over twenty years ago. Some settlers went on the land with their drills, without ploughing, and the land yielded as high as 125 bushels of oats to the acre, and also grew good wheat and alfalfa. Land which was five dollars an acre sold for $100 an acre, and some quarter sections sold for as much as $25,000, and yet it could not have looked more dismal than it did at that time.

Senator BRADETTE: How far north was that?

Senator HORNER: The North Saskatchewan River, near The Pas.

Senator BRADETTE: The temperate zone?

Senator HORNER: There was permafrost there. I have been told that because of the peat you cannot drive in a fence post, because peat is the worst thing to drive into. As I have said, even experienced land men were dubious of what that land would produce, but it turned out to be very productive.

Senator John A. MCDONALD (*Kings*): I suppose, Mr. Chairman, tha Mr. Brown and his organization can be of greatest assistance in our great northern country in the more undeveloped regions. Is that what you have in mind?

Mr. BROWN: That is where we do most of our work, but not all of it, by any means. We have just finished photography on the St. Lawrence Seaway for the seventh time, and we have also photographed agricultural areas, as, for instance, the PFRA area in the west.

Senator MCDONALD: Do you do aerial survey work for the Government?

Mr. BROWN: Yes.

Senator MCDONALD: All over the country?

Mr. BROWN: Yes. My actual work is on the interpretation of photographs for engineering soils, that is, drainage, depth to bedrock, texture, richness and stoniness.

Senator MCDONALD: Well, that is very important work, and of very great assistance. Of course in agriculture, as you know, Mr. Brown, our great problem so far as water is concerned is to drain it out of the soil, wheras in the Canadian West it is to put water into the soil for irrigation; and we are wondering how the Prairie Rehabilitation Act would apply to the eastern lands so that we can get assistance in the draining of the lands there. Also erosion is another important problem with us.

The DEPUTY CHAIRMAN: Not going too far into the technical side, how do you detect the texture of a soil in a foot of ground?

Mr. BROWN: Well, there are two sample books here showing some of the work we do, and if you would like to pass them around it will give you an idea. The main basis of this work is a knowledge of landform, how a unit of land is constituted, its origin and its material. Now, all units of land or landforms have a specific shape, more or less, that is surface photography, and a specific origin associated with it, and depending on the climate a type of forest or non-forest vegetation develops there. From training and field training I have built up a key to using the indicator value of various vegetation types, and landform positions. When we do a job on soil typing in any specific area we use the information already available to us from experience of surveys in the area, or from information from a limited field survey. In all cases we try to do some field work, and we set up a key to the landforms and vegetation types.

Senator WALL: In other words, you extrapolate from extensive information?

Mr. BROWN: That is right.

Senator WALL: I wonder if I could return to the brief in its broad details and just go over it here and there. I take it that the fundamental points you are making is that Canada as a whole is lagging behind in the study of land use, and that would be an internal assessment, and it would be an assessment vis-a-vis the Russians, for example?

Mr. BROWN: Yes.

Senator WALL: How do we compare with other democratic nations?

Mr. BROWN: I would say that we are far behind Great Britain, and we are far behind the United States, but not so far behind the United States in part. As I understand it, many of the workers of the United States do have a great deal of overlapping, and their surveys cost them a great deal because of the overlapping of services, but they have done a great deal of work. They have a nationwide forest inventory that they are working on at the present time, for example, which is supported by the federal and state governments. It is a fantastic survey which they intend to keep up, and it will certainly provide them with very accurate information on the drain on their forest resources.

The important point here is that we are lagging behind because for one thing we do not spend as much money in proportion to the area as these other countries and we do waste a lot by setting up a survey for one specific purpose.

For example, the study of the structural geology which was carried out through Quebec, Ontario and the Northwest Territories was done by the University of Toronto under a grant from a federal department. I think Dr. Wilson was in charge of this. The same area was at least half covered again by work done under Dr. Hare from McGill University. Neither of them had enough money to do the job thoroughly. The McGill laboratory at Knob Lake is a fairly good example of trying to get at the roots of the different types of soils and vegetation communities in that area, but they too have not enough money to properly operate. That area is an important part of our country today and we should know how it is put together.

Senator WALL: Mr. Brown, let me get back to my original trend of thought. From an internal point of view, assessing our needs and from comparison with other countries, we begin with the notion, with the belief and the conviction that we need to do much more in the way of studying land in use at present and the land that is not yet used, studying it from the point of view of multiple land uses, and there is evidently a study being made, and a comprehensive one by Mr. Hills around Cochrane.

Mr. BROWN: That is right, and there are others as well.

Senator WALL: So we have a need and that need probably can be assessed over a long period. It may well be that we may need a twenty-five year project of land use study, or whatever it is. Now, we say, how are we meeting that need now? The contention you are making is that there is no integration, that a lot of good work is being done but it is not co-ordinated, it is not integrated, it is patchy. Often we develop areas with no previous land use study of any kind so that we have what you call one-shot types of enterprises which are very costly. So that in this context of how we are meeting the need you would advance the hypothesis that what is needed is a centralized co-ordinating body. Now, that body would have to be at the federal level, it would have to include representatives of the federal Government, provincial Governments and municipal Governments and private enterprises, I presume.

Mr. BROWN: And universities.

Senator WALL: And universities. And you would suggest that that body should be a fact collecting body, in other words that it should be a central depository of information where McGill University or somebody else intending to do a land use survey of any kind, or say some company is going to do it, that that somebody should know where to go to find out what has been done, what is being done and what is being planned for that particular area. So that the function of this co-ordinating body would have to be, first, a repository of information?

Mr. BROWN: That is right.

Senator WALL: All right. Then what is the next function? Supposing this co-ordinating body has this information, where do we go from there?

Mr. BROWN: They have the information and they should also have—

Senator WALL: What other privileges or rights would you grant such a body?

Mr. BROWN: I would grant that body the privilege to direct funds towards certain areas or regions.

Senator WALL: Whose funds?

Mr. BROWN: The funds which they would collect from the federal Government and provincial Governments. That body of course would not have any money to give out at the beginning but I think it would have eventually.

Senator WALL: You see, what I am suggesting is that the concept of a centralized co-ordinating body, generally speaking, is a sound concept, but that concept has now to be dressed up, it has to be formalized, it has to be

worked out so that it would become a functional concept, and I would respectfully suggest that consideration should be given—I do not know by whom—to this concept, which is, I think, a very worthy concept.

Senator HORNER: Mr. Brown, you mentioned the great advances that Russia is making in developing their northern areas. That of course is a good example. We could probably do that under a dictatorship. These Russian people are moved back there and there they stay, they have not the privilege of moving to any other part. There they are and they must do what they are told; they have no choice in the matter. There is no fear of any reaction at election time as a result of how they are treated. So it is really impossible to compete in that regard, that is in colder areas.

Mr. BROWN: I think if possible you ought to have Dr. Radforth come as a witness before this committee and have him describe the feelings of these people; he would be able to explain what is being done. He is interested mostly in muskeg. I call him the muskeg king of Canada. He is a muskeg expert. He is a consultant for several of the oil companies and Government departments and he works with us at certain times mostly in matters of transportation across areas of muskeg, location of roads and so on, but in his work he has done a great deal of study of the nature of muskeg—and he purposely went over there to see what they are doing in that regard, and in the course of his travels he found out that there were people living in northern areas doing work which was not very rewarding, I would think, and yet they were happy and there was no question of them staying there because they had to stay there.

Senator BRADETTE: They are there working for mother Russia.

Mr. BROWN: Yes, but it is not a case of them being told to stay there, they like their work.

The DEPUTY CHAIRMAN: To come back, Mr. Brown, to what Senator Wall was saying a moment ago. Would you mind explaining to the committee what is the basis of your judgment when you say the land that has been settled was put under cultivation more or less through a system by which every settler was granted let us say 125 arpents, equivalent to 112 acres of land. Do you look at this from an economic point of view?

Mr. BROWN: I think class "A" land in the clay belt is not as good as class "A" land in the south and therefore you need more land up there to make a living.

The DEPUTY CHAIRMAN: I do not say you are wrong.

Mr. BROWN: I remember a survey made up there for the present state of development—I think it was on 1947 and actually I think the development has gone down a bit since then,—we came to the conclusion after a couple of years of survey that settlers who were in there trying to make a go of it from an agricultural standpoint did not have enough land to bring them back a satisfactory return because the climate is against them for one thing.

The DEPUTY CHAIRMAN: And transport?

Mr. BROWN: Transport is definitely against them, but also climate; years go by and they don't get anything.

Senator BRADETTE: I would like to make a last statement. I belong to the Cochrane district; I went there as a settler with my family from the province of Quebec. We went into dairying, and that was all that saved us.

We came there from the province of Quebec as primary settlers with no money; but when the time came to revolutionalize from the settler's status to the farmer's status, 95 per cent of the settlers couldn't do it. That was the crisis we faced.

To give you an example of how serious was the situation in the Clay Belt, I had a brother who lived next to me who had 40 dairy cows, a very fine farm,

300 acres under cultivation. He had four big sons, but only one of them wanted to stay on the farm. As you well know, with the high wages for hired help one man can't run a farm successfully; you have to have the help of the whole family. My brother said, "If I can't get two sons to stay on the farm, I will sell it." He sold that farm for $42,000.

That is what is happening to many of our young people in the Clay Belt. It is fairly good land, although the climatic conditions are not always good. They suffer from premature frosts, rain participation and things like that. The young people look to the big mills at Kapuskasing, Smooth Rock Falls and other places, and also to the mines on the Quebec side and the Porcupine side. That shows how hard it is to keep the young people on the land.

I am told that the provincial Government is now trying to place Scandinavians in that area. Well, I prophesy that unless the Government is going to extend to them a lot of help—perhaps give them $15,000 to start with—to cultivate their land on a big scale, they will not succeed. Although the provincial Government has had no real scheme for settlement over the past 25 years, the people got by and made a bare living. The Government tried to settle Dutchmen in that area—you know how thrifty and hard working the Dutch people are—but they did not succeed. They gradually gravitated to the centres of mines and industries, until today there is not one Dutchman on the land.

At one time Mr. Ferguson, who was Minister of Lands and Forests and eventually became Premier of Ontario, decided to make this a settlement for French-speaking and English-speaking. A French-speaking friend of mine came to me and said, "Joe, the Fox township is being opened up, and it is a good timber township." Mr. Sam Dempsey was then the agent for Lands and Forests, and he said that no French-Canadian could apply for land there. We felt that was an awful thing to do, but looking back now it was probably the best thing, because of the school situation. For instance, in the township we settled in there was one-third English-speaking and they had to send their children to the Separate School. You see, there were all those complications.

In the depression years the Honourable Wesley Gordon did a good job under most difficult circumstances in building up a settlement south of the town of Cochrane with people who came from Toronto, Hamilton and other places. But after two years the good wives would take the train or go by foot back to Toronto or Hamilton. So, that scheme did not work out either. This is the kind of crisis we face in northern Ontario, where we have big mines and industries which attract our young people away from the farm.

Senator McDONALD: I think, Mr. Chairman, that is also true in our provinces on the sea as well: the shortage of labour and the increase in the use of machinery have changed the picture very materially. I am worried to know how a lot of our small farmers are going to manage in the years to come, unless they can be assisted by getting cheap money to enlarge their farms. Something has to be done to assist them. I can think of so many people in farming communities in my own province, and Senator Taylor knows about the province of New Brunswick, as other senators know about their provinces, and I believe without exception that this is the greatest problem they face today. Some way has to be found by which a good farmer can be assisted to enlarge his holdings so that he can make a success of his farming venture.

