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A P P E N D I X

TO THE

TWENTY-FIRST VOLUME

OF THE

JOURNALS OF THE SENATE

OF

CANADA.

—
SESSION 1887.
—

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APPENDIX No. 1.

REPORT

AND

MINUTES of Evidence of the Select Committee of the Senate on the existing Natural Food Products of the North-West Territories, and the best means of conserving and increasing them.

The Select Committee appointed by your Honorable House for the purpose of collecting information regarding the existing natural food products of the North-West Territories and the best means of conserving and increasing them, with leave to send for persons, papers and records, have the honor to make their Second Report as follows :—

Your Committee determined at the outset that the best means of systematically collecting information upon the subject of their investigation would be to frame a list of questions indicating the nature of the inquiries to be made by the Committee. This was accordingly done, and copies of this list, which is hereto appended, were sent to such Senators, Members of Parliament, Clergymen, Government Officials, Officers of the Hudson Bay Company, leading business men and others, as from residence, travel in, or other acquaintance with the North-West, would be best qualified to furnish information. In each case a written reply was requested to the questions or to those of them with the subjects of which the recipient might be most familiar. In this manner much very valuable information was collected. The replies received up to the date of this Report are appended hereto, and doubtless a number of them will yet be forthcoming.

Your Committee examined orally a number of gentlemen personally familiar with the subjects of inquiry and exceptionally qualified to furnish information and express opinions thereon. Their evidence, which, in accordance with the authority obtained from your Honorable House, was taken down by a shorthand writer, is herewith submitted.

Your Committee regret that in the case of His Grace Monseigneur Taché, Archbishop of St. Boniface, illness, and in the case of the Honorable Sir Donald A. Smith, M.P., pressure of business and the necessity of leaving for Europe, prevented your Committee from having the benefit of their long experience and intimate acquaintance with the products and needs of the North-West; this, your Committee regret the more, as His Grace Archbishop Taché and Sir Donald A. Smith expressed a deep interest in the proceedings of the Committee, and their willingness, had it been possible, to have assisted the Committee by every means in their power.

Your Committee also desire to acknowledge the courtesy of those officers of the Government resident in the city, who have given oral testimony, made suggestions or placed at the disposal of your Committee valuable reports, maps, papers, and specimens, and would mention especially the Deputy Superintendent General of Indian Affairs, the Deputy Minister of Fisheries, the Deputy Minister of Agriculture, Robert Bell, Esq., M.D., F.R.G.S., Assistant Director of the Geological Survey, Professor Saunders, of the Central Experimental Farm, and Mr. J. B. Hurlbert, LL.D. They also desire to acknowledge the value of the information thus obtained from the Manitoba and North-West Members of the House of Commons, and from gentlemen residing in Manitoba and the North-West, who were temporarily in Ottawa.

Your Committee also desire to acknowledge generally the interest that was taken in the subject, and the promptness and value of the replies sent in response to their request.

From the evidence thus obtained, your Committee are of opinion that at the time of the transfer of the North-West to Canada, the natural food products of the region now known as the Territorial Districts of Assiniboia, Alberta, Saskatchewan and Athabasca, were very equally distributed, the buffalo of the first two districts furnishing food, lodging and raiment for the indigenous population, equal to and

more easily obtainable than the fish, wild rice, elk, moose, deer, rabbits and birds, which constituted the food of the Indians of the latter two districts. At present the extinction of the buffalo has so altered this equality of production, that there now remains, for the Indians of the buffalo country, only the fish, of waters which are rapidly becoming depleted on account of the increased strain upon them for food supplies, the wild animals which have greatly decreased, and the indigenous vegetable products which, while serving as an adjunct to buffalo meat, are by no means so widely distributed, nor so fit for food as to fill its place.

While this is the case in the two districts mentioned, the indigenous food supply of the other two remains nearly the same, and if it were not for the annual exportation of fish to the United States (amounting to 1,509,149 lbs. in the year 1886) the native population could supply themselves in ordinary years with food with very little other aid than the twine and ammunition which is necessary to procure it.

As regards the conserving of existing natural food products, your Committee, having regard to the great importance of the subject, must refer your Honorable House mainly to the evidence presented herewith for suggestions regarding the remaining indigenous animals, birds and vegetables, and confine their remarks to the fishes of the districts in question, and from this evidence it will be seen that the larger fresh water lakes are shallow, Lake Winnipeg averaging ten fathoms deep, and Lakes Manitoba and Winnipegosis, half that depth, while the rivers of the prairie region, though vast watercourses in the spring, become, as the summer advances, sluggish and shallow. These causes render the taking of all kinds of fish easier than in deeper waters, and this, together with the export of, and greater local consumption of fish, has seriously depleted the supply in nearly all the larger lakes and streams, necessitating, in the opinion of your Committee, the rigid enforcement of the fishery regulations during the spawning season, in all but such exceptional cases as affect the daily supplies of fishing Indians, and in respect to for all kinds of fish, except the pike, or jack fish, the muskallonge, and other predatory fish of that class.

As regards the larger and still more important question of increasing the existing natural food products of the North-West, your Committee must also refer your Honorable House to the evidence itself; but they are of the opinion that the seeding of all western and north-western waters, which have a depth not greater than four feet and a muddy bottom, with wild rice, the seed of which may easily be procured at one dollar and fifty cents per bushel, will be of the greatest advantage to the White and Indian population of the North-West, as affording a cheap and healthful food product, which has the additional advantage of needing little care to obtain its enormous yield, of occupying no otherwise useful fields, and of attracting, in large numbers, migratory and local water-fowl. This valuable grain, it may be remarked, is rich in gluten, and furnishes, alone, all the elements necessary to vigorous life and health. As regards the increase of fish foods, your Committee recommend the distribution in all the fresh waters of the North-West, the spawn of the sturgeon, white-fish, gold-eye, cat-fish, perch and eels, and in brackish lakes, of the jack-fish, or pike, and muskallonge, and the indigenous and other varieties of carp. As the existing fish breeding establishments do not produce more than one or two of these varieties, a local hatchery is urgently needed, for the breeding of the other varieties mentioned, at some point which is central for distribution, and on or near some large lake or stream.

Your Committee are also of opinion that until the action thus recommended has produced the full measure of effect, the prohibition of the export of all fish, except salmon and other trout, pike and muskallonge, will be in the interest of Indian and White alike, and that even when the maximum of reproduction is attained, the weight of the evidence herewith submitted indicates a greater measure of advantage to be obtained by the drying, salting, smoking, freezing or pemmicanizing of this food product for the use of the Indians and Whites near fishing waters, and for the rationing of western Indians, till the vigorous efforts which are being made to make them self-dependent, by instruction in the arts and agriculture of civilized men shall have borne full fruit. In this connection your Committee also desire to state their

opinion that future benefits of great importance would inure to the country, if certain fishing grounds were reserved exclusively for the Indians, more particularly as, just now, such reservation could be made without any material interference with the vested rights of any considerable number of White men.

Interesting evidence has been received by your Committee in regard to the reproduction of the American Bison as a food supply, but they are of the opinion that in the changed condition of the country the presence of these animals would disturb the present agricultural training of the Indian, and interfere with the farming and herding efforts of the White; but attention is respectfully directed to that portion of the evidence accompanying this report, which refers to the crosses that have been effected between the male of the Buffalo and a Durham cow, and *vice versa*, (the witness, S. L. Bedson, Esq., preferring the former cross), the hybrid animal thus produced being said to be larger, hardier, stronger, heavier and more easily wintered than the domestic animal, with the additional advantage of yielding a skin as heavily but more evenly furred, than the buffalo robe, and worth, in the opinion of the witness, as much as the full price of a domestic animal. As this herd of sixty-eight animals of the true American Bison breed seems to be the last in British North America, your Committee think that much good might possibly be effected were the Experimental Farms in Manitoba and the North-West to continue these interesting experiments with these and with other long-haired varieties of domestic animals, and also to endeavor to obtain Hybrids between the Moose and Musk Ox and domestic stock. While speaking of these Experimental Farms, your Committee recommend the cultivation of the native plum, cherry, and the many varieties of indigenous berries, and hybridizing of these with foreign varieties, as being more likely to yield successful results than the introduction of new plants. The attention of your Committee has been often directed by the witnesses to the value of some of the indigenous vegetables, such as the turnip, carrot, onion, kamass and others, on account of these ripening much earlier than the cultivated varieties, and in the opinion of your Committee, this fact, taken in connection with the wide distribution of these vegetables, may render them a desirable addition to the gardens of both Indian and White.

Your Committee have had much evidence in connection with increasing the existing natural animal foods and their preservation for future use. The most generally distributed of these seem to be one or other of the four species of Hare found in the North-West. The Rocky Mountain Hare or Jack Rabbit, an animal often yielding twelve pounds of flesh, is principally found in Alberta and Assiniboia, the Arctic or White Hare is confined to northern Athabasca, while the Grey Rabbit and its intrusive southern neighbor, the Spotted Rabbit, are found at almost all places which produce their food. These latter are found for some years in almost countless numbers, after which an epidemic, which is variously described, renders them as scarce as before they had been plenty. This fact points to the necessity for economizing them in times of abundance, and to substituting for them, in years of scarcity, the same species from healthy districts.

Various methods of preserving the existing food supplies are in use by the Indians of the wooded districts of the North-West, and the evidence obtained goes to show, that the flesh of fish, animals and birds may all be preserved for many months by drying, smoking, salting or freezing, and for many years, if the process formerly so generally used in the preservation of buffalo meat with domestic tallow is followed, and that in any of these forms it constitutes healthy, easily transported, and economical food for both Whites and Indians. Your Committee are of opinion that in years of plenty Indians should be encouraged to so preserve it for their own future use, and to sell and to ration those of less favored localities.

Although not specifically instructed on the subject, your Committee have procured much evidence as to the planting of trees for wind-breaks and for fuel, sugar and shade purposes, and, upon collating this testimony, your Committee find that of easily procured indigenous trees, the poplars, some varieties of which, in favored regions, attain a diameter of eight feet, the ash-leaved maple and the aspen, provide an excellent summer wind-break, which may be rendered equally effective in winter by the addition

of the Banksian pine, an evergreen of rapid growth and needing but little moisture. For the making of sugar and for shade purposes, the ash-leaved maple is unrivalled, being easily planted, extremely hardy and rich in saccharine sap. While investigating this and cognate subjects, your Committee formed the opinion that the extensive planting of trees in Alberta and Assiniboia, and also in part of Saskatchewan, will have important climatic effects, favorable to the increased production of cereals, roots, fruits and grasses in those favored regions.

Your Committee cannot conclude their report without expressing to your Honorable House their sense of the great value of these North-West Territories to the Dominion of Canada, and from the evidence taken, which incidentally extends beyond the scope of your instructions, they are forced to the conclusion that nowhere has Nature showered blessings with a more bountiful hand than in the Canadian North-West. About 600,000 square miles of arable and pastoral land seem prepared by the hand of God for the homes of civilized men. No rock or stump prevents the immediate cultivation of the soil, while beneath the surface are vast stores of fuel from former forests, side by side with extensive deposits of iron ore. A region, which, situated as it is on the highest table land of this continent, enjoys equality of mean temperature, freedom from many forms of epidemic and malarial disease, and immunity from the cyclones which have become from their frequency the terror of the inhabitants of less elevated regions south of our border; navigable rivers traverse its length, and a great and growing system of railways carries its produce to the shores of the Atlantic and Pacific. It is a land of interest and profit to the tourist, the angler and the hunter. Great waterways drain it to the Pacific, to the Atlantic, to Hudson's Bay and the Arctic Sea; in its bosom is found coal, gold, silver, iron, copper, salt, sulphur, petroleum and asphaltum, and most of the granites, marbles, clays, lime and sand-stones which are of constructive use, while on and near its surface amber and some of the precious stones have been found. The well-known climatic law "that the nearer we approach the limit of possible cultivation of all cereal plants the greater will be the yield and the finer the quality," also ordains that the frost of winter, accompanied as it is by an absence of moisture and by light snowfall, shall make it pleasant and healthful for man, while aiding him in his work by its deep penetration, pulverizing the soil as it thaws, and giving gradually back to the upper crust the imprisoned moisture.

Although your Committee have referred chiefly to the Districts of Assiniboia, Alberta and Southern Saskatchewan, it must be remembered that in the region beyond these districts, Canada possesses the last remaining fur preserve of the world, all the furs of commerce being there found, and it yields three-quarters of those sold in the great marts of London and Leipsic, which have an average annual value of several millions of dollars. Its vast mineral wealth is nearly unknown, or where known has not been developed. It produces in large quantities a substitute for, if not indeed, a kind of tea, so excellent in quality that only the prejudice in favor of the Asiatic product has prevented its introduction into English and Continental use. It has extensive districts in which valuable kinds of wool and goat skins may be produced, and where some of the more valuable fur-bearing animals may be domesticated, protected, and increased, while its immense forests have scarcely been taken cognizance of at all in estimating its future wealth.

In conclusion, your Committee are of opinion that these North-West Territories will produce all of the necessaries and very many of the luxuries of civilized life, and that with a policy which will regard the peculiarities and prejudices of its Indian population, and which, while endeavoring to make of them law-abiding and industrious citizens, will keep them from contact with the incoming race whose vices they imitate more readily than their virtues, this great region, a kingdom in extent, in resources, and in undeveloped wealth, is fitted for the prosperous and happy homes of many millions of men of all races who will acknowledge with us the sway of the British Crown.

JOHN SCHULTZ,
Chairman.

THE SENATE OF CANADA.

First Session, Sixth Parliament, 50 Victoria, 1887.

SELECT COMMITTEE APPOINTED FOR THE PURPOSE OF COLLECTING INFORMATION REGARDING THE EXISTING NATURAL FOOD PRODUCTS OF THE NORTH-WEST TERRITORIES, AND THE BEST MEANS OF CONSERVING AND INCREASING THEM.

List of questions indicating some of the enquiries to be made by the Committee.

First.—Over what portions of Canada west of Lake Superior have you travelled, and what other portions of that region are you familiar with, from the reports of reliable persons.

Second.—Will you give a list to the Committee of the plants, animals, birds and fishes, suitable for food with which you are acquainted, and the districts in which they are chiefly to be found?

Third.—Which of the varieties you have mentioned are suitable for transplanting and transplanting into other portions of the North-West? State also the districts to which, in your opinion, they could be translated with advantage to the White and Indian populations.

Fourth.—Give the Committee your opinion as to the best means of re-stocking denuded districts with the plants, animals and fish which were once indigenous there?

Fifth.—Can you suggest from the list of trees, shrubs, grains, grasses, fruits and vegetables, which has been furnished from the Government Central Experimental Farm Station, any varieties which could be added with advantage to the indigenous products of any of the districts with which you are familiar?

Sixth.—Will you please state generally to the Committee how such transplanting, re-stocking and adding to the indigenous food supplies can best be affected, and at what probable cost?

Seventh.—What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? From what districts and at what cost can such food be supplied?

Eighth.—Which of the indigenous plants, can, in your opinion, be materially improved in quality, quantity and size by cultivation, grafting or budding?

Ninth.—What grains, grasses, fruits, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits?

Tenth.—With which varieties of fish is it desirable, in your opinion, to re-stock denuded lakes and streams?

Eleventh.—At the time of the transfer of that country to Canada what was the food of the Indians, and what were the rations allowed by the Hudson Bay Company and other traders to their employes in the various districts with which you are familiar?

Twelfth.—State your opinion as to the best means of preserving, by canning, drying, smoking, salting, freezing, pemmicanizing, or other process, such of the natural food products of the North-West as you are familiar with?

MEMO.—Although the collecting of information upon the following points is not wholly within the instructions of the Committee, your opinions may be asked as to:

(a.) The varieties of indigenous and other trees best adapted for treeless districts;

(b.) The cultivation of hops, hemp, sugar beet, tobacco and other economic plants;

(c.) The best means of developing, transporting and economizing such deposits of coal, iron, gold, silver, copper, petroleum, salt, sulphur, slate, limestone, granite, marble, sandstone, brick and pottery clay, asphaltum, ochre, amber, and others, as are found in that part of Canada west of Ontario.

By order of the Committee.

JOHN SCHULTZ, *Chairman.*

THE SENATE, OTTAWA, 20th May, 1887.

List of gentlemen, not residents of Ottawa, who have given oral testimony before, made valuable suggestions to members, or answered questions of the Committee.

- Samuel L. Bedson, Esq., Warden Manitoba Penitentiary.
 Amedée Forget, Esq., Clerk of the North-West Council.
 J. H. E. Secretan, Esq., C.E., of Winnipeg, Manitoba.
 Thomas McKay, Esq., Prince Albert, Saskatchewan.
 D. W. Davis, Esq., M.P. District of Alberta.
 D. H. MacDowall, Esq., M.P. for Saskatchewan.
 Nicholas Flood Davin, Esq., M.P. for West Assiniboia.
 W. D. Perley, Esq., M.P. for East Assiniboia.
 The Honorable J. Royal, Q.C., M.P. for Provencher, Manitoba
 A. W. Ross, Esq., M.P. for Lisgar, Manitoba.
 W. B. Scarth, Esq., M.P. for Winnipeg, Manitoba.
 T. M. Daly, Esq., M.P. for Selkirk, Manitoba.
 R. Watson, Esq., M.P. for Marquette, Manitoba.
 The Honorable Walter R. Bown, ex-Member of the First North-West Council.
 The Honorable Colin Inkster, President Fish and Game Protective Society,
Manitoba.
 Acton Burrows, Esq., Secretary Fish and Game Protective Society, Manitoba.
 Alderman George Ham, Winnipeg, Manitoba.
 Molyneux St. John, Esq., Montreal, Quebec.
 Venerable Archdeacon Cowley, Dynevor, Manitoba.
 Alderman Stewart Mulvey, Winnipeg, Manitoba.
 The Rev. Father Hugonnard, Principal of the Industrial School, Fort Qu'Appelle.
 Professor Saunders, Director Central Experimental Farm Station.
 Rev. John McDougall, Morleyville, Alberta.
 Lieut.-Col. J. Vance Gravely, Cobourg, Ontario.
 Alexander Neisson, Esq., Bad Throat River, Lake Winnipeg.
 J. Gilchrist, Esq., Harwood, Rice Lake, Ontario.
 Rev. James Settee, St. Peter's Indian Reserve, Manitoba.
 James Taylor, Esq., Chairman Old Settlers Society, Manitoba.
 Charles Mair, Esq., Prince Albert.
 The Rev. Father Lacombe, St. Joseph Industrial School, Alberta.
 The Rev. Father Leduc, Prince Albert, Saskatchewan.
 The Rev. Henry Cochrane, Peguis, Manitoba.
 Joseph Menkman, Esq., Peguis, Manitoba.
 The Honorable M. A. Girard, Senator, St. Boniface, Manitoba.
 The Honorable W. J. Almon, M.D., Senator, Halifax, Nova Scotia.
 The Honorable James Turner, Senator, Hamilton, Ontario.
 The Honorable David Reesor, Senator, Yorkville, Ontario.
 The Honorable John Sutherland, Senator, Kildonan, Manitoba.
 The Honorable W. H. Chaffers, Senator, St. Césaire, Quebec.
 The Honorable W. A. Sanford, Senator, Hamilton, Ontario.
 The Honorable H. A. N. Kaulbach, Senator, Lunenburg, Nova Scotia.
 The Honorable C. A. P. Pelletier, Senator, Quebec, Quebec.
 The Honorable G. W. Allan, Senator, Toronto, Ontario.
 The Honorable W. J. Macdonald, B.C., Senator, Victoria, British Columbia.
 The Honorable J. S. Carvell, Senator, Charlottetown, Prince Edward Island.
 The Honorable G. W. Howlan, Senator, Charlottetown, Prince Edward Island.
 The Honorable T. R. McInnes, M.D., Senator, New Westminster, British Columbia.
 The Honorable A. W. Ogilvie, Senator, Montreal, Quebec.
 The Honorable Dr. Robitaille, Senator, Quebec.
 The Honorable Wm. Miller, Senator.
 Major J. Cotton, N.W.M.P., Fort McLeod, Alberta.
 Lt. Col. Irvine, N.W.T., Alberta.
 Chas. N. Bell, Esq., Sec. Board of Trade, Winnipeg, Manitoba.
 John Gunn, Esq., Gona, Manitoba.