Senator HORNER: In all my experience, both in Quebec and in western Canada, you cannot prevent the good farmer from acquiring land. I have known men you could not stop; I have known other men who made a success on smaller farms, who were happy to stay there and raise their families, who did not want to take any risk or go into debt.

I am always doubtful of any scheme that is advanced for the purpose of giving money to encourage a man to expand. He has first to demonstrate that he is capable of managing a large farm and doing that type of work. If high wages had prevailed this beautiful Ottawa valley would never have been developed as an agricultural area, because 100 years ago it was difficult to ripen grain even 50 miles from Ottawa. Wheat was often frozen, and it was only a rare year when the farmers found themselves fortunate enough to ripen wheat for flour. Experience shows that in both western and eastern Canada when land was broken up the season became longer. That is particularly true of western Canada: the prairie scrub drew the frost, and when the land was worked the heat got into it during the day and prevented frost damage by night.

Let me say again, I think it is quite impossible to offer this kind of assistance one hears suggested. If the young men in western Canada who show ability could go to the bank, as they once could, and could buy a farm from a man who wished to retire at the full price of say $25,000 or $30,000, without any cash down, that is the way to do it. But that kind of deal seems impossible today; there are so many restrictions and laws, it seems a man is not supposed to pay his debts any more.

Senator BRADETTE: Order.

Senator WALL: Mr. Chairman, I would like to come to page 4 of the brief dealing with the basic concept of keeping costs down. Accepting that this requires a larger population and greater land use in conjunction with the development of natural resources, the question I should like to ask is, how would we be able to integrate and co-ordinate in private enterprise the development of such a process, specifically in such new developments as the Moak Lake development in northern Manitoba? Looking in retrospect at what happened in Sudbury or some other places, how do you think we can get a co-ordinated effort so that we will have greater development in the whole area rather than a one-shot affair as it appears to be?

Mr. BROWN: As a matter of fact, not long ago I tried to sell the idea of a detailed soil survey in the area surrounding the development.

Senator WALL: By whom?

Mr. BROWN: By any organization which can do that type of survey.

Senator WALL: I do not mean who is going to assume the technical carrying out of the survey but who in fact is responsible for seeing that that whole area is surveyed? Is it the private enterprise person or is it the provincial Government or is it going to be a joint federal-provincial effort? Who is supposed to undertake that?

Mr. BROWN: I think it should be joint. I feel that can be the only way enough pressure could be brought on the people to actually get the work done. I do not think the province working in conjunction with industry can do it. There have to be a few more irons in the fire to push the project to completion.

Senator WALL: The province is concerned at the present time, and there is a new town being developed there. The International Nickel Company is also there. How would you bring the federal interest into the picture?

Mr. BROWN: When the federal Government has no actual control over natural resources in the area, it is a very difficult problem. There is no doubt about that. The only way its influence can be felt in the area is through a co-ordinated land use organization at federal level, including all the people we mentioned before. I believe this would be accepted by industry and by the province, if its intentions are pointed up as being good.

Senator WALL: Yes. I would suggest at this stage that there should be a provincial planning body or something of that kind which would be the agent immediately responsible.

Mr. BROWN: Granted in some of the provinces there is a provincial planning body doing good work. There has been quite a bit of planning put into the Elliott Lake area, but I think there could be a lot more.

Senator WALL: Coming back to the Moak Lake, there has been nothing done as far as a survey of that whole area is concerned from the point of view of land use as we understand it, is that correct?

Mr. BROWN: Nothing. There has been a very broad inventory made by the province. There was considerable thought to having a forestry inventory done in the area, but there has been no detailed study made to my knowledge.

Senator HORNER: Do you work for the pulp and paper companies?

Mr. BROWN: Yes.

Senator HORNER: Abitibi?

Mr. BROWN: Yes. In the back of the brochure there is a list of the companies for whom we do work. I also have a list of some of the specific people for whom we have worked.

Senator TAYLOR (*Westmorland*): To what extent have you done work in New Brunswick?

Mr. BROWN: Would you answer that question, Mr. Hall?

Mr. HALL: We have done quite a bit of work there from time to time. I would not say we have done too much in this particular application, but we have done a lot of work for the International Paper Company and for the provincial Government. We have done a lot of magnetometer surveying for the mining companies in New Brunswick. At one time or another we have worker for all the pulp and paper companies.

Senator TAYLOR (*Westmorland*): You have not done any work in the agricultural areas in the province of New Brunswick?

Mr. HALL: No, not as a specific agricultural project.

Senator TAYLOR: There is a lot of aerial work done there. I know that I was able to get from our Department of Lands and Mines some aerial photographs of the whole area surrounding my parish.

Mr. HALL: We have photographed agricultural districts under a contract with the provincial Government. They have a program under which the whole province is photographed every ten years. A bit is done each year and so it is a continuing program.

The DEPUTY CHAIRMAN: Honourable senators, I think I am expressing your feelings when I congratulate Mr. Brown for the way in which he presented his brief and answered our questions. I sincerely thank him for having appeared before our committee this morning. I also thank Mr. Hall for his attendance here.

The committee thereupon adjourned.

1958

THE SENATE OF CANADA

PROCEEDINGS

OF THE

SPECIAL COMMITTEE OF THE SENATE

ON

LAND USE IN CANADA

No. 3

RECEIVED
AUG 7 1958
Library of Parliament

WEDNESDAY, JULY 30, 1958

The Honourable Arthur M. Pearson, Chairman

WITNESSES

Dr. P. O. Ripley, Chief, Field Husbandry Division, Department of Agriculture.

Dr. K. W. Hill, Field Husbandry Sectional Head, Department of Agriculture.

Dr. K. F. Nielsen, Sectional Head, Soil Fertility and Soil Management, Field Husbandry Division, Department of Agriculture.

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1958

61191-3—1

SPECIAL COMMITTEE OF THE SENATE ON LAND USE IN CANADA

The Honourable Arthur M. Pearson, *Chairman*

The Honourable Senators

Barbour	Hawkins	Pearson
Basha	Horner	Power
Bois	Inman	Smith (*Kamloops*)
Boucher	Leger	Stambaugh
Bradette	Leonard	Taylor (*Norfolk*)
Cameron	MacDonald	Taylor (*Westmorland*)
Crerar	McDonald	Turgeon
Emerson	McGrand	Vaillancourt
Gladstone	Methot	Wall
Golding	Molson	White—30.

(Quorum 7)

ORDER OF REFERENCE

Extract from the Minutes of the Proceedings of the Senate

THURSDAY, June 12, 1958.

"The Honourable Senator Aseltine moved, seconded by the Honourable Senator Macdonald, P.C.—

That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people and, in particular, to increase both agricultural production and the incomes of those engaged in it;

That the Committee be composed of the Honourable Senators Barbour, Basha, Bois, Boucher, Bradette, Cameron, Crerar, Emerson, Gladstone, Golding, Hawkins, Horner, Inman, Leger, Leonard, MacDonald, McDonald, McGrand, Methot, Molson, Pearson, Power, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon, Vaillancourt, Wall and White.

That the Committee have power to engage the services of such counsel and technical and clerical personnel as may be necessary for the purpose of the inquiry;

That the Committee have power to send for persons, papers and records, to sit during sittings and adjournments of the Senate, and to report from time to time;

That the evidence taken on the subject during the two preceding sessions be referred to the Committee.

After debate, and —

The question being put on the motion, it was—

Resolved in the affirmative."

J. F. MacNEILL,
Clerk of the Senate.

61191-3—1½

MINUTES OF PROCEEDINGS

WEDNESDAY, July 30, 1958.

Pursuant to adjournment and notice the Special Committee of the Senate on Land Use in Canada met this day at 10.30 a.m.

Present: The Honourable Senators:—Pearson, *Chairman;* Bradette, Hawkins, Horner, MacDonald, McDonald, McGrand, Taylor (*Westmorland*), Turgeon and Wall.—10.

In attendance: The official reporters of the Senate.

The following representatives of the Department of Agriculture were heard:

Dr. P. O. Ripley, B.S.A., M. Sc., Ph. D., Chief, Field Husbandry Division, Soils, and Agricultural Engineering.

Dr. K. W. Hill, B. Sc., M. Sc., Ph. D., Field Husbandry Sectional Head, Division of Field Husbandry, Soils and Agricultural Engineering, Experimental Farms Service.

Dr. K. F. Nielsen, B. Sc., Ph. D., Sectional Head, Division of Field Husbandry, Soils and Agricultural Engineering, Experimental Farms Service.

At 12.30 p.m., the Committee adjourned to the call of the Chairman.

Attest.

James D. MacDonald,
Clerk of the Committee.

THE SENATE

SPECIAL COMMITTEE ON LAND USE IN CANADA

EVIDENCE

OTTAWA, WEDNESDAY, July 30, 1958.

The Special Committe on land use in Canada met this day at 10.30 a.m.

Senator ARTHUR M. PEARSON in the Chair.

The CHAIRMAN: Honourable senators, I would like to introduce the witnesses who will give evidence here this morning. They are from the Department of Agriculture.

To my right is Dr. P. O. Ripley, who is Chief, Field Husbandry Division, Soils and Agricultural Engineering, at Ottawa, Dr. Ripley was born on a farm in Port Perry, Ontario. He has the degree of B.S.A. Toronto, M. Sc., Ph. D. Michigan. He was with the Experimental Farms Service, Ottawa from 1922 to 1925 and from 1931 to 1958. He was at Lennoxville Quebec, from 1926 to 1930.

To his right is Dr. K. W. Hill, Field Husbandry Sectional Head, Division of Field Husbandry, Soils and Agricultural Engineering, Experimental Farms Service, at Ottawa. Dr. Hill was born on a farm at Taber, Alberta. He has a degree of B.Sc. from Utah, M.Sc. from Alberta, Ph.D. Nebraska. He has worked for the following Commercial Companies: Buckerfields Ltd., Canadian Sugar Co., Fraser Valley Fibre Flax Co-operative 1941 to 1944, Experimental Farm, Lethbridge, Alberta, 1944 to 1951 and he has been with the Central Experimental Farm from 1951 to 1958.

To his right, is Dr. K. F. Nielsen, Sectional Head of the Soil Fertility and Soil Management Division of Field Husbandry, Soils and Agricultural Engineering, Ottawa. Dr. Nielsen was born on a farm at Cardston, Alberta. He has the degree of B.Sc. from Brigham Young, Utah, Ph.D. Ohio State. He was engaged in fertility work at the University of Maine, Orono, from 1952 to 1955 and has been with the Central Experimental Farm at Ottawa here from 1955 to 1958.

Dr. P. O. Ripley, Chief, Field Husbandry Division, Soils and Agricultural Engineering, Ottawa: Mr. Chairman and gentlemen, I wish to say at the outset that we are greatly honoured and privileged to appear before your committee. We have been in the division from which we all come, working at this business of land use and soil management, soil conservation, or whatever you want to call it, since the inception of the division in 1920. I have been there since 1922.

In those 35 years we have been wrestling with this problem of soil conservation and land use. In 1947-50 we had a national committee on soil conservation set up under the National Advisory Committee of Agricultural Services, with which some of you, I am sure, are familiar. It was set up under the Department of Agriculture, with the Deputy Minister as Chairman, the deputy ministers of agriculture from each province, the deans of agriculture from the universities, and other prominent agricultural people forming the parent body. Under that parent body there were various national committees set up to study certain problems.

That is the background that sets us up, we think, to speak on this subject of land use.

We have followed with great interest the previous meetings of your committee. I am very happy that the name of the committee has been "Land Use". We have talked in previous years about soil conservation, but I do not think that is a correct term. If you want to have soil conservation, I suppose the best way to do it is to put the soil back into grass or trees, but we don't want to do that; we want to use the soil.

Senator HAWKINS: But you are using the soil when you put it into trees. Don't go overboard on that, or you may get into trouble.

Dr. RIPLEY: Yes, you are quite right Senator Hawkins, but we want to use it for more than grass and trees.

A year ago I was asked to prepare a paper for the British Commonwealth Bureau of Nutrition, in Aberdeen, Scotland, for publication in their bulletin *Nutrition Abstracts and Reviews.*

We did not have time to prepare a special brief today, but I think the points that are raised in this brief are quite pertinent to the terms of reference of your committee. Therefore, I am going to refer to a few of the highlights of the brief.

I would first refer to page 291 where in the first paragraph I say that we have some 2,461 million acres of area in Canada, the second largest country in the world. Of this large area almost 172 million acres are covered by water of lakes and rivers and the total land area is 2,289 million acres. Approximately 7 per cent, or 174 million acres, is at present occupied farm land, which includes improved farm land and unbroken rangeland. Only 97 million acres, or 4 per cent of the total land area, is improved or cultivated land. Under an expanded economy it might be conceivable that another 50 million acres could be brought into cultivation. That would still provide a potential of only 224 million acres of agricultural land, which would be only about 10 per cent of the total land area.

I think that is very significant when we think about land use in Canada. It is most important that we use the rather small amount of agricultural land satisfactorily and carefully. That is the point that brings out the importance of the land use study.

I have two things in mind: we are speaking today largely from the standpoint of production, not so much from economics. We think from the production standpoint that climate and soils are the two most important factors, at least as it affects our Canadian production.

I have put in there a paragraph on temperatures, precipitation and sunshine. Those are tremendously variable in a country like Canada, as it is not necessary to remind you. This gives some of the great variations that do occur because of climate.

In the next few paragraphs on page 293 we have in a way related climate to soils.

Dr. Leahey was, I think, the first witness before this committee, back in its early days, and he told you something about our soil conservation work, and the classification of our soils. If you will refer to the map opposite page 294 you will see that it is divided into a number of soils and climatic areas. The area to the left that is cross-hatched is the British Columbia area; that deals with the soils in British Columbia, the high rainfall area, fairly fertile soils because of the river valleys. The rainfall there is high in winter and rather low in summer; in fact, the Okanagan Valley has the lowest rainfall of any place in Canada. Then we move over to the central region in the northern part of Alberta, and into the Northwest Territories. We have the large area of grey wooded soils occupying about 150 million acres. The

precipitation there is higher than farther south in the central region, being approximately 15 to 17 inches per year. The soils are not especially fertile but in some places they can be quite productive.

In the next area, down in the criss-cross section, is the great fertile black soil area, which occupies 45 million acres. It is a lot of land. It is the richest soil on earth, I think. I do not believe there is any better soil any place in the world than this black soil in around Lacombe and up through Melfort and in that area. The precipitation there is a little less than in the grey wooded soil area, 15 to 16 inches. Then there is the dark brown soil area, which was produced under grass, the prairie soils. Incidentally, the black soil area was too. In this dark brown soil area of 30 million acres, the precipitation decreases as you go south, running from 18 to 10 inches. Then in the lower area, in the little triangle at the very bottom, we have the brown soil area. The precipitation there runs from 6 to 12 inches. Those are all very fertile soils and have a very high lime content. We do not need any lime in that area, As a matter of fact, some are too alkaline and too salty to produce crops, and we are doing some work in that connection. That is the western part of Canada.

Then we have two or three narrow, small areas in the eastern part. We have the clay belt in northern Ontario and Quebec. It is that long oval area just above Lake Superior and Lake Huron. It stretches over to Quebec, and then there is the small area from Lake St. John to the St. Lawrence River. Then down in the south peninsula by Lake Ontario, Lake Erie and Lake Huron, we find one of the most productive areas in Canada. There is production of a large variety of crops. They produce many of the cash crops: canning crops, corn for grain, soya beans and fall wheat. A large amount of our cattle and poultry production is found in that area. A little farther east we come to the Montreal-Ottawa area, and it is getting into a less fertile area. The climate is less desirable there too. It is cooler and it is almost out of the corn grain area. Some of the soils are quite acid and need lime. Farther east again, in New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, we have our great areas of podzolic soils. There is a high precipitation and it is ideal for the growing of such crops as potatoes and grass. The climate, with the high precipitation, favours the production of these two crops, and others as well. That is a general picture of the soil and climate conditions in the various areas.

I would like to refer you to page 295, table 1.

Senator TAYLOR (*Westmorland*): How do you classify the marsh soils of the Maritimes?

Dr. RIPLEY: Well, the marsh soils, of course, are a very special soil, a fertile soil. There are about 82,000 acres of those marsh soils, and they are very fertile. However, they require lime and superphosphates, we have found. We have quite a set of experiments at Nappan Experimental Station, Nova Scotia. These are very good areas for the production of grain and hay, and that is what they have been used for, mostly for hay, actually, but I think now with the work that the Maritime marshland people are doing they will be used for other purposes, too. Actually, they are among our fertile soils.

Senator TAYLOR (*Westmorland*): For pasture and other crops?

Dr. RIPLEY: Yes.

Senator TAYLOR (*Westmorland*): On one particular farm I visited a couple of years ago, the owner was in his nineties, and he said that he could recall that 75 years ago a certain area of his marsh area was, and still is, producing 3 tons of hay per acre.

Dr. RIPLEY: It is a very fertile soil, and if you can keep the salt out of it it is all right, because that is the very big problem, salt water, and it does damage. It is a very productive area.

I wanted to call your attention to Table 1. I have tried to determine the average production per acre per year, and the total production per year. I will show you how I have applied that. I want you to notice, however, the rather low yield: Fall wheat 25.4 bushels per acre, and so on, down the line. Potatoes; 148.3 bushels is the average yield in Canada. We have 500 bushels in the areas where potatoes are grown well, but the average for Canada is 148. Turnips, 9.78 tons. Hay (clover and timothy) 1.49 tons. Corn or maize for silage (this was a British publication, and the word "maize" was used instead of "corn") 8.86 tons per acre. Those are very low yields. The total production by years of those various crops is shown in the column to the right. Turning to page 296 we calculated the feed requirements of the livestock produced in Canada, and we find 10.9 million tons of hay required, and we have 18,750,000 tons in Table 1, under "Production". There are 408 million bushels of oats required. We produced around 380,436,000 bushels of oats. Barley is about the same. In other words, this indicates that we are able to produce the feed that we require pretty well if the oats and barley are supplemented with wheat which is in surplus, in which case we do produce quite enough to meet the requirements of our livestock. I think, however, that we could double our production with the proper methods, and I will just indicate how this might be accomplished afterwards.

I would like to call your attention to the geographical distribution in Table 2 on page 296. We talk of "Zonation of crops". We have a very good natural zonation of crops. First of all, we have fall wheat—70 per cent is grown in eastern Canada. Spring wheat; 98 per cent of the total production in the Prairie province; similarly with oats, 70 per cent; barley 90 per cent; rye 90 per cent; and peas 70 per cent. They grow grains on the Prairies, where naturally they grow well. And of course soya beans and tobacco 100 per cent in the peninsula down in southern Ontario. And if you go down through the rest of those you will see that there has been a natural zonation of these crops, and that is good land use policy.

Senator MCDONALD: We hope that in Nova Scotia we will be able to compete in the growing of tobacco. We have been carrying on an experiment down there during this year.

Dr. RIPLEY: I wish you every success in that enterprise. Right now we are growing enough tobacco in Canada to meet the Canadian demand and we are in addition exporting some 84 million pounds of tobacco. There has been a very good zonation of these crops and the land is being used fairly satisfactorily.

Now I am just going to mention some of the ways that I think these things can be improved.

Senator HAWKINS: Before you are through with these statistics I would like to ask you about improved pastures in Canada. In eastern Canada you give the area of improved pastures as 10 per cent and in western Canada 90 per cent, and on the other hand range or native pastures in eastern Canada you give at 85 per cent and 15 per cent in western Canada.

Dr. RIPLEY: I think Senator Hawkins you are reading the wrong table. That is vegetables. The improved pasture is the third one and reads 82 per cent in eastern Canada and 13 per cent in the west, and the range or native pasture is 90 per cent in western Canada.

Senator HAWKINS: Have you any indication of the return per acre realized from the pastures?

Dr. RIPLEY: Well of course the range pastures in western Canada are those areas where it requires 20 to 30 acres to carry one animal. Those of you who are from the west will be familiar with the ranges there. However, I cannot give you the exact figures of returns per acre which on a set up like that are very low.

Senator HAWKINS: That's what I was after.

Dr. RIPLEY: In eastern Canada our improved pastures can carry almost an animal to the acre, and the returns are pretty good from those pastures. You have to take into account of course stable feeding if you do stable feeding, but if you sell the beef cattle right off the improved pastures I think that you can net $20 to $30 an acre from those improved pastures.

Senator HAWKINS: Annually?

Dr. RIPLEY: Yes, annually.

Senator HAWKINS: That is the information that I wanted. Thank you.

Senator MCDONALD: Could you increase the number of cattle on those 20 to 30 acres in western Canada pastures if you were to use fertilizers?

Dr. RIPLEY: I do not think so. I do not think you can do much about those range lands that require 30 acres per animal. It is limited by moisture; that is the area where there is only six inches or eight inches of rainfall per year.

Senator HORNER: In the dry areas, in the special areas they reckon 50 acres to the animal, but that is to carry the animal the year around. Unless moisture is obtained fertilizer will not help. Without irrigation that is all you can do in those special areas. However, down near the foothills of course there are pastures that carry many more stock, but that is because there is more moisture there.

Dr. RIPLEY: Now, Mr. Chairman, I would like to say a word or two as to how we think production in Canada can be increased. There are some 45 million to 50 million acres of land in Canada that have not been brought into use yet and that means additional production later on. We have in Canada 278 million acres of peat and muck soils, organic soils. I do not know whether they will ever be used for agricultural purposes, but that acreage is more actually than the potential mineral soil.

I told you there were 224 million acres of mineral soils including those 50 million that have as yet not been broken, but there are 278 million acres of these organic soils. We estimate that maybe 5 million or 6 million acres can be brought into fairly immediate production. We have been carrying on a lot of work in Newfoundland. That is a very important problem in that province. There they have only one half of one percent of their total land, or their potential agricultural land as far as the mineral soils are concerned. The organic soils number about 5 million acres and we are hoping that they may be brought into production and be useful.

Senator HORNER: They told us at a former meeting here of an experiment that was being carried on in Newfoundland and they had grown grain on peat and bog land. How is that experiment coming along?

Dr. RIPLEY: It is coming along very well. We have been greatly encouraged by the production, we have been able to get on that very raw peaty material in the way of grass.

Senator HORNER: Is there sufficient moisture?

Dr. RIPLEY: The trouble is that there is too much. One of the big problems, of course, is to get rid of that moisture.

Senator BRADETTE: I would like to know if there is any truth to that wonderful report that we had about a Dutchman producing vegetables on peaty land around Ottawa, in Russell County.

Dr. RIPLEY: Yes, as a matter of fact there is a large area of muck soil around Alfred. One company tried to develop it as a peat fuel industry. These people now have taken it over and they are making a pretty good job of producing. That kind of soil is very excellent soil for the production of vegetables.

There are several areas containing soil like that. Down south of Montreal we have an experimental station at St. Clothilde, and the muck soil there is a better soil, it is more decomposed and a wonderful soil for the production of vegetable crops. The area at Cyrville, where we get our vegetables for the city of Ottawa, is a muck soil. The Holland marshes below Toronto is another excellent area of muck soil.

These organic soils I believe should be investigated more than we have been doing. We have not had to use them because we have had more than we needed really, as of now, but I think it is a place that we really should do some investigation.