NATURAL FOOD PRODUCTS OF THE NORTH-WEST.

MINUTES OF EVIDENCE.

SENATE COMMITTEE ROOM,
OTTAWA, Saturday, 28th May, 1887.

The Select Committee appointed for the purpose of collecting information regarding the existing natural food products of the North-West Territories, and the best means of conserving and increasing them, met in Committee Room No. 2, at 11 a.m.

WILLIAM SAUNDERS, Director of the Government Central Experimental Farm, called and examined:—

By the Chairman :

Q. It would be well to begin by giving your answers to the questions on the paper before you, and then verbal inquiries will be made of you? A. In reply to the first, I may say, that I have travelled over the whole Dominion, from here to British Columbia, but it was in the winter time, and I do not think that anything I have gathered in regard to the Provinces would be of much value. I do not know what line of remark you wish me to make.

By Honorable Mr. Girard :

Q. Were you in the North-West Territories at any time of the year when you could observe the character of the vegetation? A. I was sent there in December last.

Q. For the first time? A. No, I had been as far as Winnipeg before.

By the Chairman :

Q. Was that in the summer time? A. Yes, but I went by way of the United States then. It was before the Canadian Pacific Railway was opened. I saw British Columbia in September.

Q. The second question relates to the list of plants, animals, birds and fishes suitable for food, with which you are acquainted, and the districts where they are generally to be found. This, of course, is meant by the committee to apply to the regions of the Dominion west of Lake Superior? A. I do not think that I could give anything of any value in reply to that question, for the reason that my visit was so hurried that I had no opportunity of studying the animals, birds or fishes, excepting as I saw them in the markets.

Q. Then in regard to the plants? A. There were none of them in bloom at that time. I saw rabbits along the line. They were very plentiful, and I found that the Indians were living principally on rabbits at that time of the year, and prairie chickens, which were also plentiful. The only fish that I noticed to be very much used, through the central parts of the North-West, was the jackfish, which was very common in the stores of the towns I visited, and some other varieties of fish, in lesser numbers, the names of which I did not know.

By the Honorable Mr. Girard :

Q. Were there very large specimens of the jackfish? A. Yes; there were some very large specimens in some of the stores.

By the Chairman :

Q. Jackfish is, as you are aware, a local term; what would be the name given to it by naturalists? A. I am not familiar with it. It is a species of pike. It seemed

to me to differ a little from our pike that we find here. The study of fish is a department to which I have not paid any particular attention.

Q. Did you notice that in this question a list of plants is mentioned first; I understood from you that you had communicated with the secretary in regard to some of the plants you are dealing with, and I believe from what I saw from the report of the Department of Agriculture that you are dealing with some plants in connection with the Experimental Farm? A. It is proposed to make a collection at the Experimental Farm of all the important plants, shrubs and trees of the different Provinces of the Dominion—to have them grouped in Provinces so that they will be available for study and observation for those who will visit the farm, and also to enable the officers of the farm to familiarize themselves more fully with the products of the different Provinces of the Dominion. Not much has been done yet. We have received one collection of plants from Oak Lake, Manitoba, and Professor Macoun, who is now in the North-West, has been instructed by Mr. Selwyn to collect seeds of various kinds for us; these will be mailed shortly to us and planted, and from these we hope to raise the greater part of the plants which we shall have in this collection.

Q. I understood you to say that you had sent to the secretary a list of the seeds you had planted at the farm? A. I sent a summary of the planting that has been done at the Central Experimental Farm this year.

Q. Have you a summary of the plants suitable for food purposes? However, as the notice is short with the consent of the Committee, we will pass that question now and have the advantage of your presence here at another day? A. The knowledge I gained of the country from my visit there at a late season of the year is very little. The only plant that is used largely to my knowledge by the Indian for food is wild rice.

Q. Have you noticed in what parts of the country it grows? A. I cannot name any special district. In the places generally throughout the North-West it is found about the sloughs.

Q. Would you reply to the third question which you have before you to-day, or would you prefer further time before answering? A. Does this mean the varieties that are now growing in some parts of the west and transplanting them to other portions of the North-West?

Q. Yes? A. I do not think I could be able to give any information on that from the limited acquaintance I have with the country.

Q. I suppose you will not be able to answer the fourth question? A. No; I do not think I could give any information of value there.

Q. You will be able perhaps to give some information from memory in reply to the fifth question? A. Yes; perhaps I had better give the Committee a summary of the seeds which we have received and are planting at the Experimental Farm, and you will see that it would be exceedingly difficult to furnish a detailed statement such as is called for by the question. Up to the present time we have obtained and planted 120 varieties of wheat, 40 varieties of barley, and 45 varieties of oats. We have also obtained, but not yet planted, 20 varieties of rice and 50 varieties of grasses. We have planted 246 varieties of potatoes, about 600 varieties of forest and ornamental trees and from 600 to 700 varieties of fruit trees, 124 varieties of grapes, 18 of currants, 38 of raspberries, 20 of blackberries and about 100 varieties of strawberries. Besides that we have received a very large stock of seeds of economical trees, shrubs and plants, both of ornamental and economic value, including some 1,200 varieties from Germany; 355 have been donated to the farm by the Director of the Royal Gardens at Kew; 300 varieties have been obtained from the Royal Botanic Gardens at St. Petersburg, and 110 varieties from the Imperial College of Agriculture at Tokio in Japan. Besides that I collected a large number myself last winter wherever I found any seeds of trees obtainable in the North-West or British Columbia, so that the Committee will see that this would cover several thousand names and would probably fill thirty or forty pages of foolscap, and it would be impossible in so short a time, especially as we are not through with our planting, to furnish it. We are planting a number of these every day, and it would be several days before we could

prepare a list: It will be for the Committee to say whether such a list would not be tiresome to go through. This summary will give a very good idea of the work that has been done. The question as to which of these could be used with advantage to the indigenous products of the North-West, is one that can only be answered with any degree of fulness after experiments have been tried. A number of those tree seeds have been obtained from the northern provinces of Europe where the climatic conditions are very similar to those of many portions of the North-West, and it may be fairly presumed that grown here from seed many of them will be hardy enough to stand the climate there, and are likely to succeed very well, but how many of them it is impossible at the present time to say. We have specially in view in making this collection the needs of the North-West and Manitoba, and have endeavored to secure seeds or plants of every variety which it would be desirable to test there, looking specially to obtain them from similar conditions of climate in other parts of the world. In the trees and shrubs from Japan we expect some of them will succeed as far north as this, for the reason that they have been obtained from the northern province of Japan, where the climate is very severe in winter.

By the Honorable Mr. Macdonald :

Q. Have you any bamboo roots from Japan? A. I think not. I wrote specially for seeds from northern Japan and I think that bamboo does not extend as far north as those provinces.

Q. It is said to succeed very well in British Columbia? A. I suppose it might. In making a collection of trees and seeds we had of course in view British Columbia as well as the other Provinces, and have secured a number of things that will not be hardy here with a view to supplying a station when it is selected in British Columbia with such things as will give it a good start.

Q. I believe that Japan tea will grow in some portions of British Columbia? A. I think that they sent a few tea seeds in part of the list, but I could not speak positively without going over the list again. The list is in Japanese, and the Latin names are also given.

By the Chairman :

Q. You have mentioned that you have collections of seeds of North-West trees; could you from memory give the Committee an idea what those are? A. The most of the seeds I collected were in British Columbia. I have a good sized bag of Manitoba maple, as it is called, the *Negunda Acreoids* or ash leaved maple. It is not a true maple, but it is very closely related to the maple. Besides that I collected seeds of one of the varieties of elm, and I am not quite sure until they germinate what variety of elms that is in the collection of plants that I have received. There is the Saskatoon—what is known as the buffalo tree, and another berry—I do not remember the name—that grows on a tree.

Q. There is the high bush and the low bush cranberry? A. I have not received either of those.

By the Honorable Mr. Allan :

Q. Have you received any seeds of the conifers? A. I have received cones of the Douglas fir and one or two of the spruces, especially the blue spruce, as that has been found to be hardy in most parts of Ontario and makes a very handsome ornamental tree. I do not know what its value may be for wood here.

Q. The Douglas tree will not grow at least in the southern part of Ontario? A. I was not able to get seeds far enough north in British Columbia to suit me. The further north a seed is obtained the better it is likely to stand a cold latitude. I have been obliged to confine my visits to the line of the Canadian Pacific Railway, and have not had an opportunity of getting seeds from the interior of the Province.

By the Chairman :

Q. Among the rapid growing trees of Manitoba, I find, in speaking with my colleagues from that Province, that there is the ash leaved maple, the aspen, and the balsam poplar. They grow in clumps and give that park like appearance to the prairie; have you seeds of those trees yet? A. I have not yet obtained them. Of course I observed those trees when I was there and found them exceedingly common,

especially the poplar, the one known as the balsam poplar, and the other as cottonwood.

Q. How far west did you notice those extending? A. I observed them as far as Broadview and beyond that. The train unfortunately moved in the night, both ways, and I had not an opportunity of seeing any trees beyond that point, but I expect that they extend much further than that. I drove into one of the Indian reserves at Regina and saw them there, a point west of Broadview. The tremulous poplar extends as far north as Peace River.

Q. Had you completed the list of those seeds from the North-West? A. All that I can recollect, I gathered the seeds of quite a number of small plants that were still to be had above the snow line, but beyond the fact that some of them were a species of aspen, which I recognize from the shape of the seed, there is none that would be of any value to the Committee in any part of my observations. With regard to the latter part of this question—that is, the varieties that might be added with advantage to the indigenous products of the North-West—I should have said, in speaking of the fruit trees, that we have obtained a large collection from Russia, some of the trees coming from as far north as the Province of Kazan, which is about the northern limit of apple growing, and we have obtained also trees from northern Prussia, particularly cherries from there, and also cherries from about St. Petersburg, and further up to Riga, where the climate is quite as cold, I think, as it is in the North-West. We have from 200 to 250 varieties of seed from these northern trees in the list of six or seven hundred that I mentioned as a rough estimate of the varieties we have now on hand. I have good hopes that many of these trees will be of use to the North-West, and I hope will endure the climate there. The climate is certainly not less severe where they grow in Russia than in any settled portion of the North-West. Besides that, we have brought out a few varieties of poplars, the wood of which is more valuable than either cottonwood or balsam poplar, which also come from the northern part of Europe and are likely to be hardy. These can be propagated by cuttings, so that they can be grown quite rapidly so soon as their value is determined. When the experimental farms in the North-West are located, one in the North-West Territories and one in Manitoba, it is proposed to send as many of the varieties as are obtainable to those farms to be tested there first before any further distribution is attempted. In the meantime the more promising sorts will be propagated at the different experimental farms with a view to disseminating them more widely as soon as anything definite has been reached as to their value to the country.

By the Honorable Mr. Kaulbach:

Q. It is a wood chiefly used for pulp? A. The wood of the poplar in Russia, I understand—one or two of the varieties we have—is much straighter in character and harder in texture than any we have and is used for furniture there very much. Our poplars in this part of the Dominion are used largely for pulp, but they are using spruce now more than poplar. A few years ago poplar was thought to be about the best, but the paper makers now very much prefer paper made from spruce, so that poplar is not so much used for that purpose as it formerly was.

By the Chairman:

Q. Speaking of fruits, I notice in a map showing the varieties of climate in the North-West, that there seem to exist at the head of Lake Winnipeg almost identical climatic conditions with those which exist on the Island of Montreal. Would you give the Committee your idea as to whether the apples that grow on the Island of Montreal might possibly be introduced into the Manitoba region of the North-West? A. I could say nothing from experience. I know that some apples, take the Famuese for instance, when grown about the neighborhood of Sault Ste. Marie are not hardy there, and several other varieties that I have seen tried have been killed in every instance. I visited quite a number of orchards there—I should say plantations that were designed to be orchards—in that district, and I found on one farm a collection of apple trees that seemed to be perfectly hardy. They had been grown from the seed of the Famuese raised at Montreal, showing the importance of beginning to grow seedlings as soon as possible in these northern sections from fruits that have

ripened in other parts of the Dominion. Every one of those seedlings, as far as I could learn, was hardy and productive and endured the climate well. I propose, as soon as we are in a position to do so, to obtain scions of those trees grown there and propagate from them further for the purpose of testing them.

By the Honorable Mr. Allan :

Q. Is not the real difficulty in planting trees in the North-West, not so much the cold as want of shelter from the violent winds? In going over the Bell Farm, the principal difficulty seemed to be that the winds were so terrible that the trees could not be kept in the ground even by tying them up? A. In all parts of that country the poplar will grow if the ground is left uninjured by forest fires. It seems to me that the best policy would be to plant clumps of poplar, and in the shelter of these poplar groves to test other varieties of trees. We must begin with indigenous trees of the country, and group about them the other trees requiring more shelter than the poplar. In Europe there are nursing groups which form a sort of nursery around which the other trees are planted. When they grow up and attain the size and the degree of hardiness that they require, the others are cut down to make room for them. Another plan is to plant them among young poplar trees so as to give them the shelter of the poplar while they are growing. That can be done without waiting for a poplar grove to grow. The poplar growing faster, the other deciduous trees will have a good shelter even where the wind is strong, and by thinning them out and removing the least valuable, in time I see no reason why a good useful kind of trees may not be introduced there for the purpose of wind breaks and for other economical purposes.

By the Chairman :

Q. The next two questions, the sixth and seventh, you need not answer unless you wish? A. I have said all on that that I can say now. The probable cost of transplanting is not large. I might say, where trees are raised from seed, the way we have begun to raise them on the Experimental Farm, is this: The seeds are planted, and I do not think the cost of raising young trees, that is one or two years old, should exceed a cent for each tree. If that is the case, almost any farmer could afford to pay for a few hundred, the cost of raising them, so as to make a start on his own farm, or raise them himself from the seed, if suitable instructions were given him. In the first bulletin that I issued from the Experimental Farm in February, I gave instructions in regard to raising trees from seed, with the hope of enabling the farmers who have not had the opportunity of gaining any experience in this matter, to make a start. I desired to give them a little assistance, and anything more that I can possibly do in that way I shall be very glad to do.

Q. The eighth question is as follows:—Which of the indigenous plants can, in your opinion, be materially improved in quality, quantity and size by cultivation, grafting or budding? A. I observe that in the North-West there are a number of varieties of the wild plum, and some of them, though I did not see the fruit, I was told by those who had collected the fruit, were very fine indeed and large. I do not think that much would be gained by transplanting those into a garden and cultivating them. They might grow a little larger, but I think more could be done in the way of improving that fruit by selection—that is, selecting the best seedlings, and then by hybridizing, crossing them with the European varieties, and the better varieties that have originated in Canada and the United States. With regard to grape culture, I found along the Assinaboine river, not far from Winnipeg, a number of wild grape vines growing, some of them very large, and I think that where the wild grape grows, superior varieties could be produced by starting with the wild grape as a foundation. There you would have the constitution and hardiness required for the production of new varieties. That, of course, must be the work of some years, but by taking the wild fruit and crossing it with some of the better varieties, an improvement could be made.

Q. Would you mention some of those varieties? A. Take for instance the Concord; and the Clinton is a very hardy variety. The Wordon is also a very hardy one.

By the Honorable Mr. Almon :

Q. The Isabella grape ripens in Nova Scotia? A. The Isabella is one of the later ripening grapes in Ontario and Quebec. It very rarely ripens with advantage in any part of Ontario now, so that its cultivation has been abandoned on that account. The others ripen about ten days earlier, and would be better for the purpose of crossing the North-West grape.

By the Honorable Mr. Turner :

Q. What about the Rogers' varieties? A. The Rogers' varieties are crosses between the Fox grape and a European grape, and are liable to mildew in many localities.

Q. There would not be much danger of mildew, I should think, in that dry climate? A. There is almost as much smut, rust and mildew in that country as there is here. I do not know whether that would occur with the grape or not. It would be very difficult to predicate what the difficulties would be, but I think that with such a good start as there is there with the native wild vine, which seems to grow very luxuriantly in the river bottoms, there are good hopes that in the near future there may be grapes raised from that which would be of advantage to the people throughout the country.

By the Chairman :

Q. We will now take the memorandum at the foot of the list of questions: Did you notice, in your passage through the country, any of the districts which have been denuded, by fire or other causes, of tree growth? A. Yes, I observed, especially in the Moose Mountain district, which I visited, a very large area denuded by fire last year. It must cover a great many thousand acres—I do not know how many. The fires not only destroyed the timber there, but the young growth in many other localities was injured. It promised to make a good wood for shelter, but the groups were burnt over so as to be for some time destroyed. I was told, however, that the poplar would sprout again from the roots. I know that it grows very rapidly, and in the course of a few years, if the occurrence of fires is prevented in the future, that district would no doubt be wooded again with the same varieties.

Q. Did you pass through any districts where the pines had been burned? A. I did not observe any pine at all west of Winnipeg—nothing but the spruce about Carberry. In the hills near Carberry I observed Spruce growing, but not in any quantities.

The Committee adjourned until Monday next, at 11 a.m.

SENATE COMMITTEE ROOM,

OTTAWA, Monday, 30th May, 1887.

Professor ROBERT BELL, called and examined:—

By the Chairman :

Q. Over what portions of Canada, west of Lake Superior, have you travelled, and what other portions of that region are you familiar with, from the reports of reliable persons? A. I have travelled over a great part of the country from the United States boundary line to Athabasca Lake in the Mackenzie River country and the northern parts of Hudson's Bay, and westward all the way from Lake Superior and Hudson's Bay nearly to the Rocky Mountains.

Q. Will you give a list to the Committee of the plants, animals, birds and fishes suitable for food with which you are acquainted, and the districts in which they are chiefly found? A. I beg leave to answer this question in writing. It would be rather extensive, and one might not recall all the kinds by memory that one would like to put down, so if it would suit the purposes of the Committee I would rather hand it in in writing. It would be more complete and systematic in that way.

Q. Which of the varieties you have mentioned are suitable for transplanting and transplanting into other portions of the North-West? State also the districts to which in your opinion, they could be translated with advantage to the white and Indian populations? A. In regard to the native plants, I should think possibly an experiment with the wild rice might prove successful when transplanting it from the wooded districts of the east further west. One would suppose that if the ponds and lakes in the prairies were suitable for the growth of wild rice that nature might have already placed it there, but possibly it is not so. We know that wild rice dies out even in places where it once grew in abundance, and it may possibly have grown in those ponds and become extinct. It might be tried in some of the freshest of them. Many of them are brackish, but in the larger ones which do not dry up in summer, and in which the water is fresh, the experiment might be tried at all events. Wild rice is not found, so far as I am aware, west of Lake Winnipeg. It grows very abundantly east of that lake and in the more southern parts of the country. I have travelled through the Lake Manitoba country and have examined hundreds of ponds and lakes west of it, but I do not remember to have seen the wild rice west of that lake, or even on the west side of Lake Winnipeg, although I know it grows along the streams and ponds that flow into Lake Winnipeg from the eastward. I do not know of any other native plants for purposes of food that I should recommend spending much pains in trying to transplant. There may be others, but I think some of our cultivated plants would be better for experimenting with in this way than the native plants in the district.

By the Honorable Mr. Turner:

Q. How about wild celery; is there any of that up there? A. There are many species of the same family, but there is only one of them which is much eaten, that is one species of wild parsnip. Some call it "carrot" but it is more closely allied to the parsnip than to the carrot. There are two species, one poisonous, the other wholesome food; they look very much alike, but they require such peculiar conditions of growth that I do not think they could be cultivated with much advantage. They grow in wet places, upon the borders of lakes and around springs running out of the hillsides. They are extremely abundant along the Qu'Appelle valley and other places in the North-West. I suppose wherever the ground is suitable for its growth it is found already, and the same trouble that would be necessary to transplant this wild parsnip might be better expended on the cultivated one or on turnips, carrots, etc.

Q. Only for food for wild fowl—it would be an inducement for them to come? A. I think the wild celery that you refer to does not grow in the North-West—at least not that I am aware of.

By the Chairman:

Q. You mentioned two varieties of this plant—the Indian parsnip. You said that one was poisonous—are the two varieties in the same locality? A. I am not sure that they grow intermingled with each other, but they grow in similar situations, probably in distinct groups.

Q. Have you any reason to believe that cultivation would improve the wild variety? A. As a general rule cultivation has improved wild plants, and that point would be worth considering in trying it on the Experimental Farm, or the person in charge of the Experimental Farm in the North-West, if there was none on his farm, might select places suitable for the growth of the plant and try it. Possibly the experiment might be attended with good results.

Q. What are the conditions most favorable for their growth? A. In the wooded country we find them growing about lakes among the stones, but in the prairie country I have seen them mostly where water was issuing from the banks keeping the ground constantly wet. The experiment, I think, would be worth trying.

By the Honorable Mr. Sutherland:

Q. Have you ever come across a black skinned root called in the North-West the wild turnip? A. I have. In the western prairies it grows on dry ground. It is a very poor substitute for potatoes.

Q. I understand that the Indians have always used it for food rather in place of meal than to supply the place of potatoes. A. Yes, to make soup principally. They gathered it in considerable quantities, and even occasionally sold it to the Hudson's Bay Company as an article of trade.

By the Honorable Mr. Macdonald :

Q. Is it the Camass of British Columbia? A. No, it is not the same.

By the Honorable Mr. Sutherland :

Q. It has been used by the Indians of the North-West for food from time immemorial? A. Yes.

Q. Do you think it would be possible to improve it in any way by cultivation? A. It would be worth trying. That would be one of the uses of an experimental farm. Here and there wild plants have developed wonderfully by cultivation. The potato, which has become so important an article of food for a large portion of mankind in all parts of the world, was originally a small wild tuber; so that this experiment might be tried possibly with advantage here and there. Occasionally one of these experiments turns out well.

Q. Give the Committee your opinion as to the best means of re-stocking denuded districts with the plants, animals and fish which were once indigenous? A. I should think the most economical plan would be for experiments, in a small way, to be tried under an intelligent superintendent, and when he had arrived at some conclusion as to the possibility of restocking these districts with some of the kinds referred to, that it might then be carried out upon a larger scale, and especially with plants. As to the animals, I should think the buffalo would be extremely desirable if we could perpetuate the animal so well suited to the whole North-West. It seems to breed in confinement and is capable of domestication. It affords better meat than domestic cattle. As to the fish, I should think the best way of restocking denuded districts would be to give nature a chance. I do not know that the introduction of new kinds of fish into waters in which they never lived before has often proved to be successful, but it has been found that by protecting them from unnecessary destruction, fish have increased greatly in rivers and lakes, so that if we turn our attention to the protection of fish, the waters of the North-West which have been denuded could be restocked.

By the Honorable Mr. Macdonald :

Q. Speaking of the buffalo do you mean to domesticate the buffalo of the North-West? A. It would be desirable to do so if possible.

Q. In the wild state they move from north to south and would be killed off? A. Yes, if they were allowed to cross the line where they would be beyond our control.

By the Honorable Mr. Kaulbach :

Q. Is there not a herd of buffalo domesticated near Winnipeg? A. Yes.

Q. Are the herds not increasing by natural increase? A. Yes.

By the Honorable Mr. Carvell :

Q. Are they not crosses? A. I think they are mostly pure blooded stock.

Q. The cross makes very excellent beef does it not—better beef than the pure bred animals? A. I do not know. I presume that it would be best to cross with a buffalo cow and a domestic bull, because if you cross with a buffalo bull and a domestic cow, it would be difficult for the cow to bring forth her young owing to the formation of the calf. It has been tried and I understand has sometimes resulted in the death of the domestic cow. The difficulty is the hump or "boss" of the buffalo calf.

By the Honorable Mr. Allan :

Q. I suppose what you mean by giving nature a chance to restock the waters with fish is that you would prevent parties fishing in the close season? A. Yes.

Hon. Mr. Allan called attention to the fact that when he visited the North-West last year he saw immense quantities of prairie chicken and other game killed for exportation from that part of the country. There would be little use in trying to restock the country with fish and game if such slaughter were allowed to go on unchecked.

By the Honorable Dr. Schultz :

Q. You have mentioned, in your answer to this question, the domestication of the buffalo. Have you noticed any instance but the one referred to by the Hon. Mr. Allan and other gentlemen, at Stony Mountain, where it has been tried and proved successful? A. I have no personal knowledge of any other instance. I understand that a herd is in the Yellowstone Park in the United States, and I have also heard of other experiments made further east, but I have no personal knowledge of them. I visited the herd formerly belonging to the late Hon. James McKay at Deer Lodge, and now in the hands of Mr. Bedson, and they seemed to be in a thriving condition. The buffalo still exists in the wooded regions of the Athabasca district and they are likely to remain there, because they are scattered among the woods and cannot be killed by hunters on horseback, as they can on the prairies. A few are killed every year by the Indians.

Q. These are known as the wood buffalo? A. Yes, it is a variety of the bison, but it frequents the wooded regions only, and is not migratory as the prairie buffalo is.

Q. Can you suggest to the Committee any means of retaining that species of animal—any measures that could be adopted to prevent them from being exterminated? A. The Indians have not been treated with as yet in that country, and probably we have no means of coercing them into obeying any laws that might be enacted by Parliament to protect the buffalo there. It might be a valuable resource if the buffalo should be exterminated everywhere else to be able to get a stock from this wooded country in the future.

Q. Have you any idea of the numbers of those animals which still exist? A. In the aggregate they must be very numerous, since they roam over a very large tract of country. One or two hundred are perhaps killed every year by the Indians, and the skins are brought to Fort Chipewyan for sale.

Q. You also mentioned in your answer to that question that a means of preserving fish would be to protect them from being caught? As you are aware, the Indian when catching those fish, catches all kinds alike, and in those northern waters are found valuable fish, such as whitefish, which feed upon vegetable matter, and the pike or jack fish that lives on other fish, and on his own species I suppose when they are small enough to swallow? Would it not be well to try and preserve the one and allow the other to be taken as freely as possible? A. Yes, I am of that opinion. I think pike and pickerel—pike especially—have a relation to the other fish something like hawks, eagles and owls to defenceless birds. They are merely creatures of prey, and destroy large numbers of fish more valuable than themselves.

Q. Is it true that they feed on the ova of other fish as well? I fancy they do. I have no direct personal proof of it, but they are exceedingly voracious. They eat everything that comes in their way in the shape of animal food. Besides the pike, I think if any encouragement were given for the extermination of animals destructive of fish it ought to be extended to some birds which prey upon fish and fish spawn, such as the merganser or saw-bill, or any other birds that prey upon the young fish and fish spawn. Pelicans are practically of no use, but they destroy a great number of fish. They are never themselves used as food. Some of these birds destroy a great many more fish than they can digest. They gorge themselves with a large number of young fish and then go upon a sand or gravel bar and disgorge them, after which they proceed to catch another lot. They are extremely destructive of useful fishes.

Q. That applies to those varieties you have mentioned? A. Yes.

Q. Is there any other matter relating to the fourth question upon the subject? A. If the law is in force I think the weak point is in not having a paid officer to see it executed. No one likes to inform against his neighbors or against Indians who may be starving, more particularly as they have special exemptions, but no one finds fault with an officer who it is known makes his living by informing, and the first step to secure efficiency in this matter is to appoint a paid officer to travel about and see that the game laws are enforced and, perhaps, make the Indian con-

form to them as well as the white man. The Indians are so improvident that they do not see the effect of the destruction of game and fish as we would. They are fond of destroying life when they can make no use of the game. I have known them, when they could not eat the eggs of partridges and ducks, when they found them, to deliberately jump upon them and destroy them. They also destroy young gelatinous birds, with the down on them, which they have no occasion to eat and would not eat. When they come across a covey of young birds they hunt them about until they destroy them, never thinking that if they left them alone until the fall they might have a good dinner from these same birds. The love of destroying life is characteristic of Indians. I think there would be no hardship in compelling them to comply with the laws which are beneficial for white men and would be equally so for themselves.

Hon. Mr. SCHULTZ:—The sixth question is: "Will you please state generally to the Committee how such transplanting, restocking and adding to the indigenous food supplies can best be effected, and at what probable cost."

Prof. BELL:—As far as the plants are concerned, which are referred to in this question, I think it would be most economically done on a small scale first at some of the Experimental Farms. It might be as well not to go into too great expense until some encouragement was received from the first experiment. Then with regard to animals, I think that if some steps were taken to preserve the wood buffaloes that still exist in the north and possibly to continue the experiment at Stony Mountain—but that is in private hands, and we could not interfere in that—the buffalo would be a most important animal to preserve for the Indians.

By the Honorable Mr. Allan:

Q. Do you know the number of the herd at Stony Mountain? A. When I saw them in 1879, there were nine or ten; they were not then the property of Mr. Bedson, the Warden of the Penitentiary, but they are now in his charge. I don't know whether they are now his private property or not.

Hon. Mr. ALLAN:—There was a company supposed to be formed for breeding these animals. They were going to buy this herd, for I had a circular sent me asking me to take stock in the company. Perhaps Mr. Sutherland will tell us whether there has been any progress made in that direction.

Hon. Mr. SUTHERLAND:—As far as I know there has been no material progress made since. I don't know a great deal about it, only from hearsay, and I have not heard much of it since the first rumor came out.

Hon. Mr. ALLAN:—You saw the prospectus?

Hon. Mr. SUTHERLAND:—Yes.

Prof. BELL:—I think in the future if the experiment of raising the buffalo were successful they would be much more useful to the Indians than native cattle, because they can live in the winter time by getting at the grass underneath the snow, which domesticated cattle cannot do.

Hon. Mr. SCHULTZ:—Is there any other question relating to the sixth printed question.

Prof. BELL:—The beaver is another animal which might be domesticated with advantage. It is an animal of which the Indians understand the nature already, whereas sheep, pigs and cattle are strangers to them. They look upon these animals when they first see them as we would on creatures from Africa. I have seen Indians as much interested on first seeing sheep and pigs for instance as our boys would be on first seeing buffalo. But they know the habit of the beavers, and they are easily domesticated. They can be domesticated in one season, and they afford better food than either beef or mutton. They produce one litter each year and increase very rapidly in numbers.

By the Honorable Mr. McDonald:

Q. How would the common goat do in that country? A. They might do very well. They are very hardy.

Q. They give milk as well as flesh, and require very little food in winter? A. Yes. They are raised in the Maritime Provinces, Newfoundland and Nova Scotia for their milk. They thrive well in barren, rocky places.

Q. I suppose the lack of shelter would be a great drawback in the North-West?

A. Yes, but the goat is very hardy, and I suppose would be easily kept.]

By the Chairman :

Q. You mention the beaver as a source of food supply. You are aware, I suppose, that it is now amongst the furs, very difficult to get, and has gone up in price at a more rapid rate than any other fur? A. Yes.

Q. I take it for granted that their skins would be an additional source of profit to those Indians? A. Yes, and the black variety being the most valuable, could be propagated to the exclusion of the others. The Indian would make enough from the sale of one black beaver skin to enable him to buy a considerable quantity of food.

Q. Can you give the Committee an idea of the price black beaver skins would bring? A. In the best markets black beaver now sells for \$15 or upwards. Common beaver is worth from \$5 to \$9 at the present time.

By the Honorable Mr. Chaffers :

Q. Are antelopes numerous in the North-West? A. Yes, there are plenty of them, but I don't know whether they can be domesticated or not. They are extremely shy.

By the Honorable Mr. McDonald :

Q. I believe in the winter they migrate to the south? A. Yes. They seem to thrive best on the most barren places—the salt plains. They appear to feed upon a plant which grows around the saline ponds, more than on common grass.

By the Chairman :

Q. In reference to the suggestion of Mr. Chaffers, speaking of the antelope, it is very excellent food, is it not? A. Yes, nothing better.

Q. And its principal enemy is the prairie wolf? A. Yes. It is the most delicious meat I suppose that exists, when fresh and in good condition.

By the Honorable Mr. Macdonald :

Q. Except buffalo hump and buffalo tongue? A. The antelope is finer meat than the buffalo.

By the Honorable Mr. Girard :

Q. You have travelled around Hudson's Bay? A. Yes.

Q. Is the cariboo abundant there? A. It is.

Q. Do the Indians live on antelope meat? A. Yes.

Q. I read in an old history that those cariboo could at one time be found in that country in vast herds? A. Yes, and they are abundant yet. There are two kinds of cariboo, the woodland and the barren-ground varieties. The latter roam about in herds of many thousands, travelling in various directions. They are somewhat migratory.

Q. Is it difficult to reach them? A. No. The great trouble is the uncertainty of their migrations. I have known Indians to go from the woodland regions to hunt for them in the barren-grounds, and if the cariboo did not follow their usual migrations, the Indians have been obliged to go for a long time without food. The Indians have been known, in some of those hunting expeditions, to miss the cariboo and to starve to death in considerable numbers. Then, after they were dead, the cariboo have come into the vicinity in countless numbers. If the Indians had the means of waiting for the cariboo until they did come, they could have an abundant supply of excellent food. The cariboo is very easily killed. The Esquimaux shoot them with bows and arrows. They waylay them and shoot them from behind rocks with arrows tipped with iron or with flint.

Q. You spoke of a wood buffalo? A. Yes.

Q. Is that the same as the musk ox? A. No, it is the same as the prairie buffalo.

Q. Have you met the musk ox in your travels? A. I have been in the country they inhabit, but I have not seen them in the flesh. I have seen their skins, their bones and horns, but not the animal itself. They are migratory, like the cariboo. They do not go as far south as the forests, but they are abundant in the country north west of Hudson's Bay, and thence westward to Mackenzie River, and also in the Northern Archipelago. They are found abundantly as far north as human beings have

ever penetrated. They are found in northern Greenland and on all the large islands of the Arctic seas. They are not found west of the Mackenzie River, but many years ago they did exist there abundantly, because you find their skulls, bones and horns in the swamps of that country. There are none of them there now, but they are widely diffused in the country eastward.

By the Honorable Mr. Macdonald:

Q. Are they not the same species as the buffalo? A. No, not the same at all. They are not even the same genus. They are intermediate between the sheep and the ox.

By the Honorable Mr. Girard:

Q. Their skin is more valuable than that of the buffalo, is it not? A. Yes; the hair and fur are longer and finer, but the flesh is not so good as buffalo meat. It has a musky taste, and the animal is small compared with the buffalo—between the sheep and the ox.

Q. Is the deer the same animal as the cariboo? A. The cariboo is the same species as the reindeer of Europe—that is the cariboo of the barren-grounds—and the cariboo of the woods is the same species as the barren-ground cariboo—it is merely a variety.

Q. Do you know that deer tongues and deer meat are preserved by the Indians? A. The tongues are dried by the Indians and by the Eskimos, and exported in large numbers. Thousands of them are sent from the Hudson's Bay Company's posts in the north every year to London, where they are sold. They are considered quite a delicacy.