The CHAIRMAN: There is a settlement of Germans northeast of Beausejour, near Winnipeg, that have been using the peat bogs there for cultivation. These bogs are about 18 inches deep. Some of it has been burnt off and some cut off. They are raising wonderful crops there.

Dr. RIPLEY: I think there are great possibilities in these bog areas. These organic soil areas are good areas. Another way I would go about increasing production I think, if I were able to just wave a wand and say do it this way, would be to increase the use of fertilizers.

There is a paragraph on this on page 298 of the booklet headed, Increased Use of Fertilizers. In Canada, which compares unfavorably with many other countries, we use 4.4 pounds of nitrogen, phospherous and potash per acre of arable land.

Senator MCDONALD: That is because of the very low amount used in the western provinces?

Dr. RIPLEY: I think that is the answer to it, but even in eastern Canada, where you get a response from fertilizers, they use only 8 pounds per acre of arable land. I have broken that down into a statement at the end of that paragraph. It is interesting to note by comparison with our use of 4.4 pounds of nitrogen, phosphorous and potash, the United States used 21.9 pounds, Denmark 83.9, the United Kingdom 101.6, Belgium 218, and New Zealand 293.4.

Senator HORNER: The New Zealand figure is not a yearly application. I understand that is merely to tame the soil.

Dr. RIPLEY: That is the average application per year. That information comes from the Food and Agricultural Organization Survey.

Senator MCDONALD: Would that be for one crop?

Dr. RIPLEY: Of course New Zealand's crops grow the year around. It is quite a different situation. Dr. Nielsen will have more to say about fertilizers, and I do not want to take his time.

I go on to drainage and irrigation. Drainage is a surprisingly important problem in conjunction with irrigation. If you do not have proper drainage to drain off the surplus water from irrigation, you run into all sorts of trouble; drainage and irrigation is a big problem, and requires more research and more education by the farmer.

Improved rotations and land utilization: We are going to have to do something in western Canada before too long. In parts of that country grain has been grown for more than 50 years, and there does not seem to be much reduction in yield; but, sooner or later I think we will have to develop some sort of rotation system.

In southern Ontario, where they are growing cash crops, they have run into trouble because they have not had sod crops or organic matter in the soil, because they have grown cash crops year after year and put nothing back.

Improved varieties and species: I do not intend to say anything about that subject, but it is a tremendous field for improving our production.

Mechanization: You have had other witnesses deal with that problem. While I think mechanization has been a great boon to the western farmers, I am wondering whether it has not put many of the eastern farmers out of business.

Senator McDONALD: It has created a very difficult situation for them.

Senator TAYLOR (*Westmorland*): You don't need to wonder any more—it has put the eastern farmers out of business.

Dr. RIPLEY: I am wondering whether it is good or bad; I expect I can get supporters for both sides. But sooner or later the farmers in eastern Canada are going to have to shift to larger units. We do not like to think of the small farmer going out of business, but it must be remembered that the average size farm in eastern Canada is 120 acres.

Senator McDONALD: It is bad from the standpoint that many of the small farmers have to move into the smaller centres, where from a social standpoint it is more difficult to bring up a family.

Dr. RIPLEY: There are lots of social and economic aspects to this problem. It has reflected on the machinery companies: they have sold their combines, forage crop harvesters and hay balers to the farmers, and they have not been able to support themselves and pay for the machinery on a 100-acre enterprise. Now the machinery companies are in difficulty. I am told that there isn't a binder manufactured in Canada, that we now have to go to England for them. This may also become true of the seed-drill. The combines have pushed the binders off the market as far as the manufacturers are concerned.

Senator McDONALD: I wonder if it would not be correct to say that the mechanization on the farms today has created the leading problem amongst small farmers, especially those in the eastern provinces?

Dr. RIPLEY: It has made matters very difficult for the small farmer, but I am not prepared to admit that it has been a terrible calamity. The labour situation has been such that we have been driven to mechanization. We can't get people to work on the farms, and there is nothing to do but mechanize. The people are going into industrial centres.

Senator HAWKINS: Whether we like it or not, or whether it is detrimental or not, the farmers of eastern Canada have to go to larger units.

Dr. RIPLEY: I believe that is true.

Senator HAWKINS: When you take note that 60 per cent of the farms in Canada have an income of something like $2,600 and a large percentage of this is in eastern Canada, it becomes obvious that they have to have greater production. If that $2,600 income was net, it would be a different matter, but when it is gross, that presents an impossible situation.

Dr. RIPLEY: That is right.

Senator HORNER: Speaking of larger units, I heard the other day of a man 50 miles from here who was not doing very well on his farm; he began to

cultivate an acre of land with berries and small fruits, and is now making more than he made on his farm.

Senator HAWKINS: With the butter-fat price today, it is apparent that the average farmer with 10 or 12 cows cannot make any money.

Senator TAYLOR (*Westmorland*): What are the farmers doing for seed-drills?

Dr. RIPLEY: The situation is the farmers are still using their old drills; but it may become difficult to purchase new ones. We figure that to equip a farm in eastern Canada requires an outlay of $28,000, which is too much overhead for a 100-acre farm to carry. They have bought their hay-balers, their forage crop harvesters, and now they are marking time and doing with what they have. I presume there is a supply of seed-drills, but I understand the manufacturers are reluctant to make any more, and that binders can only be imported from England.

Senator MACDONALD: I happen to live a few miles further east than Senator Taylor. Let me give my experience, and I have farmed for quite a number of years.

Back in the twenties a farmer was fairly well equipped at a total cost of probably $600; that is using horses. We had at that time two and three-horse teams, and my brother and I farmed about 200 acres. At that time I went on my own—I had a son growing up—and we switched over to tractors.

About four years ago in the fall of the year my machinery was still out and I stood in the kitchen doorway and began to reckon up what it had all cost me. My son, incidentally, had bought the baler. I kicked against that because I thought we were getting top-heavy with machinery as it was. Anyway, I reckoned up that the two tractors and everything else that went with it cost me $8,000 cash, and that did not include the baler.

Senator HAWKINS: How much?

Senator MACDONALD (*Queens*): $8,000. I could go back further and recall when probably $300 would equip a farmer with all the farm machinery he needed. In those days a binder probably cost $120 or $125. It was all gear for horses. I agree that back in the east they are getting top-heavy with machinery. It is a critical situation. The total farm debt on Prince Edward Island is quite staggering because the farmers have got into mechanization, and so forth. Just what can be done about it, we do not know. Our young men are moving off the farm and, after all, you can't blame them.

Senator MCDONALD: It is a great problem. On many of the small farms they cannot keep the expensive equipment operating enough days in the year to justify the cost.

Dr. NIELSEN: It is not the fault of the machinery; another problem has been created.

Senator MCDONALD: The production is not high enough.

Senator TAYLOR (*Westmorland*): Nowadays you cannot get men to pitch hay and do the things they were willing to do years ago.

Dr. NIELSEN: It is not a problem of machinery, it is something else.

Senator MCGRAND: Personally I cannot see where the larger units are going to solve the problem in the Maritimes. In central Canada there is a lot of industry and so there is opportunity for young men to leave the farms and get jobs in industrial life in these cities. This situation is entirely different from that which exists in the Maritimes where we have little industry. When young people leave the farms in the Maritimes they can create a social problem because they are not able to find jobs in industry, unless they leave that region of the country. It does not seem to me that larger units are going to supply the economic answer with respect to the Maritime provinces.

Dr. RIPLEY: Senator Taylor has said that it is difficult to get people to pitch hay these days. However, as long as you can get them to do this sort of thing, you can operate a small farm. I think, however, there are various ways that this larger unit may come about. It may be that a group of farmers would have to form a syndicate or co-operative society of some kind. For instance, several farmers could purchase a hay baler if that is what they needed. It might come about by custom work in some areas. In the old days when we used to have to pitch sheaves of grain, each individual farmer could not afford to buy a threshing machine but a custom operator would do the threshing for 50 or 100 farmers. Those are some of the ways in which I think this can be accomplished. Another way, of course, is to have larger units. Perhaps a company could buy up a group of farms and operate them as a company. That might be the answer. You might even go to the Russian system and set up collective farms. I don't know. I am not a communist, but there could be some sort of development like that. I don't know how it is going to come about but I think we are being forced into it in spite of anything we can do. Some very great difficulties might accrue with respect to some individuals in the process.

Senator HAWKINS: The home itself has a large influence on this question. Women are not going to raise families where they have to use a scrubbing brush and a washboard to do the laundry, and where they are limited to outside plumbing, and so on. They are not going to get along with shelving instead of cupboards.

Dr. RIPLEY: That's right.

Senator HAWKINS: That is where the problem is. There has to be more income per family.

Dr. RIPLEY: I believe that is the situation.

Senator HAWKINS: Your wife will want to have the same household facilities as Dr. Nielsen's wife, for instance, and she will not get it with the scythe and sickle.

Dr. RIPLEY: I had a suggestion as to how we might meet some of these situations.

Senator BRADETTE: Before you proceed I would like to make a comment. I am a farmer too and the thing that puzzles me is this. Over the last 25 years there has been a decrease in the farming population to the extent of 60 per cent. Still there is a glut on the market with respect to farm production. That is an astonishing fact.

Dr. RIPLEY: Yes, that is another factor in this whole thing.

Senator BRADETTE: There is also a glut in the dairy industry. Perhaps as an expert you could give us some advice on this.

Dr. RIPLEY: That is one of the big factors in this whole problem. Farm income has been going down and the outgo, if I may use that word, has been going up. There is no balance and I don't know how you can tip the scales in the right direction. You cannot force farm equipment manufacturers to sell their machinery at a lower price. They probably cannot manufacture their products any cheaper than they are now. Fertilizer companies have to sell their product at a certain price to make a profit, and I will say that these companies have been maintaining a fairly reasonable price.

Senator HAWKINS: The amazing thing in my area—and I think this is quite true in Senator Taylor's area—is that where you find a farmer using machinery and good fertilizer, and electricity in the home and so on, that is where you will find a farmer who is able to pay his taxes each year. I spent most of last year as the head of a Royal Commission studying this problem and we

found that it is the farmer who lives on a small farm—where his wife has to carry water from the well and use washboards for doing the laundry, and so on—who cannot pay his taxes. The young people leave the farms and go elsewhere and as the old fellows die off the farms go back into bush.

Dr. RIPLEY: I heard a statement in a lecture the other day that 10 per cent of our farmers produce 50 per cent of our agricultural production.

Senator HAWKINS: I would not be surprised.

Dr. RIPLEY: This shows that the good farmer is doing all right.

Senator BRADETTE: The specialist.

Dr. RIPLEY: Well, they are specialists or they would not be making a good job of it. But 10 per cent produce 50 per cent. Now, what are we going to do with this other 90 per cent, that is the problem?

Senator HAWKINS: You know what they should do with the other 90 per cent, and so do I, but I haven't nerve enough to say what should be done. That is where your problem is.

Dr. RIPLEY: During the war years when there was emergency in Great Britain, they organized, set up a system, whereby they divided their farmers into three different groups, the good farmers,—the high producers, the medium group, and the very poor farmers. They simply said to the good farmers, "Go ahead and continue your good job". They said to the medium farmers, "You must increase your production", and they probably used some of the good farmers as advisory people to tell them how to do it. They practically forced the poor farmers to get right out of the business altogether if they could not produce. Now, that was in emergency. They increased their production by 42 per cent, so I am told.

Senator HAWKINS: The economics of this thing is going to do just that thing.

Dr. RIPLEY: I believe it will eventually work out some way, but I do not think that in a democratic country we can do the thing you would like us to do.

Senator HAWKINS: I don't want you to do it, because I would be sorry to see little homes go, but the standard of living demanded by the people will determine it.