Q. I suppose buffalo tongues and pemmican would be considered good food for white people as well as for Indians? A. Yes, and pemmican keeps for a long time. I have some pemmican in my possession that I have had for years, and it is quite good yet. The tallow of the reindeer is very hard—so hard that you can knock it together and it strikes like stones. When the meat is pemmicanized it keeps a very long time.

Q. That is reindeer pemmican? A. Yes.

Q. Do you know any part of the country where that meat can be prepared so as to be transferred from one place to another? Do you know any place where it can be obtained in a quantity sufficient for preparing it for export? A. If you could preserve it just when the animals come in large numbers it would afford immense quantities of food. The Indians and Eskimos are too improvident to do anything of the sort. They use what they can eat, and the rest they allow to spoil.

By the Chairman:

Q. In your expeditions in the North-West have you supplied your men with this food prepared by the Indians? A. It is brought to Fort Chipewyan in considerable quantities.

Q. Did you use any of it? A. Yes.

Q. What quantity would furnish a meal for a voyageur? A. Half a pound would be equal probably to a pound and a half or two pounds of fresh meat, it is so concentrated.

Q. Half a pound would furnish a meal? A. Yes.

By the Honorable Mr. Almon:

Q. How many pounds of fresh meat would an Indian use for his dinner? A. Three or four pounds. There is no end to what an Indian will eat; it is simply what he can hold. He has no sense of being satisfied, and will eat until he can hold no more.

By the Honorable Mr. Kaulbach:

Q. They eat enough at a meal to last them a week, do they not? A. Yes. They do not suffer hunger as we do. If they are once well fed they can go without food for some days after.

By the Honorable Mr. Girard:

Q. I suppose the preparation of that meat would not involve any considerable expense? A. No.

Q. Do you know how it is prepared? A. Exactly the same way as the buffalo pemmican. The meat is dried and partially roasted and then mixed with the hot fat. It is sifted to get out the sinews and coarser portions and then it is all put into a trough and mixed. The Indians sometimes tramp it with their feet. Then it is put into bags or any receptacle. They mix it with sugar if they have it, and dried berries to make the finer kinds.

Q. It is what is called pemmican of extra quality when it is prepared with sugar and fruit? A. Yes.

By the Chairman :

Q. What was the cost of what you purchased from the Indians? A. I got mine second hand, from the Hudson's Bay Company.

Q. Do you recollect what it cost? A. I do not recollect, but in the country where I got it—Fort Chipewyan—it would be worth fully one shilling sterling a pound.

Q. Can you tell us the ration of buffalo pemmican that is allowed by the Hudson's Bay Company to their men? A. No, I do not remember that.

By the Honorable Mr. Girard :

Q. Have you seen many wild fowl in the Hudson's Bay region? Have you seen them in very large quantities at any one place? Is it true what I read of once, that when you disturb them and they rise, they obscure the sun to such an extent that it darkens the country at mid-day? A. I have seen them in large numbers, and if you are close enough up to them and surprise them in a marsh, they rise in such clouds that they obscure the sky for a few moments until they get away. They would not darken the land in their flight, but they would prevent you seeing the sky or the sun for a few seconds.

Q. Are there many of these birds destroyed? Do you think they could be utilized to feed the Indians? A. Yes, they would go a long way towards feeding Indians. As it is the Indians feed on them for some weeks in the fall and perhaps a week in the spring. They are easily shot wherever they touch to rest in their migration. For instance at the west end of Lake Athabasca and on both shores of Hudson's Bay towards the south end, they accumulate in vast numbers—at the south end of James' Bay—before they start for the south-west—both the Canada geese and the wavies. There are also two or three other species found in the northern country—what is called the laughing goose and also a small wavier called Ross' goose.

By the Honorable Mr. Kaulbach :

Q. Are wild pigeons found in the North-West? A. Not very far north or west: You find the wild pigeon north of Lake Superior.

Q. They used to be very numerous in Nova Scotia, but of late years they have disappeared. Is it the same in any parts of the North-West? A. They are very scarce with us, but during the season when blueberries are ripe the pigeons feed on them, and you find them in considerable numbers north of Lake Superior even yet.

By the Honorable Mr. Macdonald :

Q. Do you think the Indians can live as well now in the North-West without being fed as they are now by the Government? A. Certainly not in the prairie country. They had no trouble at all formerly to live when the buffalo was abundant. The buffalo furnished their principal food—they thought of nothing else.

Q. But the settlers in the North-West have driven out the buffalo, it is said—is that so? A. The buffalo are completely exterminated on the plains.

Q. But that is not because the white settlers have gone in there? A. To a great extent, and also because the Indians and half-breeds slaughtered them without restriction. Formerly before the white men went in there, the Indian tribes were obliged to leave the buffalo alone, because they made war on each other. The theoretical reason of their frequent tribal fights was that they tried to exterminate each other in their rivalry for the buffalo.

By the Honorable Mr. Allan :

Q. Has not the improvement of late years in firearms been the principal cause of the extermination of the buffalo? Formerly the buffalo were shot with muzzle-loading guns, which the Indians necessarily loaded more slowly than breech-loaders.

With cartridges and breech-loading rifles the half-breeds and Indians have been able to exterminate the buffalo? A. I believe that the extermination of the buffalo is due to the fact that the Indians no longer being occupied in fighting with each other, were let loose on the buffalo, and of course the slaughter was greater than it had ever been before. No doubt the improved arms contributed to the destruction, but they could kill buffalo nearly as well with the old weapons as with the new.

By the Honorable Mr. Macdonald:

Q. Suppose the country were in the same condition now as it was twenty five years ago, when it was in the hands of the Hudson's Bay Company, would the Indians be able to live without assistance from the Government? A. If nothing had been done with the country, these Indians could live now as well as they lived before.

By the Honorable Mr. Allan:

Q. I can scarcely believe that the white people who have gone in there have killed off the buffalo. The thing had been pretty effectually settled before the settlers went to the North-West in any considerable numbers. The slaughter began some fifteen years ago? A. Fifteen years ago, just after the first rebellion, there were buffalo enough left to have supported the Indians, and they would have remained permanently in the country, if they had been left alone. I have seen them myself in such numbers that they covered the land for miles and miles. I have hunted buffalo with the Indians myself on horseback, and I have seen them, from the tops of the hills in those western plains, so numerous that you could not see the ends of the herds. The great herds at a distance looked like shadows of clouds on a summer's day—there were probably millions in them, and they covered the ground so close that you could not see it. Where they were in herds large enough to cover the extent of a township or two, you could see them also dotting the intervening landscape like beetles as far as the eye could reach.

By the Chairman:

Q. When was that? A. In 1873. In those days, after killing all that you wanted, you could pass through the herd without the buffalo apparently being afraid of you.

By the Honorable Mr. Macdonald:

Q. And now you do not see them at all? A. No. The Indians will not believe that the buffalo are all exterminated, but that herds will come back again.

By the Honorable Mr. Girard:

Q. I suppose you have met the Indians in bands on their reserves or on the trail sometimes? A. Yes; I have met them both on the reserves and on their travels.

Q. Have you been able to ascertain how they were getting their food or in what way they were living? A. At the time I speak of they were living on the buffalo. They lived on what they killed of the buffalo, but now they are living on the bounty they get from the Government, or anything they can find. They are shooting ducks, prairie chickens, muskrats, and even gophers—killing these and roasting and eating them, or if they found a dead horse they would have a grand feast.

Q. But from what you know of that country you could not indicate the best way to maintain—or the proper way to feed the Indians, or could not suggest what you should advise them to do to get their food? A. You cannot make an Indian work. The generation which has been unaccustomed to work will not work. The bush Indians will work because they have been obliged to paddle their canoes; they have been obliged to make their canoes, and axe handles, and everything like that, but the plain Indian cannot do anything of the kind. His hands are soft like a woman's, and he cannot work. I have asked them: "Can you put a handle in that axe?" And have been told: "No, I never made an axe handle in my life. I am not able to do it and will not try to do it." They will not cultivate the ground.

Q. Can they not do it? A. No, it is not that, but they think it is beneath their dignity to work. They have not been accustomed to it, and they say it has never been done by their forefathers. I have lectured them on the subject, but they have told me: "It is according to the traditions of your forefathers, but we have never done anything of the kind, and our forefathers have never worked." For an Indian

to interfere with the ways of the Great Spirit by growing plants, seems something that they cannot comprehend—they say they cannot do it—they will not grow potatoes. I have known Indians to enquire of neighboring Indians before they would believe that it was possible to grow potatoes. After giving them a lecture on this subject one time, they told me that they had no seed. I said: "I will give you some of the beans that I eat with my pork, and if you keep them until next spring you can use them for seed." They took them and promised to keep them for seed, but the very same evening they boiled the whole of them and ate them.

By the Honorable Mr. Macdonald:

Q. Are they as fond of spirits as the Indians of the British Columbia coast? A. They are extremely fond of spirits. The bush and plain Indians are the same in that respect—they will sell anything they have for whiskey. They will pray to you as to a god, to give it to them. An Indian who has drunk whiskey is looked upon as a great man amongst them. I had an Indian from Collingwood, who travelled with me through the wooded North-West. We came to a band of Indians who had never seen a pure-blooded white man before—who had never seen any human beings but Indians and half-breeds. The Collingwood Indian told them wonderful stories of civilized men. They said: "Although you are an Indian you may have tasted whiskey." He said, "I have been drunk many a time." They looked upon him as a great Indian after that.

By the Honorable Mr. Girard:

Q. They thought he had made the acquaintance of a great spirit? A. No; they supposed that he had experienced a new sensation.

Q. Are there not instructors appointed and paid by the Government to teach agriculture to the Indians in that country? A. Yes.

Q. Have you been able to ascertain what they have done in the interest of the Indians? A. As far as I have seen them they have been doing a good work. I visited their places principally in the North Saskatchewan country, and the example they were setting of industry to the Indians was good as far as I could see.

By the Honorable Mr. Allan:

Q. Did you see the Indian school at Qu'Appelle and the Indian farm there at the furthest end of the lake? A. I have been at their places in the Touchwood Hills—at Muskowequan's reserve and at Poor-man's. This farm is under the auspices of the Government and there is a large number of Indian boys upon it. When I was there they were digging potatoes like white children of similar age and seemed to take to the work very well. The only way we shall succeed in doing anything with them is to catch them young.

By the Honorable Mr. Bolduc:

Q. Do they seem inclined to work? A. The young people when they see white men working will probably fall into it. Until this present generation, they have never seen white men cultivating the ground. They cannot believe such a thing is possible until they see it tried.

By the Chairman:

Q. Among the food supplies you have mentioned, you give prominence to geese and ducks of this northern region that Mr. Girard has referred to. Do you know any means by which these immense flocks of geese could be preserved and transported for supplies to less favored districts? A. They are palatable food when salted. At the Hudson's Bay Company's posts around James Bay and Hudson's Bay they salt them in casks, just as we would pork or beef.

Q. How long did they expect them to keep in that way? A. Generally one year. They generally eat one year's supply before another comes in, but I should think they would, if well cured, keep for two years.

Q. Could these geese be caught in large numbers at points where they could be shipped to other places where they could be utilized? A. They can be shipped easily enough by sea from James' Bay and Hudson's Bay. They are very abundant on both shores, and could be shipped from these points, and they are very abundant on the great lakes of the North-West, as Lake Athabasca for example.

Q. What would be the comparative rate of transportation of such salted casks of geese or ducks from York Factory—say from Lake Athabasca to Lake Winnipeg? A. There is no present means of transport by which they could be moved at all to compete with food from the south. They are more wanted where they are. Food is more scarce and dear there than further south.

Q. Are you aware the Indians in that district have not been treated with—that it is only incumbent on the Government to provide food for the Indians that have been treated with? The question that the Committee desire to ask is whether these geese could be got from the Indians in that country salted and transported south at as low a cost as food from this part of the country? A. I should think not, unless some improved means of transport existed. They would cost more than pork or beef for example.

Q. What is the charge per hundred pounds made by the Hudson's Bay Company for transportation from York Factory to Winnipeg? A. I do not remember, because I have never had any occasion to pay for anything of the kind. I always had my own boats and crews travelling over that country, and never paid anything for freight.

Q. Which of the indigenous plants, can, in your opinion, be materially improved in quality, quantity and size by cultivation, grafting or budding? A. I should think the wild plums which are a very useful article of food for the Indians in the southern portion of the country could be improved by grafting or budding. It has been found that while the native trees do not grow fruit, sometimes by grafting with a larger or better variety from the south, good crops of fruit are produced.

Q. Is there any other plant besides the plum? A. Not that I have any distinct knowledge of. The saskatoon or service berry is one that gives a great deal of food to the Indians at certain seasons. It is a sugary luscious fruit, and grows to greater perfection and gives more fruit in the west than in the east. It seems to be in its home in the prairie country.

Q. Are there any means of preserving, by drying or otherwise, those fruits? A. Yes; drying is a process that could be adopted by the Indians. They can be dried and preserved in that way.

Q. The next question is "what grains, grasses, fruits, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits"? A. First in regard to grains I should think barley for the food of the Indian himself would be the most appropriate in the prairie country, and in the southern parts of the wooded region the early varieties of Indian corn are found to grow. They grow as far north as Osnaburg Lake, about latitude 51 degrees, and pumpkins also become mature in the same latitude.

Q. What is the northern limit of barley cultivation? A. Barley has been cultivated in this wooded country as far north as Oxford House, latitude 55° on the boat route from Lake Winnipeg to York Factory, on Hudson's Bay.

Q. How much further north have you seen rye growing, and have you seen it growing? A. I have not seen rye growing in the North-West. Barley is the grain cultivated in the northerly portion. Barley grows all through the northern section between James' Bay on the one hand, and Lake Superior and Lake Winnipeg on the other.

Q. You mention barley as one of the grains that would be advisable to induce the Indians to cultivate? A. Yes, because they can eat it without any milling. They prepare it themselves by boiling it. They soak it in ashes and take the outer skin off and then boil it. It does not require to be ground to use, and besides it is hardy and a good crop. It would be the best grain to encourage our Indians to cultivate.

Q. Is that not also true of the early varieties of corn that you have mentioned? A. Yes, Indian corn. They treat Indian corn the same way as barley, but it does not grow by any means as far north as barley. It grows only in the southern part of the district we are speaking of. Still the region in which Indian corn will grow west of Lake Superior is of immense extent in the aggregate, and corn enough can be grown there to feed the whole Indian population.

Q. Will you please briefly define the extent to which Indian corn can be grown ?

A. When you get away from the immediate influence of Lake Superior it grows in the southern part of the country westward to Manitoba, or rather to the prairie country—because Manitoba extends into the wooded region—and as far north as Lonely Lake and Osnaburgh House as already mentioned.

By the Honorable Mr. Kaulbach :

Q. Is it grown there to any extent ? A. No; not to any extent. The Indians cultivate what they call squaw corn—an early variety.

Q. But barley is the safer grain to grow ? A. Yes, and wherever they grow corn they can grow pumpkins.

By the Honorable Mr. Allan :

Q. Would not pumpkins form an important article of food ; they grow so rapidly and ripen so early before the frost comes ? A. Yes, and they can be grown in the same district I have indicated for Indian corn.

Q. Would they not grow further north than that ? A. I doubt it. They do grow cucumbers and melons as far north as Lac la Biche. I have seen them there myself, and I am not sure but they do grow pumpkins too. Where cucumbers and melons grow pumpkins will grow also. It is hard to induce the Indians to grow anything. Even potatoes which they all know to be a safe crop they will not grow unless encouraged by supplying them. If supplied with seed in the fall they will not preserve any over the winter. They would not take the trouble to dig a pit or build a cellar in which to preserve the seed ; but in the spring when the time comes for planting, if anyone were to give them the seed they would plant it. I was going to suggest about roots and vegetables, that I think potatoes, turnips, artichokes and carrots are the most suitable. Artichokes would be very suitable to introduce amongst the Indians, because they are very hardy and productive ; the seed remains in the ground and the Indians could not destroy it all.

By the Chairman :

Q. You have mentioned barley and early corn. Is it your opinion that these will produce the greatest amounts of food suitable for the Indians with the least effort in cultivation ? A. As far as grain is concerned I think barley and Indian corn would—indeed there is no great choice, because the climate is too rigorous for the growth of all kinds of grain. Wheat would grow in the same southern districts as corn, but they would have to treat it the same way as they now treat barley—boil it whole—as they could not bring it to a mill. After it is made into flour it is not as wholesome for them as barley, because they mix the flour with water and eat it as a half-cooked paste, which is indigestible and does them more harm than good.

The Committee adjourned until Wednesday at ten o'clock.

LETTER FROM MR. ADRIEN NEISON TO HONORABLE MR. SCHULTZ
BAD THROAT RIVER,

LAKE WINNIPEG, 18th March, 1887.

To the Hon. JOHN SCHULTZ, M.D.,
Winnipeg, Man.

DEAR SIR,—In reply to yours of the 18th February, I would say that I can only give you information in regard to the wild rice fields in the neighborhood of Lake Winnipeg. I am well aware that wild rice is found in many places besides Lake Winnipeg, but as my actual experience in the handling of it is confined to that locality I only purpose to treat of it as I find it here. However, it may be of some interest to know, that all through the lake district lying north of the Canadian Pacific Railway from Rat Portage as far east as Michipicoten on Lake Superior, wild rice is found in large fields ; especially is this the case at Lac Seul and its vicinity, and between English River (the north branch of the Winnipeg River) and the lakes which are close to the Canadian Pacific Railway as far west as Whitemouth River.

The Lake Winnipeg rice fields are found in the vicinity of Bad Throat River, Hole River, and Blood Vein River and they also extend as far north as Poplar River in the interior, especially on the head waters of Berens River. Wild rice is not found at all on the west side of Lake Winnipeg. In some of the above localities there are immense quantities of it, notably is this the case at Weeluskawasipi. These latter are the fields that can be most easily worked as they are not far from the main lake (Lake Winnipeg). The mouths of the above mentioned rivers and many small streams betray the existence of the rice in the interior for the seed has drifted down and sown itself at their mouths, which may be seen at Sand River, Bad Throat, Hole River and Askandago Sippi. It is not found on Lake Winnipeg itself in any quantity except in a very few secluded bays.

I have never met with any case of the Indians planting the rice for themselves and it is not to be expected that they should do so when nature has been so very bountiful in her supplies, and as it is a very hardy plant nothing in the ordinary run of life would be capable of destroying a rice field, and its position in the water and porous aqueous nature renders it safe from fire. That it requires but little care for its cultivation is evident because careless handling of the rice by the Indians when unloading their canoes at the rice gathering camps has sown it all around these spots. Two years ago I sent into the settlements two bushels of seed for the experiment of planting it so as to establish a wild duck feeding ground for hunting purposes. This was done on Nettley Creek close to Selkirk, and though tried under most unfavorable circumstances the experiment was a fair success as far as the propagation of the rice was concerned.

The most necessary point to obtain success in the cultivation of wild rice is a good and fairly steady depth of water, and if possible, what is known as musky water. Waters containing a large percentage of lime and subject to sudden floods or frequent changes of depth do not appear suitable, although there are some fine, though small, rice fields which yield good crops, existing close to this place under these conditions. It is certainly a water plant, for it is always found growing in the water, and not merely in marshy ground, in fact I never saw it growing out of the water. I always find it growing in the water from two to seven feet deep, and usually in still water, but never in stagnant water. A gentle stream or a small lake with a river running through it always has the most abundant crops. Soft muddy bottom is what it loves best, especially if there is a large percentage of muskeg loam in its composition. But some places it grows in sandy gravel bottoms. The root of this plant is not very large, the largest feeders being not more than 10 inches, but the stem also trails along the ground for many feet, at every joint throws out an abundance of auxiliary feeders. In suitable positions it grows so thickly that it is impossible to force a canoe through it, the stems and feeders being so densely packed at the water's surface that it will bear up a man running quickly over it. Wild rice grows very quickly, showing itself above the water about the end of June and ripens by the first or second week in September, by which time it will stand four, five or even six feet above the water. It is this rapid growth, especially in otherwise favorable seasons, which now and again renders the crop almost a complete failure, for if there should perchance occur, as was the case last summer, a severe wind storm in the latter end of August, the rice fields are flattened into the water, making it impossible to gather it with the crude implements the Indians have at their command.

Ducks and geese frequent these wild rice fields in thousands and grow exceedingly fat, especially the common wild duck or mallard, and the green-winged teal. Mice and squirrels are the only animals that to my knowledge use the grain for food, though muskrats eat it when it shoots above the water in June. Innumerable small birds frequent the fields and large flocks of starlings and yellow cardinal birds. When it is gathered and drying the Indian dogs are very greedy for it, and sometimes a bear will come upon an Indian's cache and devour the whole of it. The reindeer and moose do not eat it.

I have no doubt but that under proper management wild rice could be successfully cultivated in swampy districts, but it would require, as you suggest, sufficient

water by drainage, and that water supply kept at a fairly even depth, during the growing season of July and August. This could be done in many localities with ease, and there are also many rivers and small lakes fed by rivulets where wild rice might be successfully grown, and which now do not produce any. In the west the Qu'Appelle River and lakes, the head of the Pembina River and lakes, Eagle Creek and its extensive marshes, besides many others are in my opinion well suited for some experiment in this way. Being personally and intimately acquainted with these places I do not hesitate to pronounce this opinion.

The yield of wild rice is very great but I cannot say exactly what might be the quantity per acre, approximately I would say nothing less than 35 bushels per acre in favorable places and 15 bushels as an average for a field planted by nature. Its head is very prolific containing from 14 to 20 grains and it stands much thicker than grain in a first class field. Often I have taken a bushel out of my canoe which has been thrown into it by the action of my paddle in the distance of half a mile of travel through a rice field. As the Indians do not clear any given spot but push the canoe haphazard through the grain when gathering, it is impossible to do more than approximate the yield. The lake whereon I gathered rice last year is about 2 miles long by an average width of three-quarters of a mile. It is one dense mass of rice and a passage for our canoes had to be made by beating down the grain with long poles and canoe paddles to enable us to reach our camping ground at the far end. I estimated the yield of this lake at 14,000 bushels or say about 315 tons of rice. It weighs about 45 lbs. to the bushel.

The Indian mode of gathering and harvesting is very simple. Two women go in a canoe (the men are usually hunting deer about this time) each provided with a stick about two feet long in each hand. With these they gently bend the rice into the centre of the canoe and with a slight motion of the wrist strike the grain off into the canoe. When the canoe is loaded they go ashore and pile up the rice on a clean clear rock to harden and dry, often turning it over to prevent it heating and spoiling. When it is nearly dry enough they place it on a stage made by dividing four sticks into the ground and then tying by the four corners a piece of rough woven canvas such as used for oat bags to the sticks, this forms a platform and on it the rice is placed lying about one inch thick. A small fire is kept burning underneath, the heat from which dries and thoroughly smokes the grain while the constant stirring and shaking necessary cleans and loosens off the husks. This is a slow and troublesome process. It is winnowed by throwing it in the air on a suitable day. This process produces the common rice in use by the Indians. Early in the season a small quantity is made as follows, and it makes a better food and is much preferred by the Indians. No doubt all the crop would be prepared in this manner if the Indians had suitable means and implements to do it. The grain after being gathered is put into a cast iron pot over a slow fire and kept constantly stirred to prevent it burning. This is continued until the husk loosens and the grains swell somewhat like parched corn. It is then put into a bag which is put into a round smooth hole made in a sandy spot in the ground. A pounder is made and the rice is gently but briskly pounded which cleans the husk completely off the kernel. This is winnowed as before and leaves a first class article of food. This is called green rice and the former kind smoked rice. Sometimes when pressed for time the Indians simply gather the grain and prepare it at leisure by the latter method during the winter months.

The question of supplying a large quantity of rice, if the Government should desire it, has some difficulties about it. In the first place, as no labor could be obtained understanding the process except that of the Indians, it would be impossible without ample notice to find labor enough for the gathering and preparing of a very large quantity. Again, a large quantity could not be shipped out in the summer without improving some twelve miles of a river by making good portage paths, &c. In winter, say December, this same rice could be teamed out to the settlements by cutting a trail suitable for a team a distance of 83 miles from Selkirk, where now only a dog-sleigh trail exists; this would be four miles long. With the appliances at present at command five tons of dressed rice could be obtained here, and if ample

notice, say at the opening of navigation, was given, double this quantity could be got out. The grain itself, as it is gathered and simply dried, as wheat is for future treatment in the mill or for seed, which in my opinion is the best way to get a supply, could be obtained much easier, as very much skilled labor is not required to gather it. Of course this is the condition it would have to be delivered in for seed. The improvements and appliances required for supplying a large quantity of dressed rice would cost an outlay of capital, which, perhaps, an experiment would not warrant, so I would suggest, that if the Government considered it was desirable to try and introduce it in the west, that a supply of four or five tons of dressed rice divided and introduced on different reservations in sufficient quantities to obtain a data to work from, and say a similar quantity of raw grain for seeding purposes placed in the hands of suitable men for experimenting, would be all that was requisite. All this, however, is merely suggestion; no doubt you have already determined on some line of action in this matter. I would be willing to undertake to supply from two and a half to five tons of dressed rice at five cents a pound, and a similar quantity of raw rice at three and a half cents a pound, or I would furnish a smaller quantity at the same price. I would deliver it on the steamer at Rice River in the summer months, or on the teams at Rice River Lake in winter, cutting the road and making what improvements are required to do this. Both of these places are under 85 miles from settlements at Red River.

I send you per sample post specimens of the green and smoked rice.

I am, Sir, yours very faithfully,

(Sgd.) ADRIAN NELSON.

AMEDÉE E. FORGET, of Regina, Clerk of the North-West Council, called and examined.

By the Chairman :

Q. We have taken you a little at a disadvantage. In all other cases we have presented this list of questions to gentlemen called upon to give evidence a few days before their examination. Unfortunately we have not been able to do that in your case, but these questions will be put to you in the order in which they appear on the printed list, and you can either answer orally or in writing as you prefer. The first question is, Over what portions of Canada west of Lake Superior, have you travelled, and what other portions of that region are you familiar with, from the reports of reliable persons? A. I have travelled over the whole of the North-West Territories south of the North Saskatchewan River, and also in most parts of Manitoba.

Q. Will you give a list to the Committee, of the plants, animals, birds and fishes suitable for food with which you are acquainted, and the districts in which they are chiefly to be found? A. I would prefer to give a list in writing of those. Just now I may not be able to remember all the plants and birds with which I am acquainted and my evidence would be incomplete in consequence.

Q. Perhaps you could mention a few prominent ones? A. Do you mean by plants those which are indigenous to the country which are fit for food?

Q. Yes. A. The only one I remember now is the wild turnip. This grows extensively throughout the whole of the North-West Territories. It is fit for food in the spring—in May and the first part of June—up to about the 15th of June. I have eaten some of them myself. I do not particularly fancy the taste of them, but still I found there was nourishment in them, and the Indians make extensive use of this root whenever they have nothing else to eat. We have also mushrooms growing in large numbers everywhere almost. Those are very good and most of the mushrooms in our country are edible. You are ordinarily subjected to danger from poisoning, but it is not so in our country. I have often tried one which is considered there to

be poisonous—the puff ball, which grows to an immense size. I cut some of them down and fried them in butter, and I am here to-day. They are not so good as the others; the taste is not so fine, but they are edible.

By the Honorable Mr. Macdonald:

Q. Do the Indians use them? A. They do not. I have had personal experience with them on the subject of mushrooms and it was very unsuccessful; that was in 1878. I was in Battleford at the time and there were in the vicinity of two thousand Indians near the place. They were almost starving for want of food. The mushrooms were plentiful around their tents. Not only were the Indians in want of food, but we were ourselves in almost a starving condition. It was in the spring and communications with Winnipeg were difficult. It was 650 miles distant by the trail and the first provisions had not arrived, so the whole settlement were almost in a state of starvation more or less and we had very few animals. Finding the mushrooms plentiful at the time we collected them and ate them. I remarked how curiously the Indians looked at me when I was gathering them, and that they were laughing, apparently, wondering what use I could possibly make of them. I brought one of the Indian chiefs to my place and got an interpreter and explained to him as they were starving—as we were all starving—it was fortunate that we had those mushrooms so plentiful around us, because if nothing else remained we could live on those any way. I told him they were very good eating, and to prove it I would prepare a dish for myself and family, which he would be invited to taste. While the cooking was going on the kitchen had to be left a minute or so and the man disappeared. At that time I did not know that the puff ball could also be eaten without danger, and I had been telling him that some of those mushrooms were poisonous and that great care should be taken in collecting them. I suppose this frightened him. He thought perhaps that I might have gathered some of the poisonous ones, so he suddenly quitted the place and I could not get him to try the mushrooms at all. Up to the present day I do not know that a single Indian has eaten a mushroom. However they might be induced to eat them if they can get nothing else.

By the Honorable Mr. Ogilvie:

Q. How long do they last? A. Unfortunately they do not last very long. That spring they lasted about three weeks. It is not every year that we have them.

Q. Do they not grow in September also? A. They do; but not in every part of the country at the same time. Sometimes you may travel through extensive portions of the country where you have seen them, and none can be found, and then you will strike other portions of the country where you have not seen them but where they can be had in abundance.

By the Honorable Mr. Macdonald:

Q. It depends upon the rain fall, I suppose? A. Yes, and that year we had a good deal of rain.

Q. Are there any poisonous mushrooms that you know of? A. I have not seen any. The only other kind that I saw were those that we collected—that is the puff balls, as we called them—I do not know the scientific name. We generally threw aside the puff balls, but Sheriff Richard happened to be stopping with me one day and he said that they were as good as the others. At his suggestion we tried them and they proved to be good.

By the Honorable Mr. McInnes:

Q. At what part of the North-West were you when you saw those? A. At Battleford, at the junction of the Saskatchewan and Battle River. The crops are in the spring and the fall.

By the Honorable Mr. Turner:

Q. Is it along the banks of the river that you get them? A. We get them everywhere on the prairie.

Q. I suppose out in the sun, and not amongst the trees? A. I never saw them among the trees. In the woods you find mushrooms with stems growing; those we do not touch at all. You do not find those on the prairie—you find them growing among the trees.

By the Chairman :

Q. Can you think of any other plants or fruits? A. We have a fruit called the saskatoon. It grows on trees alongside of most of the rivers all through the country—the Saskatchewan, the Battle and the Qu'Appelle Rivers—alongside of streams everywhere. They are very plentiful. It is a fruit resembling blueberries very much in appearance. It is not quite as blue, it is darker than the blueberry, but in shape it is very much the same. In taste it differs in this respect—it is much sweeter. You can eat a great deal of it, and I have seen Indians living entirely on those berries for days running with nothing else. They collect them during the ripening season in August, and dry them, and use the berries in winter with their meat.

By the Honorable Mr. Ogilvie :

Q. Do they not mix them with pemmican? A. They used to when pemmican was plentiful.

By the Honorable Mr. Turner :

Q. What sizes are the trees? A. Various sizes. In the bush you will find them up to twenty feet high. Outside the bush you will find little bushes like currant bushes, and they grow from that up to about twenty or twenty-five feet, but the best berries are those found on medium size bushes.

Q. About the size of the ordinary currant bush? A. About six or seven feet high—you will find the best berries on those trees.

By the Honorable Mr. Kaulbach :

Q. Are they like the huckleberry we have in our country? A. Yes, something like that. An experiment has been tried in two different years—last year and the year before—by a friend of mine living at Round Lake, on the Qu'Appelle River, Mr. Decazes; he has made wine with these berries. He exhibited some at the Exposition held last fall at Regina. He had a few bottles of this wine, and as a friend of his I was given a couple, which I had in my house during the winter, and with which I have treated some of my friends passing that way. It certainly is a good wine. It was the first time, as he explained to us, that he had tested it. The second time showed great improvement on his first experiment, and he is quite sure that next year he will produce much better wine than he did last fall. He is very confident as to his success in making wine of the saskatoon berry.

Q. What is the nature of it? A. In color it resembles port wine or claret of that color, and in consistency it is like claret. In taste it is a little sweeter than claret, but still it can be used at the table as ordinary claret.

By the Chairman :

Q. Has he tried that experiment with any other berries? A. I think he has, but I have not seen the result myself. He feels confident as to the success of it, and if he does succeed, he says there are hundreds of acres of those berries right around his place there.

Q. Has he tried the experiment of improving the size or the quality of those berries by cultivation? A. Not to my knowledge.

Q. Have you in that country the high and the low bush cranberry? A. We have. They are very plentiful around Prince Albert settlement.

By the Honorable Mr. Sutherland :

Q. That is the high bush cranberry? A. We have the two kinds. We have none, I believe, in the country resembling those we get from the east here. They are very large that you send us from the east; ours are much smaller, but they are more pungent—more sour than those we get from the east. They are very good. The high bush cranberries are more plentiful in the country generally, but they are not used extensively. We make jam of it—that is all—on account of those flat stones in them. We cannot use them as we do the others.

By the Honorable Mr. Ogilvie :

Q. Have you the wild plum too? A. No, I do not know of any wild plum in the country.

By the Honorable Mr. McInnes :

Q. Is this saskatoon berry found in any great quantity in the North-West country? A. It grows in enormous quantities.

Q. All over the country? A. Yes, all over the country.

Q. Do they grow alongside of streams? A. Generally alongside of streams. I remember having seen them in clumps of trees away from the streams. You find them also at Eagle Hills, that is near Battleford, away from the streams. They are very plentiful.

Q. Where there is bush of course? A. Yes, where there is bush; they do not grow singly.

Q. Have you the gooseberry there? A. Yes, in large numbers. They are small but very good—just the same as you have in most of the gardens here.

Q. Have you ever tried to transplant them? A. Yes, it has been tried and proved very successful. I have transplanted a few myself this spring. Of course I have not seen the result, but I have seen them growing elsewhere. At Qu'Appelle Mission I may mention, the Roman Catholic Mission there have their garden full of these berries grown in the country, and they grow larger—the fruit is much larger than the fruit of those you find in the fields. We have also the black wild currant and the red currant. The black currant is more plentiful than the other. Then we have the strawberry and raspberry.

By the Honorable Mr. Carvel :

Q. Have you grapes? A. No.

Q. Have you hops? A. Yes; we have hops in the valley in considerable quantities. They have them also to my knowledge at St. Albert, about nine miles north of Edmonton. They grow hops there at the nunnery in their garden and use nothing else in making bread but these hops that they grow themselves.

By the Honorable Mr. Turner :

Q. I saw very fine tobacco growing there also? A. Yes; Mr. Decazes has tried to cultivate tobacco and he exhibited some which appeared to be—I am not much a judge of the article—in good condition. Tobacco is also grown successfully at St. Albert. They have grown it for a number of years back and use it. That is the tobacco which is used at the Missions by the Brothers. I believed they have improved every year in the manufacture of it. They make a good kind of tobacco now.

By the Honorable Mr. Girard :

Q. Have you tried it? A. No, I have not tried it myself, but I am told that it is much stronger than the ordinary tobacco you buy.

Q. It must be known to the Indians that they are growing it? A. They only have such as the Fathers give them; they only grow it for their own use there.

Q. Amongst the fruits you mentioned some time ago was the saskatoon—is it not the same as the petite poire? A. Yes, it is just the same.

By the Honorable Mr. McInnes :

Q. What is the extent of country over which tobacco and hops are grown in the North-West? A. I do not know of any other persons who have been growing tobacco except the mission settled there and Mr. Decazes at Qu'Appelle. In the case of Mr. Decazes it was more an experiment than anything else. At the mission they have grown it for a number of years for their own use; they only grow a quantity sufficient for their own consumption.

By the Honorable Mr. Carvell :

Q. It does not grow wild, I suppose? A. No, it does not grow wild. It is not indigenous to the country.

By the Honorable Mr. Bolduc :

Q. Is the saskatoon of which you speak the same as the berry we have in the Province of Quebec? A. I do not know that they have the saskatoon there—at least in my time they had no such fruit that I know of.

Q. We have what is called the petite poire? A. Yes, exactly.

By the Honorable Mr. McInnes :

Q. Over what extent of country is the wild hop to be found there? A. The only place where I have seen it in a wild state is in the Qu'Appelle Valley. At St. Albert I have seen it in their gardens and I have been informed that they had grown it from plants found in a wild state in the vicinity, but I do not remember to have remarked

it particularly in the vicinity—at least I did not pay attention to it—but the soil is about the same as in the valley of Qu'Appelle; and in the Qu'Appelle country I know it grows in large quantities.