Senator TAYLOR *(Westmorland)*: In order that I may be clear, where was this done?

Dr. RIPLEY: In Britain. Now they have had to go back to the old system.

Senator HAWKIN: I am not suggesting that should happen here. In fact, I am very much against it, but I am trying to look at it factually, that is all.

Dr. RIPLEY: But I think probably we could do something to sort of push this thing along. I have a few pencilled notes here about how we might organize, by way of suggestion. I do not presume to tell you people how to approach this thing, but when we studied this matter on this national committee of soil conservation, it occurred to me that there are three general things that need attention, very generally. I have used three words here: Investigation, Education and Lubrication. Now, I think that we need to step up our research program in Canada. We have a big country. He have a good organization of agricultural research, but I think we have to continue that and improve it and increase the work. There is a great gap, however, between the information that is produced from research and its application on a farm. I do not know whose fault it is. We can't blame the education people, the extension workers; I think some of the farmers have to accept some blame for it. I go out to meetings around the country here. I go to a Holstein meeting tonight, and next week I go to the Crop Improvement Association in Hastings county, and I find the same men at the two meetings. Now, that is the 10 per cent of the farmers that are doing a job. The other 90 per cent are not at those meetings. So I do

not know how you can do this business of education, but I think we must keep everlastingly hammering away at it. But we cannot say, "Get off that farm if you do not produce." We must try to educate them, but I think some sort of assistance is necessary, and that is what I mean by lubrication. I think some sort of assistance is going to have to be given to some of these farmers in order to lift them over the hill here. We have had some assistance in the Prairies, particularly through PFRA, and through the other associations. We have some assistance down in the Maritime provinces on this Maritime marshland rehabilitation, but I believe that in some way we will have to figure out some way of helping these extension workers and the research workers a little bit more than they are assisted right now. I would like to see that done through existing organizations. I would like to just throw out a word of warning here that we in this country, I think, do not want another organization like they set up in the United States, that is, the Soil Conservation Service. They set up that service and provided them with so much money, that they just simply had to go out and get men to do things that were being done fairly adequately in the departments of agriculture previously. I think they have it on a much better basis now than they did originally when it was set up. They found it was not good business to have this big organization, which was almost as big as the former Department of Agriculture, and it practically duplicated and over-rode the former Department of Agriculture. If we are going to set up an oganization in this country, I personally, and for what it is worth, would like to see most of the work done through existing organizations. I think that probably a small administrative committee might be set up to sort of co-ordinate and administer a national program of some sort. I want to leave this thought with you that some people would seem to think that we have no policy at all of agricultural land use and production. We have many organizations that are doing a good job of co-ordinating and planning work in agriculture. We have a system of research in Canada that is unique in the countries of the world, I think. The British North America Act as you people know, set up the research in the federal, and the education and extension work in the provincial governments. We have a system of experimental farms and research institutions across Canada which is the envy of other countries of the world. In the United States they have 49 state experiment stations, and they are not co-ordinated particularly. We have this tremendous research organization set-up on a national basis, and I think they are doing a pretty good job. I may not be modest when I say that, since I have a hand in it. But I think they can do a better job, and we want to do everything we can to improve it. The extension service, the county agents and district representatives across the country are doing an excellent job, however, and I think if they could be assisted in some way, given experts in soils and agronomy and engineering to work with those county agents, that that organization could be set up within the present structure, if they could just be given a little more assistance to do some of the jobs that they are expected to do in those various lines. I think some assistance could be given in connection with drainage schemes—water development. The PFRA have done a wonderful job in water development in the west. Some assistance in the purchase of fertilizer might be a useful type of thing, something like the lime policy—the government pays freight on lime. I am not very strong on subsidies, but maybe some assistance could be given in that direction. If you are going to increase those farmers' purchasing power and income, money has to get to them some way, whether by subsidy or however it is done. Those are some of the thoughts I have in mind, and I am sorry if I have taken too much time in expressing them.

Senator BRADETTE: What you have to face in dealing with the farming population is individualism. That applies more particularly in eastern Canada.

No doubt in western Canada they could organize better than they do in the east. I suppose that is partly what you meant when you mentioned that only 10 per cent of the farmers will go to some of the meetings and 90 per cent are absent. That shows individualism, and again that is one of the problems. I do not know if that could also be solved.

Dr. RIPLEY: I think there is no doubt about that, Senator Bradette, and when you start talking about moving a man from one farm to another or from one place to another there is a problem of individualism to be dealt with there.

Senator TAYLOR (*Westmorland*): Mr. Chairman, may I ask Dr. Ripley this: don't you think that in a lot of these areas that there are quite a number of people who realize it themselves, I mean if a man is a reasonably good farmer he wants to do a good job of farming but he is crippled on account of the poverty of the soil he is working now, and by his financial circumstances, and if some organization—I realize it cannot be the federal Government or the provincial government alone, but I do believe that a combination of those two with the municipal authorities of the place in which this man lives could say to this man, "Do you want to move on to other land, do you want to sell your property and establish on a more suitable unit for a farming operation?", I believe that a great majority of these people would want to do it. I know that this is taking place by evolution. In my province there are areas that when I was a boy were given over to farming and today that land is growing up as forest. It should always have remained in forest, it should never have been opened up to farming. Now, some of these people were forced out of farming in those areas and they had to go to the towns and the cities and get a job but their heart is back there in the soil and I believe if some organization can be set up, a general organization composed of the three levels of Government, a member of which the farmer would recognize as his neighbour and one who would try to help him, he would be more willing to accept a proposition of that nature than anything else. I believe that a lot of people would like to be established elsewhere.

Dr. RIPLEY: I think so too, but where would you move them?

Senator TAYLOR (*Westmorland*): In New Brunswick we have a lot of good farms which by reason of the fact that the boys and the children had no interest in farming, are lying idle today, the farmers having moved away from them. There are a lot of them in that province. There are a lot of absentee owners.

Dr. RIPLEY: I think that is true. I had a statement of the number of abandoned farms and it is amazing. There are something like 35,000 abandoned farms, 5 million acres of them.

Senator MCGRAND: Have you listed the vacant farms in New Brunswick?

Senator TAYLOR (*Westmorland*): I am thinking of one area alone, a lovely area and good farmland, but none of the young farm people in that area wanted to farm, they went to the towns and the cities. And I know of other similar areas in our province where people would like to move to from where they are now, getting on to some of these properties but they have not the finances to do it.

Dr. RIPLEY: I believe that is one of the ways in which relief could be given.

Senator TAYLOR (*Westmorland*): Of course I realize you cannot force them to do it, it must be done voluntarily.

Dr. RIPLEY: That is right, if it could be made sort of interesting.

Senator TAYLOR (*Westmorland*): Now, in the matter of research don't you think that agriculture the world over is far, far behind in the matter of research?

Dr. RIPLEY: Well, I think we need a lot more of it. I believe that industry probably is ahead of agriculture and there, again, it is a straight case of economics.

Senator MCGRAND: Do you mean the sociology of agriculture?

Dr. RIPLEY: No, I was thinking particularly of the need of research in agricultural production.

Senator MCGRAND: But is it not mostly a sociological problem?

Senator BRADETTE: It is more than that.

Senator TAYLOR (*Westmorland*): I think we are at cross purposes here. An illustration of it is this: I went to agriculture college in 1913, studied feeds and feeding and all the rest of it, and I find that there is not much change today from what was recommended then. There is not much new.

Dr. RIPLEY: I think you are on the right track. I think we should be doing much more intensive and extensive research than we are doing.

Senator TAYLOR (*Westmorland*): What is your opinion of the Ontario Crop Improvement Association? In my opinion it is doing a might fine job.

Dr. RIPLEY: They are doing a good job of extension, an excellent job of extension, but it is extension.

Senator TAYLOR (*Westmorland*): Yes, definitely.

Dr. RIPLEY: It is extension and not research. I think that is one of the good organizations that we have in the country.

The CHAIRMAN: If there are no more questions to be addressed to Dr. Ripley, I wish to thank him on behalf of the committee and say to him that he has done a fine job in his presentation.

We will now call on Dr. Hill.

Dr. K. W. Hill, Field Husbandry, Soils and Agricultural Engineering, Experimental Farm Service called.

Dr. HILL: Mr. Chairman and honourable senators, before I start I would like to make one brief comment as a prairie farmer who has spent the last three weeks in the Maritimes. I agree with Senator Hawkins that the fact that the standard of living has risen so considerably in the past few decades is at the root of our trouble. When these Maritime farms were producing most of what they needed to eat and even to wear—

Senator HAWKINS: And some of the time to drink!

Dr. HILL: Yes, some of the time to drink, and when they got around with horses and buggies they got along very nicely on those hundred acre farms. Now, the farmers of today—and I think they deserve it—want televisions, deep freezes, two-tone cars with power steering, just the same as the people in the cities and all those things cannot come out of those 100 acre farms.

Senator HAWKINS: It is not there.

Dr. HILL: It is not there. That is the root of the trouble.

I was also interested in connection with the problem that you mentioned, Senator Taylor. Dr. Kirkconnell, President of Acadia University, told us that in 1900 there were 2 million acres of arable land in Nova Scotia and now there are 600,000—two-thirds of it has gone back to bush. I thought it was a very interesting commentary.

I should like to make some brief comments on two or three topics: the first is soil drifting problems in western Canada, and the second, weed control, which is a great waste of our land resources, and third, a word about irrigation.

Soil drifting is one of the serious hazards in crop production in the Prairie provinces. Despite the methods of control that have been worked out and are quite adequate, they are not generally followed. We have a larger percentage

of crop land in summer-fallow than any other country in the world. Fifty years ago less than 20 per cent of the land of the Prairie provinces was summer-fallowed; now more than one-third of the land lies idle every year in summer-fallow. It increased in Manitoba from 12 per cent in 1915 to 30 per cent at the present time.

Some summer-fallow is necessary in the drier parts of the Prairie provinces, where it requires two years of moisture for the production of one crop. But much more land is being summer-fallowed than is warranted by moisture considerations.

The greatest single disadvantage of summer-fallow, other than that it takes the land out of production, is that it produces soil drifting by leaving the land bare and vulnerable to the wind. Incidentally, it costs us $126 million a year to summer-fallow this land. The overwhelming loss to agriculture from soil drifting during the 1930's is well known to all. The situation in the past two decades has been more favourable; it has been characterized by higher rainfall and less wind, and consequently soil drifting has not been a major problem. However, it has come up a little during the past two or three years.

In 1958 there has been more serious soil drifting than we have had on the Prairies since 1938. There was serious drifting in Manitoba in 1955. It is evident from a number of experimental farms that the acreage of summer-fallow could be reduced, and the total crop production thereby increased. The alternate crop system, where you have summer-fallow one year and wheat the next, gives a higher yield than if you grow wheat year after year, or under any other arrangement.

Senator HAWKINS: Would you clarify that for me, please?

Dr. HILL: The highest yield of wheat you get is in the year following summer-fallow.

Senator HAWKINS: But that is two crops.

Dr. HILL: That is the point I am trying to make: when you consider the total acreage required in producing crops, you get a higher yield if you do not summer-fallow every other year. This applies to large portions of the Prairies: Manitoba, western Alberta near the foothills, and northern and central Saskatchewan, where moisture is higher; areas where now the alternate crop and summer-fallow seems to be pretty well in vogue.

In southwestern Saskatchewan and southeastern Alberta, in the heart of the dry area known as the Palliser triangle, the alternate crop system is pretty much required, although there are seasons when you get more wheat if you do not summer-fallow that often.

Farmers have adopted an alternate system of crop and fallow not necessarily because it is more profitable, but because it is a little easier to manage. Economics have entered into it again: if you can't sell the wheat, why grow more of it just to put in storage? It is easier to have a straight alternate system, of cropping half the land and fallowing half. It is not so much trouble to get the crop in; when you get it in, you do the summer-fallow two or three times over; when you are through with that you do the harvesting; every time you go over an acre with a combine you get 30 bushels or 25 bushels, whereas you have to go over, about two acres stubble crops to get that much. It is an expeditious arrangement more than an economic arrangement in the Prairie provinces.

I think it is true to say that the recommended practices for the control of wind erosion are not being followed on a large percentage of farms. The basis of these recommendations was worked out by agriculture scientists during the thirties, and involve preservation of crop residue on the surface

of the soil to protect it from the wind. The mouldboard plow which inverted the furrow slice is a thing of the past in the Prairie provinces. There are plenty of people farming now who have never used a mouldboard plow, and there are many who have never seen one. This is as it should be. We do not recommend the plowing of these lands; we recommend a minimum amount of tillage, going over a summer-fallow with a cultivator or blade-weeder, which slices underneath the surface of the soil and cuts off the weeds and leaves stubble and trash, as it is popularly called, on the surface, that is recommended.

The success of a farmer used to be measured by how black he kept his summer-fallow. Now we point the finger of scorn at the black summer-fallow; we say this man is predisposing his fields and those of his neighbours to hazards of the black blizzards.

The point we would like to make in this connection is that eternal vigilance is the price of success in the control of soil drifting. Because we have had a number of years of higher than average rainfall and lower than normal wind velocity, we perhaps are inclined to become a little loose in our handling of these soils. But we feel certain, based on past records, that we will hit a dry cycle again, and we will have a repetition of the soil drifting menace we had in the 1930's. Generally speaking the recommended practices which have been worked out are not being followed at the present time.

That is the story of soil drifting. Are there any comments or questions on it?

The CHAIRMAN: I am sure you are quite right in what you say about farmers in western Canada getting a little careless because of the great amount of moisture we have had in the past few years. But 1957 indicated that they are again running into a dry cycle. Those who do summer-fallow and leave the trash on the top have got away this year without any drifting; those who have gone on with the black summer-fallow, lost their crops and much of their land.

Dr. HILL: That is a very good point, Mr. Chairman. In the areas where soil drifting was most serious in the thirties, there was none this year because these farmers had learned their lesson well.

Senator HAWKINS: There is one other statement I wish to commend you on: that we should have eternal vigilance. That is the principle of good production in any field, not only farming. I do not think it is necessary to make any further statement in connection with the small farmer. Nobody deplores his passing more than I do, but I fail to see how we can maintain a little farm and the standard of living that the farmer's family, and indeed the farmer himself, demands. Furthermore, I think he is entitled to a better standard of living; he is foolish to stay on a small farm and try to get along the way he does.

Dr. HILL: May I make a brief comment about weeds? As chairman of the National Weed Committee under the Advisory Services of the Department of Agriculture, I should like to point out that the loss from weeds in Canadian agriculture exceeds the combined losses from all insect pests and all plant diseases. The losses due to weeds in Canada are in excess of $400 million annually. This averages out to more than $1,000 per farm. Incidentally, the figure is the same on the Prairies as it is in the eastern provinces. It is about $1,000 a farm, but of course it is less per acre in the West because the farms are larger. Despite this fact there are fewer than two dozen full-time scientists working on weed research in Canada, with fewer than a dozen employed by the Government of Canada. Yet it would appear that this is a fertile field where much could be done to lower the cost of production and improve the unit production per acre of land. The figures are available as to how much the yields are reduced by weed competition. There are many other things. I am

sure you will be interested to know that we ship the equivalent of 1,100 carloads of wild oat seeds from the Prairies to the Lakehead every year in dockage.

Senator HAWKINS: What becomes of it when it gets there?

Dr. HILL: I guess some is dumped into Lake Superior. Of course, a good percentage of it goes forward in our exports.

Senator HAWKINS: I am talking about the 1,100 carloads.

Dr. HILL: The 1,100 carloads of wild oats is, of course, an astronomical figure. We would like to be able to find something to control wild oats as successfully as 2-4 D and related compounds control mustard. I am sure that Senator Horner would corroborate the statement that 2-4 D has pretty well controlled mustard, and if we could find something for wild oats that would be as successful as these new chemicals have been with respect to mustard, we would save the farmers of Canada more than $100,000,000 a year. Seventy per cent of the acreage of western Canada is affected by wild oats. It is our most serious weed. There are probably three or four men in Canada who are devoting their full time attention in research on this important crop.

Senator MACDONALD (*Queens*): With respect to mustard, which is a great curse of weed if there ever was one, I understand that an application of 2-4 D this season would not kill the weed outright, would it?

Dr. HILL: No. It is an annual plant and the seeds remain in the soil and will be there for several years perhaps. It is a continual proposition but it is very cheap and very effective.

Senator MACDONALD (*Queens*): Have the scientists discovered any method for killing it by cultivation at a certain time of year?

Dr. HILL: Mustard?

Senator MACDONALD (*Queens*): Yes.

Dr. HILL: You can get it out, but you cannot cultivate a field of oats.

Senator BRADETTE: Do they control daisy now?

Dr. HILL: Yes, senator. I am very happy to say that I spent a week in Quebec on this trip, and I found the way to get rid of daisy is simply to fertilize the land. Daisy only grows on poor land.

Senator BRADETTE: Not always.

Dr. HILL: Are you familiar with our station at Ste. Anne de la Pocatiere in Quebec?

Senator BRADETTE: No, I am from the clay belt section of northern Ontario.

Dr. HILL: I don't know whether we have experimented at Kapuskasing on this weed but we know that daisies are not a problem in fertile soils. I would be glad to show you from some kodochrome pictures the results of a well-fertilized farm as compared to one that is not fertilized. There is quite a difference.

Senator BRADETTE: You know that red flower plant that grows all over?

Dr. HILL: The orange hawkweed. It is easy to control if you put on lime. It only grows on highly acid soils.

Senator BRADETTE: It is an awful thing to spread.

Dr. HILL: It is. It is all over the farms in Quebec but it is not on the farms which are well limed and fertilized. It is my recommendation to the National Weed Committee that these two weeds do not need much research in the way of chemical control, for they can be controlled by good farm practices.

Senator BRADETTE: I have tried chemicals and they do not work.

Dr. HILL: That is right.

Senator TAYLOR: Is that what is commonly known as the Devil's Paint Brush?

Dr. HILL: I think that would be it. There is another one called King Devil. There is the Orange Hawkweed and the Devil's Paint Brush, and so on.

The CHAIRMAN: Would 2-4 D kill these weeds?

Dr. HILL: No. It would kill off daisies but hawkweeds are more resistant. All these weeds vary in susceptibility to chemicals. Mustard is the most susceptible of all weeds to 2-4 D. It works wonderfully for mustard and it will control many of these other weeds but, generally speaking, we need more research on weeds.

My comment as to irrigation will be very brief. I have reviewed the presentations which have been made by Mr. McKenzie of the P.F.R.A., and also commented on by George Spence of the International Joint Commission. I only want to say that the Department of Agriculture is interested in irrigation development, and through our soil surveys and various other agencies we are prepared to advise on the development of irrigation.

Irrigation is obviously an integral part of the development of western Canada and should be proceeded with in an orderly manner. We are now able to tell from past experience and the knowledge of our soil surveyors whether or not lands are suitable for irrigation. This information is being used at the present time. If it is always used it will forestall some sad experiences which have occurred in the past. In addition to that we know that crops can be grown successfully under irrigation. The problem is actually an over-production, almost, at the present time. For example, we produce in Alberta 40,000 acres of sugar beets, which supply about 10 per cent of Canada's requirements for sugar. We could double the acreage overnight, and the farmers would be happy to do so, if the sugar could be sold economically in Canada. This means that as lands are further developed for irrigation, one of the most serious problems that will have to be met will be to find suitable crops to grow on these lands. It has been amply proven that successful irrigation agriculture cannot be established by raising wheat. It will not work. One of the most promising uses, as I see it for future irrigation development in western Canada will probably be with respect to the production of grass land, pasture, and hay and livestock production. We do not have the surplus of beef in Canada that we have in wheat and other crops. I would only urge a word of warning that this matter be given very serious consideration. What are we going to grow on these lands when we get them developed? Our experience with irrigation—and I grew up on an irrigated farm—has been that without specialized crops like sugar beets and canning crops, high-value crops, an irrigation system will soon become uneconomic because of weed control difficulties, high cost of water and various other factors. I think this needs very serious consideration as Canada proceeds with irrigation, but I am all for orderly expansion in irrigation.

Senator MCGRAND: Is there a possibility that the sugar beet will replace the sugar cane as a source of sugar?

Dr. HILL: Well, that is a question that perhaps I should not answer. I believe we could produce in Canada all the sugar we require, if it were in the wisdom of international trade and tariff structure, and so on, to do so. I am convinced we could quite readily produce our requirements at home.

Senator TAYLOR (*Westmorland*): Is it not a fact that when growers are subsidized they are hard to compete with?

Dr. HILL: Well, this again is probably outside my terms of reference.

Dr. K. F. Nielsen, Sectional Head, Soil Fertility and Soil Management, Division of Field Husbandry, Soils and Agricultural Engineering, Ottawa, called.

Dr. NIELSEN: As has been mentioned, I have the responsibility of the management, co-ordination and supervision in Canada of soil fertility and soil-plant relationships, and I would say at the outset that as research personnel we consider our purpose and our responsibility to do research on soil-plant relationships which will give the best results. That is our duty, and in this objective we have to largely ignore the economics of overproduction which we frequently encounter. In other words, we want to be able to produce; we want to be able to have the information to give the farmers to produce when it is called for.

Now, the utilization of this information is another point, and while we are trying to get the information on how to best produce we have to be able to apply that information so that it can be best utilized. I want to say that to begin with.

With regard to the use of fertilizers in soil-plant relationships I would say this, that essentially all soils of agricultural importance in Canada could produce larger quantities of crops by the use of fertilizers,—practically all soils. Now, we must know the nutrient requirements of the crops, we must know the fertility or the nutrient supplying power of the soil, in order to make a recommendation to a farmer with regard to the growth of a particular crop. Take the Prince Edward Island soils, for instance. A lot of fertilizer is used in the production of potatoes. This stems from two reasons, the first is that the potato requires a lot of fertilizer. A 600-bushel crop requires large quantities of nitrogen superphosphates, and potash. Secondly, those soils are very poor soils in fertility and low in the necessary plant nutrients, on account of the granite parent materials and what little has been formed from these rocks has leached out by high rainfall. So in knowing the plants' requirements and in knowing the supplying power of the soil we are able to give some kind of recommendation to farmers with regard to the quantity of fertilizer they should use.

Now, we have been able to find similarities between soils in different areas. Sandy soils often respond similarly to fertilizer application, whether it is in New Brunswick or in Prince Edward Island, and they require larger quantities of fertilizer than clay soils. This could be misinterpreted. Clay soils have a larger capacity to retain the nutrients in the soil in a way that the plants cannot use them; clay soil has more fertilizer elements in it than sandy soil, that is what I meant.

Now, we have the responsibility of assessing the fertility requirements of crops on soils all the way across Canada. This has been a rather difficult task because there are so many different soils in Canada. Even in your own municipality and on your own farm, you will find different kinds of soil which require different management practices, and we will never reach a point where we can say we have indexed our soils. Nor can we say that we know how they must be handled, or know what their fertilizer requirements are going to be this year or a year from now, because not only are we still trying to find out about new ones that we have never studied, but those that we have studied are changing due to management practices, so that we are then faced with the problem of following the effect of management practices on the soil. We have recently organized a national soil fertility committee. On this committee we have representatives from the provincial Governments,

the universities, and the federal Government. This is a type of co-ordinated effort which we have not had in the past, and we feel that our objective of characterizing the nutrient requirements of plants on different soils will be materially aided through the co-ordinated efforts that we are now exercising, and this goes back to what Dr. Ripley says, that we can do much in this land use proposition through existing agencies which we now have. It is just a matter of making them more efficient in their use and organizing the personnel and physical staff which we have to get the information we want.