Q. It is indigenous there, is it not? A. Yes, it grows everywhere.

Q. And you do not remember to have seen it anywhere else? A. No, I do not remember to have seen it at Battleford.

Q. Or further south, towards the boundary line? A. No; further south it is open plain. There are no trees.

By the Chairman :

Q. It has been translated from the wild state at St. Albert, as you have mentioned; is there a large extent of country similar in soil and climate to St. Albert where it might be reasonably hoped that it would grow? A. I believe you could grow it anywhere in that country.

Q. Is that true also of tobacco? A. Of that I cannot speak.

By the Honorable Mr. Girard :

Q. In your travels have you met any vegetables or plants which might take the place of spice? A. No. We have wild garlic growing everywhere in the country.

By the Chairman :

Q. Have any experiments been made in improving that by cultivation? A. Not that I know of.

Q. Have any experiments been made in improving the wild turnip? A. I do not know of any instances.

Q. Can you give the Committee an idea of how much wild turnip would be picked up by the Indians in say a quarter of a section? A. I could not give you any information upon that point?

By the Honorable Mr. Girard :

Q. Have you not heard that something has been found similar to the truffle? A. No, I do not know of anything approaching it. With regard to wild turnips, since we have the domestic turnip that is grown in this country, and which thrives very well there, I do not know whether it would be advisable to give more prominence to the wild than to the various cultivated varieties that we have here. Of course the wild turnip you can always depend upon. They are in the country already; if you are travelling across the plains and want vegetables you can always have them in that country at the proper season.

By the Honorable Mr. McInnes :

Q. What is the size of those wild turnips? A. They are various sizes, I have seen them about six inches long and about the size of your wrist.

Q. They are more like carrots then? A. Exactly. They are more the shape of a carrot and dark in color—they are like parsnips.

By the Honorable Mr. Sutherland :

Q. The outer skin is dark, is it not? A. Yes; but the inside is white.

By the Honorable Mr. Kaulbach :

Q. Is the taste disagreeable? A. No, it approaches the ordinary turnip, but it is not so good. It is harder. When it gets late in the season it becomes like wood. It gets very hard—almost as hard as wood. If you get the root at the proper time it is soft enough. They are eaten either raw or boiled.

By the Honorable Mr. Macdonald :

Q. I suppose the Indians only use them when they are hungry? A. No; they seem to like them. You see young children with carrots in their hands eating them raw. As these turnips do not come up at the same time of the year as the domestic turnip, they might both be cultivated with advantage. The wild turnip is fit for use in the spring. The cultivated turnip is fit for use only after the latter end of July.

By the Honorable Mr. McInnes :

Q. How early in the spring are the native turnips fit for use? A. As soon as the snow is off the ground. In that respect it resembles the cultivated parsnip—it is fit for use very early in the spring.

By the Honorable Mr. Sutherland :

Q. Do you not think that wild turnips which are found in the ground in the spring are the product of the former year? A. They must be the product of the year previous.

By the Honorable Mr. McInnes :

Q. You mentioned the fact that towards the fall of the year they become hard? A. Yes.

Q. Does not that condition exist in the spring of the year? A. I never took particular notice how they grow, but I should say the turnip in the spring time grows hard, and in the course of time is the seed of another one for the following year. I do not believe it is the same one which the following year becomes good again. Of course I could give you no information on the subject. I have not followed its growth.

By the Chairman :

Q. Is there any practical means that you would suggest to the Committee of preventing the entire destruction of these roots and of increasing their growth? A. No.

By the Honorable Mr. Girard :

Q. You have been living for sometime in the North-West Territories, have you not? A. I have been living there eleven years, since 1876.

Q. Can you safely rely on the natural products of the North-West country to maintain its population? A. Yes, I believe so. I believe as far as the growth of vegetables is concerned we can always depend upon a sure return every year. Even last year, which was exceptionally bad—the very worst I have seen since I have been living in that country—there were splendid vegetables exhibited at all our exhibitions throughout the country. The return was not as good or as much as the returns of previous years, but still there was sufficient for the home consumption. Our potato crop failed to some extent because there was a second growth in some cases. The drought was so intense at one time that the tubers formed at one part of the season ripened in that state, and then commenced to grow again as if they had been planted for seed. The result was that when the potatoes were dug up in the fall we discovered this peculiarity, that some of the first crop remained which were very small and very dry; the others were numerous, but small too, and had not attained maturity. It was only in some cases—it was not general.

By the Honorable Mr. Carvell :

Q. The yield of all vegetables is very large in the North-West as compared with the east? A. Yes; our potatoes grow very large. Last year was the only one in the eleven years that I have spent in that country in which our potatoes have not proved a perfect success.

By the Honorable Mr. Girard :

Q. What different places have you visited during the time you have been living there? A. During the rebellion of 1885, being one of the Commissioners on the Half-breed Commission, our duty called us all around the country, so that we have seen every place and eaten vegetables at every settlement, and my remembrance is, as far as the potatoes were concerned, they were as good in one place as another.

Q. During the eleven years you have been there you have not witnessed the complete failure of the crops? A. No; not in the line of vegetables.

Q. Do the Indians try to make use of those natural products? A. They do. On a number of reserves they have been very successful too. On the South Saskatchewan River there is a reserve near Prince Albert where they are good farmers, and they are endeavoring to cultivate the land. They certainly have been as successful as their white neighbors.

By the Honorable Mr. Macdonald :

Q. Is it possible that they can ever become self-supporting? A. If care is taken of them I believe they will—not the majority of them, and a good portion of the Indians are certainly inclined to work.

Q. They can grow potatoes, and I suppose there is plenty of fish and game in the country? A. They can grow anything that the white man can grow.

By the Honorable Mr. Kaulbach :

Q. Do cabbages grow there to any great size? A. Yes, to an enormous size.

By the Honorable Mr. Ogilvie :

Q. Have not the Stony Indians in the Rocky Mountains been actually supporting themselves for some years? A. I do not know that personally, but I have heard it frequently stated, and I have no reason to disbelieve the report. I lived at Battleford five years, and had more intercourse with the Indians there than I have had since. I am speaking now of the years from 1877 to 1880. I saw them then more frequently, and they were about commencing to cultivate the land. In all cases where an Indian started a garden he seemed to be giving more care to it than we did ourselves. At any time during the summer you could hardly detect one blade of grass growing between their vegetables. Their gardens were kept clean. I am speaking now of seven or eight years ago. I have not seen them since, but I believe they must have improved. At Qu'Appelle we have several reserves along the Qu'Appelle River and the Indians are doing well in that line. Last year the crops were a failure in our part of the country, so they were not very successful in that respect any more than we ourselves were, and to show the endeavors they made to work for their own support, I may mention that they turned their attention to cutting hay. It so happened that on their reserves and in the vicinity of them there were good hay marshes and they cut a large quantity of hay which they sold to the North-West Mounted Police during the winter. On my visit to the North West Mounted Police I do not remember a day passing without meeting on the way some loads of hay coming in, brought in by the Indians; and their cattle were kept in good condition too.

By the Honorable Mr. Macdonald :

Q. How did they spend their money that they got in that way: did they spend it foolishly in trinkets or did they purchase food? A. So far as I am aware they spent their money wisely.

By the Honorable Mr. Girard :

Q. Is there any expectation that the amount of public money spent to supply the Indians with food, will be diminished before long? A. I cannot speak about that.

Q. You have seen how they are managing to maintain themselves? A. Of course the Indians, as well as the white men, will have to contend with the difficulties in the way of cultivating the country. Of course it will prove worse for them than for us if the difficulties are serious. When the Indian sows seed and does not get a return he is discouraged and does not want to try again. It will take some years before the appropriation for the support of the Indians is diminished.

By the Honorable Mr. Macdonald :

Q. Do you think the Indians are increasing? A. I do not think they are. I think they have rather diminished in number than increased.

Q. The reports of the Government show that in sixteen years the Treaty Indians alone have increased by ten thousand? A. This may be accounted for in this way: I suppose the Indians are counted on the pay list. They say there are so many Indians because they have paid money to so many. For a number of years there were Indians outside of the treaty, but every year brought more of them in so that they appeared to increase every year in the statistics of the Indian Department. That is accounted for in this way: There was an increase in the number of Indians paid, and that is due to the fact that new Indians were coming into the treaty. I believe they are all in now.

Q. Do you think they committed fraud by representing their families to be larger than they were? A. No, I do not think they committed fraud. That has been tried three or four times without success. It has been detected every time and has been stopped. The first case of the kind occurred three or four years ago. Before that it never occurred to an Indian to attempt anything of the kind. When an Indian was questioned as to his family he generally gave the exact number. It was only later on that they tried to play this trick. At first there was no attempt at deception. So far as my knowledge goes all the Indians of the North-West Territories have taken

treaty at present so that by following up the statement made before the House every year you will be in a position to see whether the population is increasing or not.

Q. We would like to have your opinion as to the crops: are they as secure against frost in the North-West country that you have visited as they are in the country between Lake Superior and Manitoba? A. I think so.

By the Chairman:

Q. Will you please give us some information now regarding the animals and fish? A. In the line of animals we used to have the buffalo. It is extinct now.

Q. Wholly extinct? A. Yes. We have moose and a variety of deer—I am not acquainted with the different varieties, but we have the red deer and the jumping deer. I have three of the latter kind at home that I tamed. We have bears—the cinnamon and the black bear. I have never seen a grizzly bear in the North-West Territories. I am told they used to be there. We have other animals such as the beaver, but those are not fit for eating, and wolves and dogs. Dogs are considered a great feast with the Indians. We have also the beaver.

By the Honorable Mr. Carvell:

Q. And frogs? A. Yes, and frogs.

By the Honorable Mr. Sutherland:

Q. The beaver is not very plentiful south of the Saskatchewan—is it? A. No; they are getting more scarce every year.

By the Honorable Mr. McInnes.

Q. Have you plenty of frogs in the North-West Territories? A. Yes they are very plentiful.

Q. Do the Indians eat the frogs. A. I am not aware of it.

Q. Not even when they are in a starving condition? A. No; I have never heard of an Indian eating a frog. They eat what we call the gopher. They were very numerous last year, and the Indians ate them.

By the Chairman:

Q. Have you the rabbit? A. Yes; I was forgetting the rabbit.

Q. In what part of the country is it to be found? A. We have them everywhere in that country. At least, I have killed them every place I have been myself.

By the Honorable Mr. Turner:

Q. Have you the hare? A. Yes, we have the prairie hare, which is a much larger animal than the wood rabbit.

Q. Are they good for food? A. I have never tasted them myself. What I call the prairie hare is certainly double the size of what we call in that country the rabbit.

By the Honorable Mr. McInnes:

Q. I presume that is what they call the jackass rabbit on the Pacific coast? A. Yes, we have them but they are not so numerous as the others.

Q. Are the rabbits found in very large numbers? A. Yes; they are not so numerous just now. There is a peculiarity about them—every seventh year, according to tradition existing among the Indians, and half breeds and old countrymen—they disappear, or nearly entirely disappear, and immediately after every year they increase in numbers until they become almost a pest—they become very numerous—and then at the height, as it were, of their numbers, a disease overtakes them, and you find them dead everywhere.

Q. How do they become a pest? A. They are not actually a pest, because the country is so large and they disappear in the way I have described, and do not destroy anything. At least they have nothing yet to destroy. The last time they were numerous was in the winter of 1883. If I am not mistaken that is the last year in which they were very numerous, so we have three years more to run.

Q. And to your knowledge they increase each year in numbers? A. Yes, undoubtedly. The year before last they were hardly to be seen anywhere. Last year more of them were brought in, and I have no doubt this year more still will be brought in.

Q. Have they destroyed any of the gardens there? A. No, not yet, that is why I withdraw the word pest.

By the Chairman :

Q. Are they a prominent article of the Indians' food? A. Yes, the Indians use them largely.

By the Honorable Mr. Kaulbach :

Q. Then from your experience there is no necessity of using any means to increase or propagate them? A. No, there are animals enough. Of course in the years when they begin to increase they are hardly to be found there at all, but a few begin to come in the second year, and if the Indians are hard up for food they can hardly find them.

By the Honorable Mr. McInnes :

Q. Has any reason been assigned for that increase and diminution of their numbers? A. No, that is something we are looking into ourselves.

Q. You have never heard any explanation? A. No, except that there is a disease, and the only explanation I have had of this disease from the half-breeds is that it is something in the throat, and then it turns into a sort of diarrhoea, and they die in a few days.

By the Honorable Mr. Sutherland :

Q. You have never heard of them being affected by a large bug? A. No, we have instigated research on the subject quite recently. Possibly at some future day the result will be published in the papers. The Lieutenant Governor of the North-West Territories received a communication through the Secretary of State here from the New Zealand Government. It appears that the rabbits are very numerous there, and are a regular pest in the island. They have heard of our rabbits disappearing every seventh year in the North-West Territories, and they want to find out if they can introduce the same disease there amongst their rabbits, so we have been investigating the matter, making enquiries of old settlers in the country in order to find out what the disease is and what causes it.

By the Honorable Mr. McInnes :

Q. I suppose you have no objection to giving them the disease and let it disappear for ever in the North-West Territories? A. Not the slightest.

By the Chairman :

Q. In these years of great abundance is there any means by which those rabbits could be preserved for food? A. I do not know of any.

Q. Has it ever been tried? A. I do not know; possibly it might be done.

Q. My hon. friend, Mr. Girard, tells me that he has had them smoked and preserved in his own house? A. I suppose rabbit flesh could be treated the same as beef or mutton, and canned.

Q. Do you see any reason why their flesh with the addition of ordinary tallow should not be pemmicanized? A. I do not know about that. They are not very fat, as a rule.

Q. They would need some additional fat? A. Yes.

By the Honorable Mr. Carvell :

Q. I have heard that the rabbit was likely to become a pest in the Edmonton district, so rapidly was it increasing; have you heard anything about that? A. No. The first year, to my knowledge, in which they were very numerous was during the winter of 1876. Of course there was hardly any crop in the country at the time. The second time was in 1883, if I am not mistaken, and although there were some extensive fields of grain I have not heard of any complaint about them. I daresay after the country is well settled during those years when the rabbit is plentiful, it will become a pest, but it is a pest that will cure itself if this disease continues to exist among them.

The Committee adjourned until to-morrow.

THE SENATE, Thursday, 2nd June, 1887.

The following communications were read to the Committee :

“PORT HOPE, 31st May, 1887.

“DEAR SIR,—Though I have spent 34 years of my life in the Hudson Bay Company's service, I was never out of Temiscamingue District which is chiefly in the Province of Quebec, on the upper waters of the Ottawa. Consequently, I am unable to answer any of the Committee's questions from my own personal knowledge which I must regret.

“I am, dear Sir,

Your obedient servant,

“CHAS. STEUART.

“J. G. A. CREIGHTON Esq.,

“Law Clerk of the Senate,
“Ottawa.”

To Hon. J. SCHULTZ.

In reply to the Select Committee of Canada on the natural food productions of the North-West Territories of Canada I have the honor to submit for the information of the Committee as follows:—

1. I have not been further west of Lake Superior than Brandon.

2. From information I have received and from observation I believe the “wild rice” indigenous to Rice Lake in this County of Northumberland, and which from time immemorial has been the chief food of the Indian tribes living in this neighborhood is admirably adapted as a means of subsistence for the Indians of the North-West, especially as it grows annually and spontaneously, when once planted the seed of the year falling and supplying next year's crop. It requires no other labor than that of harvesting, which is done by driving a canoe into the bed, and knocking the ripe grain into the bottom with a paddle, until the canoe is filled, a mode of harvesting well suited to Indian tastes and habits. The natives here parch it before cooking, but this is a matter of taste. It is very nutritious and is now considered a delicacy by the white man.

The water stretches of the west where there is little, if any, current, and a rich, alluvial, muddy bottom will reproduce this valuable grain.

It should be planted in a muddy silty bottom, in water from two to three feet in depth, in the month of September, or perhaps later would do, as the crop is gathered here the latter part of that month, varying according to the season.

Rice Lake, where this grain is found in perfection, is twenty miles long, and three wide, in the County of Northumberland, Province of Ontario, and is reached from Cobourg by rail; it is twelve miles distant from that place; the rice can be procured in any quantity that may be required.

In addition to the above, I would suggest the stocking of the lakes of the North-West with the “Black Bass” and “Maskinongé,” both which fish are very prolific, and can protect themselves against the ordinary enemies to young fish life.

These fish, as well as the rice, appear to flourish better in the dark waters of which Rice Lake forms one of the chain which extends to the head waters of the Ottawa, than in the clear water of Lake Ontario and water of that kind.

In regard to the other questions asked, not having had sufficient experience, I would not presume to offer an opinion.

I have the honor to be, Sir,

Your most obedient servant,

J. VANCE GRAVELY.

SIDBROOK, COBOURG, Ont.

Hon. Mr. SUTHERLAND, Senator, called and examined.

By the Chairman :

Q. How far north and west have you been in your country? A. I have not been north at all. I have not been further north than the mouth of the Red River. That is about the furthest I have been north in any part of that country.

Q. Of the present natural foods, are there any that, with proper instructions to the Indians, and to the new white settlers, could be preserved for future use? A. I do not know exactly. Reference was made yesterday to the rabbit. I suppose it would be possible to preserve rabbits for a certain time, but I do not know; their flesh seems to be very tender, and it is a question whether it would keep for any great length of time.

Q. The Hon. Mr. Girard mentioned yesterday that he had now at home some smoked rabbits. I know that other meats in that country are smoked. I have noticed the Indians myself preserving meat in that way, and where they are kept away from the dampness of the ground, they are cached safely for a long time? A. I am afraid that the meat of rabbits would not be of very great utility, because it would be merely two years out of seven that we could expect a superabundance of those animals.

By the Honorable Mr. Almon :

Q. How is that? A. There is no doubt at all that they die off every seven years until there is scarcely one left.

Q. And without any appreciable cause? A. From some disease, of course. You will find them lying every few yards dead, once the disease sets in, and in the course of three years you will scarcely see a rabbit left.

Q. What kind of rabbits are they? What we call rabbits are a variety of small hare. Are they the English rabbit or a modification of the English hare? A. I do not know; I have never seen an English rabbit.

Q. The common rabbit? A. I have never seen any of them, so I have not the means of saying.

Q. Do those rabbits burrow in the ground or live on the surface? A. They live entirely on the surface.

Q. You have only one variety? A. I have never seen but one kind. I believe there is a different species in the west, towards the Rocky Mountains, but they are very scarce.