Now, Dr. Ripley showed you figures in his publication to indicate that per acre of arable land per year Canada is using about 4½ tons of fertilizer. This is a very low figure because the soil to give us our best production, our most economical production, requires larger quantities of fertilizer. You may apply 4.4 pounds of fertilizer per acre and lose money in your crop production but if you were to apply 40 pounds per acre you would make money. This is one of the problems we have. Many farmers have applied small quantities of fertilizer and found that it was not a profitable investment for them and stopped using it, whereas if they applied more of it they would soon have discovered that it was a good investment. If we were to use as much as they use in the United States per acre we would be using 20 pounds per acre and it would be over 1 million tons in Canada instead of maybe 220,000 tons. So we feel that through the use of fertilizers we have a great potential in crop production and we can, as Dr. Ripley suggested, double in many instances our yields through the use of adequate quantities of fertilizer.

The CHAIRMAN: Does moisture have anything to do with the effectiveness of fertilizer?

Dr. NIELSEN: Yes it does.

The CHAIRMAN: If you happen to be in dry areas and use fertilizer will it be effective?

Dr. NIELSEN: Now I can tell you you are not going to get the response that you should get. For instance in south western Saskatchewan the use of fertilizer is questionable because there is not sufficient moisture to give you the advantage of the supplemental nutrients. But even there we have gotten some responses. It is a problem that has to be worked out and in doing so you have to take into consideration your moisture supplies, the type of soil, the type of crop and your economic situation.

Senator HAWKINS: I am interested when you say that if you use twice as much it might give you far better results. That is amazing isn't it?

Dr. NIELSEN: Yes. And I think that a lot of farmers do not realize that.

Senator BRADETTE: Mr. Chairman, may I ask Dr. Nielsen this question: Are you satisfied with the content of fertilizers? I have sent fertilizers to the National Research Council for analysis and I found out that they were not fertilizers and I was astounded because it was bought from a reputable dealer. I was really astounded at the lack of quality in that fertilizer. Do you wish to make any comments on that? Are there any necessary precautions to be taken?

Dr. RIPLEY: Mr. Chairman, may I comment on that? We have of course the Fertilizer Act which is administered by the Department of Agriculture and our Production Service. At any time a purchaser can have the fertilizer analysed by our production service and if it falls below grade the dealer or seller of that fertilizer is subject to legal action. I believe the act is pretty well administered. I am sure that mistakes can happen and probably some companies, and I think as a general rule the big ones, the well established companies do a pretty good job of putting out a reliable and dependable

product, but mistakes can be made and a few companies probably might deliberately put in smaller amounts of nutrients than is called for, but generally speaking it is a pretty good set-up.

Senator McGRAND: What is the source of fertilizer material?

Dr. NIELSEN: Our potassium fertilizers come from Europe and also from the Carlsbad area in the United States. We have large supplies of potash in western Canada, enough to supply our markets here but with regard to our Canadian supplies we have much more than we can possibly use but the cost of transportation makes it impossible to use that in all parts of Canada and so they import a lot from Europe and the United States. The phosphate fertilizers are imported. We get some from Africa, and some from Florida, and for our western markets some from Utah. Our nitrogen fertilizers are of a little bit different nature. We have many of those. Our anhydrous fertilizer is a synthesized fertilizer. We get some natural fertilizers, like sodium nitrate say from South America but ammonium nitrate we get from the States. The source of these materials are all good sources. It is hard to get one which will run under a minimum content of say potassium, unless something else is mixed with it. Muriated potash runs about 60 per cent K20.

Senator BRADETTE: There is very little raw material for making fertilizers in Canada?

Dr. NIELSEN: At the present time, Consolidated Mining and Smelting out west has supplied prairie farmers for a long time.

Senator BRADETTE: But that does not apply to lime.

Senator TAYLOR (*Westmorland*): Why is it difficult to get sodium nitrate?

Dr. NIELSEN: Sodium nitrate is not one of our best fertilizers.

Dr. RIPLEY: Chili was the only source of fertilizer at one time, it was the one source and a rather expensive source though, and the synthetics that are manufactured now are competing with them in price so there is very little Chilean nitrate used now. We do manufacture ammonium nitrate in Canada at Thorold.

Senator BRADETTE: We produce in Canada all the lime that we use on the land?

Dr. NIELSEN: Pretty much. You may run into a situation where across the border there is a better supply for a certain district. We could supply the market in Canada for fertilizers rather well.

Senator HAWKINS: Taking into consideration the high cost of our production here, we are not handicapped in world competition? Our fertilizers do not cost us more, comparatively, than those used in Europe.

Dr. NIELSEN: I would say that would be true.

Mr. Chairman, I have about three more sentences to offer on the subject of erosion, leaving fertilizers aside for the moment.

Dr. Hill spoke of soil drifting, which is erosion. I would like to offer a few words about water erosion, or erosion generally, which is the very subtle waste of our land. I don't know whether you have paid particular attention to the problem of erosion, but I do know that it has been more pronounced in the east than in the west. Those of you who were raised on farms will remember that you discovered a little gulley in the field, and with a little tillage operation you covered it up; the next year the rainfall makes another gulley, and you cover that up. Over a period of years you are losing a lot of soil. The same is true of wind erosion: you notice your fence posts getting shorter and shorter; the soil is piling up around them!

Interestingly enough, this year has been very dry, generally speaking, on the Prairies, but about three weeks ago I had an opportunity of visiting an area in Saskatchewan where normally one would think there would be very little water erosion. There I found very bad water erosion. This occurs locally in many instances throughout any area that has more than about a 2 or 3-per cent slope, depending on the quantity of water falling in any given period of time. Our responsibility is and has been to try and help the farmer maintain this eternal vigilance, as Dr. Hill mentioned, against erosion whether it be by wind or water. Our control measures are almost identical; we all want to stabilize the surface of the soil. This means we have to reduce the water run off and encourage percolation. We do this by maintaining a trash coverage of the surface and thus keeping the wind and water from moving it.

In this respect tillage becomes most important. As Dr. Hill mentioned with respect to wind erosion, tillage is for the purpose of preparing the soil for crop. In this respect we want to keep in mind the control of weeds, but we want to cut down or eliminate the wind and water erosion. Therefore, farmers have stopped using the mould board plow because it did not provide the tillage satisfactory to meet the requirements of both wind and water. As far as preparing the soil for seed-bed, it is very good. We are trying presently to characterize our tillage practices with regard to the effects of wind and water erosion. In this respect we feel much can be done on the local farm level, especially in water erosion, and must be done to avoid losing valuable top soil.

Senator TAYLOR (*Westmorland*): What about contour farming?

Dr. NIELSEN: Yes, contour farming, stubble mulching, grass waterways and so on. However, it is very difficult in some areas to institute contour farming; to take an extreme case, the long narrow farms in Quebec are almost impossible of contour farming.

Senator HAWKIN: Mr. Chairman, we are most indebted to these gentlemen for having come and given us this valuable information.

The CHAIRMAN: Dr. Ripley would like to mention the publications which have been placed on the table.

Dr. RIPLEY: We have publications that have a bearing on the matters we have presented, and there are sufficient copies for all members of the committee.

May I say further that if at any time we can be of further assistance in connection with the work of your committee, either individually or collectively, we are as close as your telephone and will be glad to do anything we can.

Senator TAYLOR (*Westmorland*): May I second the motion of our appreciation to these gentlemen? I believe the information we have received is most valuable.

The CHAIRMAN: Thank you, gentlemen. I have no doubt that we will be seeking your services at some future date when the committee reconvenes next session.

Whereupon the hearing concluded.

1958

THE SENATE OF CANADA

PROCEEDINGS

OF THE

SPECIAL COMMITTEE OF THE SENATE

ON

LAND USE IN CANADA

RECEIVED
AUG 27 1958
Library of Parliament

No. 4

WEDNESDAY, AUGUST 20, 1958

The Honourable Arthur M. Pearson, Chairman

REPORT OF THE COMMITTEE

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1958

62219-1—1

SPECIAL COMMITTEE OF THE SENATE ON LAND USE IN CANADA

The Honourable Arthur M. Pearson, *Chairman*

The Honourable Senators

Barbour	Horner	Power
Basha	Inman	Smith (*Kamloops*)
Bois	Leger	Stambaugh
Boucher	Leonard	Taylor (*Norfolk*)
Bradette	Macdonald	Taylor (*Westmorland*)
Cameron	McDonald	Turgeon
Crerar	McGrand	Vaillancourt
Emerson	Methot	Wall
Gladstone	Molson	White—30.
Golding	Pearson	

(Quorum 7)

ORDER OF REFERENCE

Extract from the Minutes of the Proceedings of the Senate.

THURSDAY, June 12, 1958.

The Honourable Senator Aseltine moved, seconded by the Honourable Senator Macdonald, P.C.—

That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people and, in particular, to increase both agricultural production and the incomes of those engaged in it;

That the Committee be composed of the Honourable Senators Barbour, Basha, Bois, Boucher, Bradette, Cameron, Crerar, Emerson, Gladstone, Golding, Hawkins, Horner, Inman, Leger, Leonard, Macdonald, McDonald, McGrand, Methot, Molson, Pearson, Power, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon, Vaillancourt, Wall and White.

That the Committee have power to engage the services of such counsel and technical and clerical personnel as may be necessary for the purpose of the inquiry;

That the Committee have power to send for persons, papers and records, to sit during sittings and adjournments of the Senate, and to report from time to time;

That the evidence taken on the subject during the two preceding sessions be referred to the Committee.

After debate, and—

The question being put on the motion, it was—

Resolved in the affirmative.

J. F. MacNEILL,
Clerk of the Senate.

62219-1—1½

MINUTES OF PROCEEDINGS

WEDNESDAY, August 20, 1958.

Pursuant to adjournment and notice the Special Committee of the Senate on Land Use in Canada met this day at 10.30 A.M.

Present: The Honourable Senators:—Pearson, *Chairman*; Bois, Gladstone, Inman, McDonald, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*) and Turgeon. 10.

The Committee paid tribute to the memory of the late Senator Charles G. Hawkins, particularly to the contributions Senator Hawkins had made to the Committee's deliberations on the proper use of land in Canada.

The Committee considered the Report of the Steering Committee and after discussion the said Report was adopted.

At 11.30 A.M. the Committee adjourned.

ATTEST.

James D. MacDonald
Clerk of the Committee.

WEDNESDAY, August 20, 1958.

The Special Committee of the Senate on Land Use in Canada make their third report as follows:

On Thursday, June 12, 1958, the following Resolution was adopted by the Senate:

> That a Special Committee of the Senate be appointed to consider and report on land use in Canada and what should be done to ensure that our land resources are most effectively utilized for the benefit of the Canadian economy and the Canadian people and, in particular, to increase both agricultural production and the incomes of those engaged in it;
>
> That the Committee be composed of the Honourable Senators Barbour, Basha, Bois, Boucher, Bradette, Cameron, Crerar, Emerson, Gladstone, Golding, Hawkins, Horner, Inman, Leger, Leonard, Macdonald, McDonald, McGrand, Methot, Molson, Pearson, Power, Smith (*Kamloops*), Stambaugh, Taylor (*Norfolk*), Taylor (*Westmorland*), Turgeon, Vaillancourt, Wall and White.
>
> That the Committee have power to engage the services of such counsel and technical and clerical personnel as may be necessary for the purpose of the inquiry;
>
> That the Committee have power to send for persons, papers and records, to sit during sittings and adjournments of the Senate, and to report from time to time;
>
> That the evidence taken on the subject during the two preceding sessions be referred to the Committee.

The procedure adopted by the Committee was to call witnesses to give verbal and written reports in their particular field of land use. Since the hearings began in February 1957, 38 witnesses have provided a great deal of information on the scope and problems of land use and in some cases suggestions for a more effective use of land. Those giving evidence were senior officials of

federal and provincial governments, farm leaders, technical workers in agriculture, forestry authorities, aerial survey specialists and engineers in land use planning, water use and conservation. A list of these appears in the appendix.

More than three hundred and fifty pages of evidence were recorded and published and in addition much reference material was provided to the Committee by the witnesses.

The Submissions

It is difficult to summarize adequately the material presented at the hearings; however, the essence of the submissions may be stated as follows:

Our Land.—Within the settled areas and those to which it is believed settlement can be extended, the soil has been developed under either a grass or forest cover. The latter is by far the most extensive and covers the whole southern part of Canada except the more arid region of the southern parts of the Prairie Provinces, the soil here being developed under a grass cover. The forests consisted of both the deciduous and coniferous species of varying densities, depending upon soil and climate. Likewise, for the same natural reasons, the grass cover varied in species and density.

Determinants of Land Use.—Apart from urban sites for various purposes, in general, agriculture provides a more profitable use of land, than do other uses. But there are many factors which determine the profitability of land in agricultural use. Climate, which determines the kinds of crops that can be grown, location in respect to markets, soil and other physical characteristics are a few of these factors. If, on account of any of these factors, the productivity of an area is so low as to preclude the possibility of establishing a healthy agricultural economy, then for land where the soils were developed under a tree cover, it would seem advisable to leave in forest, or if the trees have been cleared, an effort be made to re-establish the forest and develop an economy based upon the products of the forest. The same is true of the grass lands. Unless these can be more profitably used in cultivated crops, such lands should remain, or be re-established, in permanent grass.

Relation of Land Use to Changing Economic Environment.—Utilization of land like other human activities is a continual process of adjustments. The economic environment changes and land which at one time could be farmed at a profit is no longer capable of such use. The reason is not likely to be wholly in the relatively inferior soil compared to other areas, but combined with the location of industries elsewhere, shifting of people, changes in demand and the introduction of new farming techniques which the partially deserted area is not able to readily adopt in order to compete, may account for the emergence of marginal and submarginal farms.

The nature of these adjustments and their incidence vary. To some they create hardships; to others they mean gain. It is believed, however, that national and provincial policies can and should be established which will coordinate and develop the application of measures to lessen the hardships in the adjustments and diminish the losses both human and material.

Problem Areas in Land Use.—Already the Committee's attention has been directed to a number of problem areas in land use by representatives of provincial and national organizations who have given evidence. A few of these, common to all provinces, are listed here:

(1) Areas, where on account of an unproductive soil, lack of markets, or absence of non-farm employment, it is impossible to maintain an acceptable living, without continual assistance from outside sources. These conditions create what might be described as rural

slums. The remedy may be to assist the occupants to locate elsewhere and the land used in forestry and/or grazing.

(2) Areas where small inefficient farms prevail for which there is a reasonable chance of aiding their occupants to increase their efficiency through facilities not presently available to them, and thus help them to raise their level of living.

(3) Areas of soil erosin and depletion of fertility vary according to the contour and character of the land, and cultural practices. Even in more succesful farming areas problems in soil erosion and the depletion of fertility are found. While the direct responsibility for solving these problems is that of the farmer, his circumstances may be such that he cannot adopt effective practices and it may be desirable to provide assistance for him to do so.

(4) Problems in water resources and control are also problems in land use. Drainage may be required to increase productivity, dyking to reduce hazards from flooding; or, on the other hand, structures to impound water to raise water tables, or for storing water to irrigate.

(5) From the time man commences to use these resources for his own betterment and that of mankind, he disturbs the balance of nature and then arise problems of soil erosion, fertility maintenance, flooding and decreased water supplies, and a whole host of others related to land and water use. In too many cases there is a delay in the application of corrective measures until the land becomes noticeably less productive. Such occur even in the better farming areas. It is in the interests of all to assist the users of our land into husbandary practices which maintain its productive capacity.

Co-ordination and Expansion of Further Study and Action.—The evidence indicates considerable work has been done and is underway by various government departments and also by private enterprise in the field of land use and water conservation, both in investigational phases, (soil, land use and economic surveys) and to a lesser extent in action programs. It has also been represented to the Committee that the efforts have fallen far short of what is required and moreover there has been some duplication. A plea has been made for a centralized co-ordinating agency to give encouragement and direction in the research into land and water use problems and in action programs designed for their solution.

The Committee's Job

It is essential that the Committee continues to study a number of phases on the subject of land and water use and related aspects in production, marketing, financing, etc., for the better informed it can become, the sounder the judgment it can render and wiser the decisions it can make. However, the Committee believes the task at hand is to determine:

(1) What problems in land and water use can be most effectively handled in an overall national policy, and,

(2) What form of organization should be established to give leadership to such a national program.

It would seem that the Committee's activity should be directed along the following lines: Study achievements of significance in a number of existing systematic programs designed to bring about better land and water use.

Examples are:

(1) Development of soil improvement associations by farmers themselves.

(2) Agency programs in restoring tree cover to non-arable lands.

(3) Agency programs in re-grassing of lands.
(4) Work of River Valley Authorities of Ontario.
(5) Work of Maritimes Marshland Reclamation.
(6) Certain phases of the work of P.F.R.A. in Western Canada.
(7) Land use and conservation Committees of the Western Provinces.

Mechanics of Enquiry.—It would appear advisable that at least one achievement in a land and water use project from each province be studied. It may be advisable to study achievements in better land and water use in the United States and other countries, and possibly also the experience where like projects were not so successful. It is suggested that the procedure of such studies be as follows:

That sub-committees be named:

(i) to study an achievement in each province;
(ii) to visit sites of projects, and interview provincial, municipal and local interests responsible for same.
(iii) to prepare reports and with or without personnel responsible for achievements, report to the Committee as a whole.

Machinery for National Leadership in Better Land Use.—If as a result of the Committee's studies, the Committee is encouraged to suggest that machinery be established on a national scale for co-ordinating and assisting in programs designed to bring about better land and water use, the Committee should give attention to another phase of the study in land use, and that is the nature and form of the national machinery required. It has been suggested by one of the national organizations appearing before the Committee that an act required for such a national undertaking should be framed to be as broad and flexible as possible to ensure the greatest possible co-operation with the provinces in necessary programs.

Flexibility is important so that Federal participation in provincial programs may vary according to the manner in which provinces wish to carry on their program and the emphasis they wish to give to the various aspects of the land use program.

Recommendations for Action outside of the Committee

While, at this time, the Committee feels it has neither covered the scope of the inquiry on land use requested of it, nor adequately assessed the submissions heard, nevertheless it is prepared to recommend:

(1) That the soil survey being co-operatively carried out by the Federal Department of Agriculture, the Provincial Departments of Agriculture and the Colleges of Agriculture be speeded up and expanded not only in order to complete the soil mapping of the whole settled area of Canada, but also of the unsettled areas.

(2) That it be called to the attention of the proper authorities the need of a systematic land use survey based upon appropriate factors to provide for an economic classification of the land according to its use suitability.

(3) That the work of various agencies in the study and management of our water resources be expanded,—specifically that relating to drainage and erosion problems, condition of water-tables and of present and likely future requirements.

(4) That more emphasis be given studies which designate requirements respecting farm size, organization and practices according to the physical characteristics of the land and economic conditions which prevail.

All which is respectfully submitted.

ARTHUR M. PEARSON,
Chairman.

APPENDIX

List of Witnesses Appearing Before Special Committee on Land Use in Canada 1957, First Session

Report No. 1

Dr. A. Leahey, Field Husbandry Division, Experimental Farms Service, Department of Agriculture, Ottawa.
Dean A. M. Shaw, Chairman, Agriculture Prices Support Board, Department of Agriculture, Ottawa.

Report No. 2

Mr. A. Platt, President, Alberta Farmers Union.
Mr. J. A. Cameron, President, Western Canada Reclamation Association.
Mr. S. J. Chagnon, Assistant Deputy Minister, Department of Agriculture, Ottawa.

Report No. 3

Mr. J. B. Lemoine, President, Union Catholique des Cultivateurs, Montreal, Quebec.
Mr. A. M. Taylor, Deputy Minister, Department of Agriculture, Fredericton, New Brunswick.
Dr. W. F. Walsh, Deputy Minister, Department of Agriculture, Halifax, N.S.

Report No. 4

Professor H. J. Spence-Sales, McGill University.
Mr. George Spence, Commissioner, International Joint Commission.
Mr. G. L. MacKenzie, Chief Engineer, P.F.R.A.

Report No. 5

Mr. J. A. Vance, Chairman of the Board, Canadian Forestry Association.
Mr. G. Harold Fisk, President, Canadian Forestry Association.
Mr. J. L. Van Camp, General Manager, Canadian Forestry Association.
Mr. W. A. E. Pepler, Manager, Woodlands Section, Canadian Pulp and Paper Association.
Mr. L. Paquet, Chairman, Executive Committee Canadian Forestry Association.
Mr. E. Porter, Manager, Quebec Forest Industries Association.
Dean J. W. B. Sisam, President, Canadian Institute of Forestry.
Mr. Angus Hills, Chairman, Committee on Soil and Land Use, Canadian Institute of Forestry.

Report No. 6

Mr. H. H. Hannam, President, Canadian Federation of Agriculture.
Dr. E. C. Hope, Economist, Canadian Federation of Agriculture.
Mr. David Kirk, Secretary-Treasurer, Canadian Federation of Agriculture.
Mr. J. A. Garner, Chief, Agricultural Officer, Ontario Department of Agriculture.
Professor N. R. Richards, Department of Soils, Ontario Agricultural College.
Dr. H. L. Patterson, Director Farm Economics Branch, Ontario Department of Agriculture.

Report No. 7

Mr. J. S. McGowan, Director of Colonization and Agriculture, Canadian National Railways.
Mr. J. E. McCannel, Executive Secretary, Agricultural Institute of Canada.

1957, Second Session

Report No. 1

Mr. William Houde, William Houde Limited, Laprairie, Quebec.

Report No. 2

Professor Donald Baillie, University of Toronto.

Report No. 3

Dr. N. L. Nicholson, Director, Geographical Branch, Department of Mines and Technical Surveys, Ottawa.

1958 Session

Report No. 1

Mr. Vernon E. Johnson, President, Canadian International Paper Company.
Mr. F. A. Harrison, Vice-President and Manager, Woodland Division, Canadian International Paper Company.
Mr. D. A. Wilson, Forest Economist, Canadian International Paper Company.

Report No. 2

Mr. Russell L. Hall, Vice-President, Spartan Air Services Limited.
Mr. W. G. E. Brown, Resources Engineering Department, Spartan Air Services Limited.

Report No. 3

Dr. P. O. Ripley, Chief, Field Husbandry Division, Experimental Farms Service, Department of Agriculture, Ottawa.
Dr. K. W. Hill, Head, Field Husbandry Section, Field Husbandry Division, Experimental Farms Service, Department of Agriculture, Ottawa.
Dr. K. F. Nielson, Head, Soil Fertility and Soil Management Section, Field Husbandry Division, Experimental Farms Service, Department of Agriculture, Ottawa.