By the Honorable Mr. McInnes :

Q. You mean the large jack rabbit? A. Yes.

By the Chairman :

Q. You have mentioned, and I think quite correctly, that there are periods in which the rabbits are reported to be entirely absent from the country. The Indians say so, and that is about the time you speak of—two years of plenty and five years of comparative absence. Would it be possible, supposing after two years of plenty, and when they have died off in the manner you have described, if they were reintroduced from some healthy district they would propagate rapidly? A. They might possibly, but it would be a matter of experiment of course.

By the Honorable Mr. Almon :

Q. What are their natural enemies? A. Hawks and foxes are their principal enemies.

By the Chairman :

Q. The disease seems to be epidemic? A. Yes, it spreads all over. I shot one, the only one I ever did shoot, during a time of scarcity. I happened to come across a couple and shot one of them; and I found three or four very large bugs—about the size of the end of my little finger—about the neck. Whether those bugs were the cause of the disease, I do not know; but I had opportunities of examining others, which I found lying dead, and they had no such thing on them.

Q. The witness of yesterday, Mr. Forget, mentioned that the cause of death seems to be a swelling about the neck, and he also made allusion to a bug? A. I could not say from the cursory examination I made of the one I killed. I found several, and examined one to see if there were any of those bugs upon it.

Q. Did you ever find any of them dead? A. Yes, in large numbers. The first season the epidemic sets in there seems to be more of them die off than any year afterwards.

By Honorable Mr. McInnes :

Q. Do you find them dead all over the prairie and in the little bushes? A. Yes.

By the Hon. Mr. Almon :

Q. Was the one that you shot very poor? A. Yes, very poor, so miserable that I did not carry it home.

By the Chairman :

Can you describe the bug? A. It was grey sort of bug, very large—as large as the top of my little finger. I understand they attack the prairie chicken as well.

Q. How long is the bug? A. It has the regular bug shape; it is almost as wide as long—an oval shape. The pheasants, or prairie chickens, as we call them, are troubled with them in the autumn. On one prairie chicken I found them, and there was one very small one and one very large one. They attack the bird just above the neck, where the bird cannot get at them to pick them off.

Q. Do they burrow into the flesh? A. Yes, they eat right into the flesh; it takes quite a pull to bring them out.

Q. Have you ever heard it suggested that this bug deposited its larvae the fall before, and those in the spring develop into bugs? A. I never heard how they come, but it would appear from this one instance which I observed myself, there being two bugs, one smaller than the other, that they must be produced from larvae of some description.

Q. Do you remember after the time of plenty has been succeeded by a time of scarcity in Manitoba, whether that is a time of scarcity all over the North-West? A. I could not speak positively with regard to that. As far as my knowledge goes it is understood as being general all over the North-West.

By the Honorable Mr. Almon :

Q. Have the Indians any tradition about that? Have you asked them how they account for it? A. I have never heard. It is not at all likely that they would have the correct version of it.

Q. That complete failure of the rabbits takes place every seven years? A. Yes.

By the Honorable Mr. McInnes :

Q. In our province it is every four years, and that disappearance takes place simultaneously with a very small run of salmon, a most extraordinary thing. I do not see where the connection is.

By the Honorable Mr. Carvell :

Q. Is it a total disappearance? A. It is apparently total, but it is not actually a total disappearance, because they appear again.

By the Honorable Mr. Girard :

Q. It is fourteen years since I last saw them in large numbers and they have been growing more numerous of late? A. Of course I have not had the opportunity of observation lately, but I have noticed that they seemed to have increased decidedly with us during the last three years. They were quite numerous during last winter.

By the Chairman :

Q. You have travelled on the prairie; what are the natural products there? Is there not some natural product to take the place of potatoes and other roots? A. I do not know of any. I have never come across them. The only root that I have seen is what is called wild turnip. That is the name by which it is generally known.

Q. Is it fit for food? A. Yes.

By the Honorable Mr. Almon :

Q. What size does it grow? A. I have seen it as thick as my wrist, and from four to five inches long. I have seen them grow sometimes as we see potatoes, two growing together at right angles to each other. They appear to be very tender, and I do not know whether they would thrive under cultivation, because they disappear when cattle range over the prairie. Where I have seen them for several years, after a herd of cattle wintering over the place, they disappear altogether.

By the Honorable Mr. Merner :

Q. Do they grow from seed every year? A. I fancy they grow from seed. I have no experience of them. I have just seen a few growing within the range of Winnipeg. They grow on very high land. You never find them in low ground.

By the Honorable Mr. Almon :

Q. Do the Indians ever eat grasshoppers as food? A. I do not know that they do.

By the Honorable Mr. Leonard :

Q. Do the rabbits carry with them the seed of their own destruction, or do those bugs emanate from the soil? A. They emanate from the soil, I think.

Q. But you expressed the idea that it matured with the animal—rather that the seed was there, and seems to grow out and destroy the rabbit family in the course of a few years? A. I think it must come to life prior to its going on the rabbit.

Q. From the soil? A. Yes.

By the Honorable Mr. Carvell :

Q. After their death are the carcasses of the rabbits found in any considerable numbers? A. Yes, in large numbers. I have seen them every twenty yards lying dead on the ground.

By the Chairman :

Q. Can you tell us something about the fishes of your Province? A. No, I can tell less about the fishes than of anything else in my country.

By the Honorable Mr. Merner :

Q. Are they as plentiful now as they have been in the past? A. I believe not. It is the general opinion along the Red River that they have diminished very materially. The Indians and half-breeds there believe that the cause is the running of steamboats on the river—that as soon as the steamboats began to run the fish decreased in numbers. It would not have the same effect on a lake or a large sheet of water as it has in a narrow river. I have not heard of any perceptible change in the lakes, as yet, though I fear from the large exportation that has taken place the last two or three years, that our white fish will disappear if it is not put a stop to.

By the Honorable Mr. Leonard :

Q. There are no laws there to regulate the seining or taking of fish? A. We have some laws, but I could not tell you to what extent they go.

By the Chairman :

Q. You have mentioned the prospective danger of the entire destruction of the white fish; what measures would you suggest to the Committee as a means of preserving them? A. I would suggest the exportation being prohibited—the export to foreign countries, whatever we may do with regard to our own Provinces; because it would appear that the bulk of those fish which I have just referred to have all gone to the United States.

By the Honorable Mr. Almon :

Q. By whom are they caught? By your own people or by people of the United States? A. I think parties from the United States are superintending some of those fishing establishments.

Hon. Mr. ALMON.—Apropos to the statement made by the hon. Mr. Allan at our last meeting, or the one before, respecting people coming from the United States to capture fish and game it is a fact that there is now an American company from Detroit with no less than seven miles of lake seine, and I agree with Mr. Sutherland that if they undertake to catch fish they will capture them at such a rate with those seines in Lake Winnipeg that they will speedily take every fish that is in it.

Q. What is the average depth of Lake Winnipeg?

The CHAIRMAN.—The deepest part is 10 fathoms, and of Lake Manitoba five fathoms. The upper end of Lake Winnipeg is much shallower; it would not average much more than four fathoms.

Hon. Mr. McINNIS.—A close season was established on the Fraser River some six or seven years ago by the Dominion Government, and it is enforced very strictly.

AMADEE FORGET, Clerk of the North-West Council, re-called and examined.

By the Chairman :

Q. When we closed yesterday you had come to the question relating to fishes; will you be good enough to inform the Committee about the fisheries of the North-West? A. All I can say about that question is to give the names of the fishes in our rivers and lakes. We have the whitefish, the jack fish or pike, sturgeon, suckers, gold eye, trout and some others that I do not remember just now.

By the Honorable Mr. Tuner :

Q. Are there any eels in the North-West? A. I never heard of there being any. We have the whitefish in nearly all our important lakes, such as the Fishing Lakes, along the Qu'Appelle Valley and Lake la Biche. Of course I do not speak of Manitoba; my remarks are entirely confined to the North-West Territories—to Coal Lake, Turtle Lake and Long Lake, they all contain whitefish.

By the Honorable Mr. Carvell :

Q. In abundance? A. Yes, in sufficient quantities so far.

By the Chairman :

Q. Is that true of the Qu'Appelle Lake? A. No, in the Qu'Appelle Lake they have decreased considerably.

Q. From what cause? A. I daresay it must be from over-fishing. The lakes are not very large, and there have been a great many fish caught in those waters.

Q. Has there been a diminution of those fish, or of any other kind, in any of the other lakes? A. No, pike or jack fish are very numerous in those lakes.

Q. Are they as numerous as ever in the Qu'Appelle Lake? A. I could not say. They are in Long Lake, I know; and Long Lake is one of the sources of the Qu'Appelle River.

Q. Are these lakes extensively fished by the Indians? A. Yes, they get their entire supply of fish from these lakes. Alongside the Qu'Appelle we have several reserves of Indians, and they are allowed every winter at a certain season to take whatever they require either for their own consumption or for sale. The whitefish have diminished considerably in Long Lake.

By the Chairman :

Q. Are there extensive fishing lakes and streams in the Indian districts covered by Treaties Nos. 6 and 7? A. You mean the south-western part of the territory?

Q. Yes. A. I am not so well acquainted with that part of the country. I do not know of any lakes in that direction except the Kootenay Lakes and all the rivers flowing from the Rocky Mountains in that part of the country contain trout in abundance.

Q. It is the wish of the Committee to elicit from you, if possible, what natural products the Indian has to depend upon practically in the way of food since the disappearance of the buffalo. In the buffalo country I am aware that you are not likely to find a fishing country? A. I believe that if the Indians were left alone, without the aid the Government is extending to them every year, they could not support themselves at the present time. Of course they could resort to catching fish in our lakes and rivers, and shooting small game such as ducks, geese, swans, waxies, plover, &c., during the time that those birds can be killed and fish can be caught. They could also resort, perhaps to hunting bears, but they are getting scarce, too, in the country, and beaver also are getting scarce in our part of the North-West, so that I do not see how, in certain localities, they could live at all.

Q. Speaking of fish, can you suggest any means by which the fish existing there can be preserved or increased in any way? A. No; I am not sufficiently acquainted with the subject to suggest anything that would be of value.

Q. Are there any fishing lakes in the south-west portion—the buffalo country proper—where any fish are found at all? A. I do not know of any fishing lakes in that part of the country. There might be, but I do not know of them now. My impression is that there are none. We had in the vicinity of Wood Mountain a lake of some few miles in extent, in which fish have been found in large numbers lately. Some five or six years ago no one suspected that any fish existed there.

Q. Is the water fresh? A. The water appeared to be brackish, and the half-breeds who used to camp around the lake never suspected that there were fish there. It was quite accidental that the discovery was made—some fish were found dead on the shore.

Q. What kind of fish are caught there? A. I believe pike, suckers and jackfish.

Q. This was in a brackish lake you say? A. Yes. I believe it was.

Q. Finding the fish in that brackish lake, where nobody suspected that there was any to be found, might it not be hoped that these same fish could be introduced into other brackish lakes in that district? A. Yes, I believe they could be. I believe that brackish water, if it is only slightly brackish, would not interfere with fish living in it. Take the fishing lakes at Qu'Appelle. At certain seasons of the year the water is not of the best quality to drink. It is certainly quite brackish towards the end of August and commencement of September. The water in the Qu'Appelle Lakes has a strong taste of alkali. The jackfish are superior to the pike caught in the east; the flesh is firmer.

By the Honorable Mr. Girard :

Q. Are they very large? Q. Yes, some of them are very large.

Q. What do they weigh? A. The ordinary size of pike is about eighteen inches to two feet. Now you can get some much larger than that in the North-West, and sometimes you can get a few smaller. At Long Lake where we were fishing last year I do not remember to have caught one less than fifteen inches in length and they were generally larger than that.

By the Chairman :

Q. If an effort were made to stock those lakes with fish what kind of fish would you recommend? A. Our own kinds of fish could be propagated from one lake to another.

By the Honorable Mr. Turner :

Q. Are there any salmon trout in the North-West? A. To my personal knowledge we have them in Cold Lake and they might be found elsewhere.

Q. Are they the same as our salmon trout down here? A. Yes; I believe they are superior in size. Some of you may think that I am telling a fish story, but I can assure you the only ones that I have seen at Battleford were about two and a half feet long—they were like salmon. Whether small ones are caught there or not I do not know.

Q. Are there any caught in the southern part of the territory? A. I do not know.

Q. Still they could be taken from one lake to another? A. I believe they could.

Q. Are they caught with the fly or with the worm? A. With the net. They must have been fishing for whitefish with nets and caught those trout.

By the Chairman :

Q. Do you know of any other lakes similar to Cold Lake, where it might be hoped that fish could be propagated? A. I daresay most of our lakes would give sufficient nourishment to these salmon trout. Of course the water of Cold Lake is very cold. That is what gives the name to the lake itself and it is possible on that account they may be found there and not elsewhere. They are also to be found in a lake near Banff. They have been caught there I am told, but I never saw one caught myself.

By the Honorable Mr. Turner :

Q. The fish is red I suppose? A. It is a pinkish color, not red. Those fish are very good.

By the Honorable Mr. Allan :

Q. There is a fish called the maskinongé in our lakes; is that found in the North-West country at all? A. I do not think so; we have not got that fish there that I know of.

By the Chairman :

Q. This very large fish, the maskinongé, is generally found where the pike is caught. Have you any reason to doubt that they could be propagated in the lakes of the North-West? A. I have no reason whatever to doubt it.

Q. Are the Indians fond of fish if they can procure any quantity? A. Oh, yes, they are fond of fish. They are fond of all eatables, in fact, and like most of us they like changes in food—sometimes fish, sometimes meat.

Q. Do you know what means the half-breeds and others take to keep those fish, by drying or salting? A. They dry and smoke them. We have almost constantly at Regina dried and smoked fish for sale caught in Long Lake, 25 miles from Regina.

By the Honorable Mr. Girard:

Q. Does the smoked fish keep long? A. We have not tried the experiment. They are generally sold before they are long out of the water.

By the Chairman:

Q. Do you think that the Indians in those parts of the country where fish exist in great abundance could salt or smoke them or by any other means preserve them in sufficient quantities to be carried to the west and served as rations to the Indians with other ordinary food? A. I believe it is possible, but of course we have no knowledge of the subject. My opinion on this point can be of no value; I never saw the regular process of drying or smoking fish. What we have dried or smoked in our part of the country are disposed of so quickly that I do not know how long they would keep in the rude way they are prepared; but, like fish elsewhere, I believe our fish could be treated the same way and kept the same length of time by adopting a proper process.

Q. You were going on to mention as to the varieties of fish with which you believe the lakes west in the North-West Territories could be restocked, and you mentioned whitefish, jackfish and trout. A. Of course other fish from other parts of the Dominion of Canada might be tried with our fish as an experiment, but I am quite sure that our fish in the country could be transferred from one lake to another to supply the deficiency created in one lake by over-fishing or in lakes in which they do not yet exist. I believe there would be no trouble in transferring them.

By the Honorable Mr. Girard:

Q. Is the fish in sufficient quantity to be exported either from the country or to the eastern Provinces as an article of commerce? A. I do not think it is the case with our lakes, at least in the portions of the North-West Territories I am speaking about now—that is south of the Saskatchewan River. I do not think that our lakes are sufficiently stocked to make fish an article for export: the supply would be exhausted.

By the Honorable Mr. Almon:

Q. The Indians must understand all about preserving fish. Do those settled on the shores of lakes and rivers preserve and export fish? A. No, they do not export the fish. It is simply done by a few persons, and the fish are prepared alongside of the lake and sold in the adjoining country. I do not know a single instance where a fish smoked or dried in the country has been exported east out of the territory.

By the Honorable Mr. Girard:

Q. Is there any protection for the fish in the territories? A. Yes. The fishery laws of the Dominion apply to the North-West Territories, and there are certain regulations in force there now fixing the close season.

By the Chairman:

Q. I suppose frozen fish could be depended on for five months in the year? A. Yes. As long as they are in the frozen condition they will keep.

Q. That is for how many months? A. From the end of October until the commencement of spring. There is no thaw in the winter there so that they would keep. I have looked through this list of questions and I really do not see that any information that I can give will throw light on the subjects referred to. Of course I am only expected to speak on matters with which I am personally acquainted.

The Committee adjourned.

OTTAWA, Friday, 3rd June, 1887.

The following communications were read:—

Honorable Mr. Girard read a letter from His Grace Archbishop Taché stating that it was impossible for him to devote himself to the subjects referred to the Committee, being at present too weak to undertake any work. He suggested that his brother, Dr. Taché, would be a useful witness.

The following letters were read:—

OTTAWA, 2nd June, 1887.

DEAR SIR,—Owing to my having been in Montreal for some days your letters of 25th and 28th ult. did not reach me until yesterday afternoon, too late to permit of my being present in Committee Room No. 2, of the Senate at 11 o'clock that morning, as requested by the Select Committee on the Food Products of the North-West Territories. This I much regret.

I have the honor to be, Sir,
Yours faithfully,
DONALD A. SMITH.

(Signed)

J. G. AYLWIN CREIGHTON, Esq.,
Law Clerk of the Senate,
Ottawa.

MEKIWIN P. O., MANITOBA, 30th May, 1887.

Honorable J. C. SCHULTZ, Esq.,
Ottawa.

DEAR SIR,—I received your speech on the Food Supply of Manitoba and the North-West, and read it with interest, it is a move in the right direction, and if the said Committee decide on distributing wild rice, I will be very happy to do all I can to see all sent to me seeded in all the ponds in this municipality.

Wishing you all success in your undertaking,

I remain, yours truly,
JOHN MCGREGOR, *Reeve*.
Lansdowne Municipality, Mekiwin P. O., Man.

AMÉDÉE FORGET'S examination continued:—

Q. You were replying to the second question when the Committee adjourned yesterday? A. Yes. In the list of birds I gave yesterday I omitted to mention the prairie chicken and the partridge. The prairie chicken is a well known bird in our country, and very numerous.

Q. Have you the white ptarmigan? A. Not south of the Saskatchewan River.

Q. Which of the varieties you have mentioned are suitable for transplanting and transplacing into other portions of the North-West? State also the districts to which, in your opinion, they could be translated with advantage to the white and Indian populations? A. I do not think that I have mentioned any plant that would be suitable for transplanting excepting hops. The wild turnip is to be found everywhere, but the wild hop grows only in certain portions of the country, and that could be easily transplanted to the portions of the country where it is not now to be found. It follows that as a matter of course that the districts to which it could be transplanted with advantage would be the settlements along the line of railway and the various settlements up north.

Q. You are alluding now to what varieties? A. The only plant that I have mentioned that I think could be transplanted with advantage is the wild hop. The others, if you remember, were mushroom and the wild turnip, which grow all over the country, so there is no need to transplant those. I think the wild hop could be cultivated any place where the soil is similar to that of the Qu'Appelle Valley—a light loam.

By the Honorable Mr. Merner:

Q. Are the wild hops as good as the hops we have here? A. Yes, I believe they are. I have eaten bread made from hop yeast, the hops being the native hop of that country, and thought it as nice bread as I had ever eaten. We do not make beer in that country, because we are not permitted to manufacture it, so I cannot say whether the wild hop is suitable for that purpose.

Q. Is there not beer manufactured in Winnipeg? A. Yes. I believe that these wild hops could be cultivated and exported east.

Q. Do they use the wild hops for making beer in Winnipeg? A. I believe they do. With regard to hops growing in a cultivated state, I believe an attempt will be made this summer by the Indian Department either to cultivate the hop on some of the reserves, or to gather the wild crop. I believe that something could be done in the way of collecting hops.

By the Chairman :

Q. You think it would furnish profitable employment? A. I believe it would. Young girls and boys could be employed for the purpose, and I believe they could get ready sale for the hops.

Q. Would you advise the cultivation of the hop all over the North-West? A. Yes; I believe it could be grown anywhere in that country.

Q. Do you think that the Indians of the plain would use wild rice as the Indians further east do? A. I think so, because they are fond of barley, and from the specimens of wild rice shown to the Committee yesterday, a portion of which I was allowed to taste, I think there is a great resemblance between barley and this wild rice. Consequently, as the Indians of the plain are very fond of barley, they would be likely to like the wild rice also, which is a similar grain, and in my opinion a little better than barley.

Q. Are there many streams and lakes in the North-West suitable for the cultivation of the wild rice? A. Yes. I listened very attentively to the paper read by the secretary here, before the Committee with regard to growing wild rice, and I noticed that it could only be grown in ponds or lakes in which there was a slight current—ponds or lakes with outlets. In looking for places to make the attempt to propagate this wild rice, therefore, we must necessarily select places of that description. I do not know anything of the wild rice personally; I derive my information from that paper which was read to the Committee yesterday. Suitable lakes and lakelets and ponds certainly exist in many parts of the North-West Territories. Alongside the Eagle Hill Creek there are various streams which widen into lakelets occasionally, and ponds where there is a slight current, and in such places there would be no difficulty in cultivating wild rice, provided the bottom is of the right character. The bottom, I understood from the paper, had to be muddy. I never examined the bottom of those lakes to see if they were muddy, but the slight current is there, and they are in every other way suitable for the growth of wild rice. I believe that in the country south-east of Edmonton, in the Beaver Lake district, for a considerable distance from Fort Saskatchewan coming east, you would strike a considerable territory in which you will find a large number of lakes, ponds and marshes, where there is a slight current, provided always that the muddy bottom is there. I believe in the Wascana River, the conditions necessary for the growth of the plant exist; not that it widens into marshes in the way I have described, but we have made two or three dams across the river in different places, and the water accumulates above each of the dams, while there is also the slight current necessary all the time. I know the bottom is muddy there. You have in the Wacana River water of the required depth, the muddy bottom and the slight current, so that I believe it could be tried there with success.

By the Honorable Mr. Merner :

Q. Does the rice grow from the seed every year? A. I have no knowledge of it myself. I get my information from the paper read before the Committee, and the first wild rice I ever saw was the sample displayed here yesterday on this table.

By the Chairman :

Q. That paper said that forty bushels of wild rice are sometimes gathered from an acre; a former witness, Prof. Bell, stated that nearly the same quantity of grain, forty bushels, forty-five pounds to the bushel, would represent a large amount of food, and if even a few of those lakelets or streams could produce it, there would be a large amount of food, which I think the Indians would like, or easily become accustomed to? A. Yes, I believe so. It would certainly be a great benefit to the

North-West Territories if this wild rice could be introduced there, and I think there is, on the part of the white population generally, a desire to try it. I could refer you to an article published in the *Bulletin of Edmonton*, in which the editor called upon its readers to give a description of its growth, and how it could be cultivated—on what land or in what lakes. He did not know anything about it, and he invited the public at large to contribute communications to his paper on the subject. That article also created a desire on the part of the population there to try it.

Q. In addition to adding hops and rice to those districts, can you suggest any other native vegetable or plant that could with benefit be introduced there from where it grows? A. No. The only vegetable I know natural to the country is the wild turnip. It would certainly be worth while to try its improvement, if you could improve it considerably, as it partakes somewhat of the character of the parsnip—that is to say, it is of use in the spring. It might be found very advantageous to have this root on the Indian reserves at that particular season of the year. In the spring the potatoes of the former season are nearly all exhausted or are required for seed, and this wild turnip would supply the place of the potato at that season of the year.

Q. Is the Committee to understand that, in addition to the cultivation of the ordinary turnip, it would be an advantage to cultivate this wild variety also? A. I believe so, for the same purpose as you cultivate the parsnip.

Q. It would yield earlier? A. Yes; you can use them in the spring instead of in the fall.

Q. Give the Committee your opinion as to the best means of re stocking denuded districts with the plants, animals and fish which were once indigenous there? A. I could not give you any information on that point. I have never made a practical study of the subject, and I think it has not been tried by anybody in the North-West.

Q. Will you please state generally to the Committee how such transplanting, re-stocking and adding to the indigenous food supplies can best be effected, and at what probable cost? A. No; for the same reason this question might be passed over.

Q. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? From what districts and at what cost can such food be supplied? A. I believe beef at present would be one of the most economical kinds of food to give them, because we have large ranches which are getting to be well stocked, and this beef is grown near the reserves, especially Treaty No. 7, and could be easily and more economically supplied, I think, than any other food.

Q. What is the average price of beef on the hoof where it is grown there? A. I could only mention from hearsay; I never bought any in that way. Our market is at Regina, and all my purchases are made in small quantities. I think you could, on the spot, procure your beef for four or five cents per pound, live weight.

Q. What is considered a ration for an Indian in time of scarcity? A. They have a capacity for consuming food that most white people cannot understand. The quantity in their case is somewhat different from what you would supply to a white man. I believe they must have at least thirty ounces of solid food a day. They might live with less, certainly: they frequently live with less than that, but when they come across food they consume a much larger quantity than white men would. I have had an Indian at my own place—I might give his name since he is dead now, Poundmaker,—I had him at my own table at Battleford. His reserve is about twenty-five miles from there, and whenever he came into Battleford I always invited him to take dinner at my house. He was as clean as most people, but he took more than any white man would, and the first time that he took a meal at my place he ate as much as three white men would. I dare say that this extraordinary appetite on the part of the Indians may be accounted for in this way. Since the extinction of the buffalo they are always more or less in a state of want. With all the good will in the world, the Indian Department cannot be expected to feed them fully all the time. They give them sufficient food to keep them alive, and they are expected to work and besides to earn something else by the chase and otherwise. Sometimes there is a scarcity of game, so that they have to depend entirely on what the Indian Depart-

ment gives them, which is not, perhaps, quite sufficient to satisfy them altogether, and the consequence is that there is a natural craving for more, and when they come across a good meal that is why they consume so much at a time.

By the Honorable Mr. Carvell:

Q. I suppose if Poundmaker had had the good fortune to be a guest of Mr. Forget's for three weeks continuously, probably he would eat no more at the end of that time than a white man? A. I had a Sarcee Indian at my place for two months, a young man of twenty-five or twenty-six years of age. He lived at my place altogether for that two months, and his appetite at first was tremendous. It greatly decreased, and towards the end of the time he spent with us his appetite was about the same as ours.

By the Honorable Mr. Girard:

Q. Have you met any fat men among the Indians? A. They are scarce; I never saw one of your size.

HON. MR. SANDFORD.—A contractor who was doing some work for me told me that he had a number of Indians in his employ, and that they were very satisfactory workmen. He found them to be a most valuable class of men. His rule was to give them all the bread, pork, beans and molasses that they could eat after coming on the work, and they were invariably used up and sick, and on the third day wanted to leave. He said, "No: I will take care of you," and he physicked them and let them rest and smoke for a couple of days, and he found that they moderated in the amount of food they consumed, and after that they were good men to work anyway.

By the Honorable Mr. Girard:

Q. As this inquiry is in the interest of the Indians and in the public interest, what disposition do the Indians show in the different parts that you have visited to work for themselves? If you do anything do you think they would try to take advantage of it? A. It is my firm conviction that there is a good disposition on the part of the Indians to work, and if their work had been rewarded as it deserved to have been—that is if the crops had been equal to their anticipations, I have not the slightest doubt that to-day the Indians would be in a position to sustain themselves, if not wholly, in a great measure.

By the Honorable Mr. Sutherland:

Q. Before leaving this subject I would ask you do you know whether the Indians are as fond of mutton as of beef? A. I believe so. I believe they are fond of anything in the shape of meat.

By the Honorable Mr. McInnes:

Q. But it must be fresh? A. Not necessarily. After the visit of the Marquis of Lorne at Battleford, a number of horses which had been used by the party, were left there broken down. These horses had been bought in a hurry and perhaps were not very sound at the start, but a number of them were used up, very poor and some cases of glanders among them. As soon as it was discovered that the horses were diseased they were killed and thrown out on the prairie some distance from the barracks near the river, late in the fall, and the Indians actually cut up those carcasses and ate them. The horses were as poor as could be, hardly any flesh on them, and they were used as food though they were affected by the glanders.

Q. They did not salt any of the meat down? A. No, they did not salt any of it; they cut it up and eat it there. I had a mare in my own stable that took sick one evening of inflammation of the bowels; next day at ten she was dead, and at four o'clock the Indian women had done away with the carcass altogether. I just sent word to an Indian encampment in the vicinity that there was a dead horse in my stable and that they were welcome to it if they wished to take it. Some Indian women came down and in a few minutes the whole carcass was carried away, and it could be seen hanging in pieces to the poles of their tepees.

Q. Did they smoke the meat? A. No; it was in the fall of the year and it kept well. The Indians are also fond of the meat of dogs, especially white dogs. There is a tribe of Indians, the Sioux, who have a feast of dogs at certain seasons of

the year. Whether it is because of being particularly fond of flesh or because of some superstition connected with it I do not know, but I had a splendid terrier that fell a victim to one of those last summer.

Q. Are the Indians cannibals—do they eat human flesh? A. I never heard of it.

Hon. Mr. MACDONALD.—In British Columbia, on the coast there used to be cannibals in our Province some years ago. At their feast they used to kill slaves and eat a portion of the body.

By the Honorable Mr. Girard :

Q. As far as you know if the Indians were engaged to work would they be willing to work? How do they ordinarily occupy their time on the reserve? A. We got to Eattleford in the fall of 1877, and the first real attempt made by the Indians to cultivate the soil was in the following spring and they went to work with good heart. Mr. Laird, who was then Lieutenant Governor, was on the spot, and was very anxious that one reserve at least should start agriculture. He made it a point to visit the Indians frequently in the spring, and Red Pheasant, the chief of the band, who was certainly superior to the ordinary class of Indians, readily understood the argument of the Indian Commissioner, and through his influence a number of the band started gardens and ploughed for the next year and sowed some cereals, barley and oats, and seemed to enjoy the work.

Q. Had they any crop from it? A. There was a pretty fair crop of vegetables and quite a large yield of cereals that year. Those who worked seemed to enjoy it. Those who would not work of course stood around laughing, but we have not the slightest doubt if the crops had been good every year, to-day the Indians would be as good farmers as any others. Sometimes they met with reverses the same as the white men, but a reverse in their case has a worse effect than it has on the white man. They were new to the work and the occupation is considered by them all as beneath the dignity of the Indian, so that the bad crops which they had certainly discouraged them. I account for the reluctance of a large number of Indians to work by the fact of the failure of the crops more than anything else. Wherever they have succeeded on any reserve—take the Qu'Appelle River Reserve for instance—they are all good workers, and there is no complaint. Of course I do not belong to the Indian Department there, but our buildings are close to the reserve and I see the Indians frequently there, and if there were any complaints going I would hear of them.

Q. Do you think if a certain allowance of land was made to each family for purposes of agriculture, so that they could have it for themselves and children, it would be better than forcing them to live in bands on a reserve? A. I think so. I think if they were made the owners of a portion of the reserve and could look on that particular portion as their own and everything that they should grow on it as their own, they would feel more encouraged to work it. This is allowed by the Indian Department. Any Indian can obtain a portion of the reserve and put up a house, and he can obtain leave from the Indian Department to sell it to whoever he pleases. This permission is given to all those who apply for it. It is not made obligatory on the part of the Indians, but it is done individually.

By the Honorable Mr. Girard :

Q. Does the Indian get a patent for such land? A. Of course they have no patents. The Government would not sell it.

Q. The Government would not allow the Indian to sell that property? A. No, it does not become the property of the Indian that he can dispose of.

By the Honorable Mr. McInnes :

Q. They cannot sell that privilege to any person but an Indian? A. No, they cannot sell it to a white man.

Hon. Mr. MACDONALD.—The American Government are going to adopt that system to break up the reserves and give each Indian a piece of land separately, and give them the franchise, putting them almost on the same footing as citizens of this country. I suppose they would not have the power to sell that land, but would have the right to hold it individually, which would be a great advantage to the Indian and his children.

By the Honorable Mr. Girard :

Q. Do the Indians on their reserves cultivate gardens near their dwellings and raise vegetables? A. Yes, they cultivate all kinds of vegetables, and the products of their gardens were exhibited at the exhibition at Regina last year, and certainly were equal to any vegetables grown by the white man. They carried off prizes for their garden stuff.

Q. In what departments were they? A. Vegetables principally. I have not the list of prizes which they took, but they could easily be obtained on reference to the *Regina Leader* which published the names of the prize winners. Ultimately, there is no doubt that the Government will have to enfranchise the Indians and give them lands individually. Of course the question to-day is whether a plan of that kind would be premature or not on account of the large number still amongst them who have no particular ambition. With what success it would be attended I do not know, but with a number of them it could be done now. A few of them could be enfranchised and given land separately from the others, and perhaps the example might have a beneficial effect on the others and gradually you would have them all enfranchised.

Q. Have you visited Ermine Skin's reserve? A. Yes, it is on the trail from Calgary to Edmonton, in the vicinity of Peace Hills. I passed through his reserve and saw him there. I passed through in the spring of 1885, during the rebellion.

Q. He has considerable stock, has he not? A. Yes; it is a very good reserve, and apparently it must have been well cultivated the year before, because there were a number of fields ploughed and fenced in, and pretty fair houses built in various parts of the reserve. They appear to be a well-to-do band of Indians. Of course, that year the excitement attending what was going on at Batoche prevented them from going extensively into agriculture, and they did not reap anything that year.

Q. Ermine Skin had horses and horned cattle? A. Yes. I understand that Ermine Skin is no longer an Indian: that he has been admitted to take scrip as a half-breed. I do not know personally that it is the fact.

By the Chairman :

Q. Although it is not in the limit, or within the scope of our instruction, I would like to ask you this question: Some of those reserves are near the boundary line, and on those reserves efforts are made by the Government to induce the Indians to till the soil. No doubt efforts in the same direction are made by the American Government in their reserves on the southern side of the boundary line. Could you give us a comparison of the results in each country? A. I would not venture on a statement on that subject, in view of the fact that there are reports of the Indian Department which gives more accurate information than I could give. What I might say would perhaps conflict with those reports.

By the Honorable Mr. Girard :

Q. I suppose all those Indians are supplied with agricultural implements? A. Yes, they are all supplied with agricultural implements by the Government; and every facility has been given them, undoubtedly, by the Government.

By the Chairman :

Q. In your answer to the seventh question you have mentioned beef as one of the foods that can be healthfully and economically supplied to the Indians in times of scarcity. Would vegetables not form a good addition? A. Of course, if there is a scarcity of vegetables amongst the Indians, it will also prove to be a scarcity among the white men. The scarcity cannot occur on the Indian reserve except through failure of the crops; if there is a failure of crops on the Indian reserve, they are a failure elsewhere, and there is a scarcity all over the country, and it might perhaps be difficult to obtain vegetables. If there was a large crop of vegetables, I daresay that would be an acceptable addition to the beef, because the Indians are fond of vegetables.

Q. What is the food actually supplied to the Indians by the Department? A. Of course you could get better information on the subject from the Indian Department than you can from me, but in the south-west they are generally given beef, for the simple reason that the beef is there and it is the most economical food that can be procured.

for the Indians. In the north they are generally given bacon ; at first they were given bacon exclusively ; now occasionally they receive rations of beef also, more in the way of change than from economy. It has been ascertained that when the Indians are fed exclusively on bacon it produces disease among them, and after some years of experience the Indian Department have decided on making an occasional distribution of beef to counteract the effect of the continuous use of bacon. With regard to vegetables, they are not supplied by the Indian Department as food. So far, I believe, the Indians have grown sufficient for their own consumption, and in some cases have had enough for sale to outside parties.

Q. When they have more than enough for themselves does the Indian Department become a purchaser? A. I do not know whether transactions of that kind take place. I believe not. I think that in all cases where an Indian has more produce than his family can consume he is permitted to sell the balance. That permission allows him to sell wherever he likes, and as he can in almost all cases obtain a better price from the white man than from his Indian neighbors he generally goes to the white man and sells for cash. At the Black Foot Crossing I understand they had a large quantity of potatoes last year, and they sold quite a quantity of them.

By the Honorable Mr. Macdonald :

Q. Does the Government forbid the sale of food by the Indians? A. They can only sell with the permission of the Department. Of course anything they have produced with the implements and seeds given them by the Department they require permission to sell, but they can sell any game that they secure without permission. I think this restriction is quite proper, but it has created a great deal of discontent amongst the Indians. However I think it is a wise provision, because otherwise, if facilities were offered to sell to the white men, they would take advantage of it and buy from the Indian for almost nothing ; and if the Indian had the privilege of selling as he pleased, although he might not have enough for himself and his family, in order to get money he would sell what was absolutely necessary for his own support.

By the Chairman :

Q. It is not the object of the Committee to go over the ground covered by the Government, or to take their mode of dealing with the Indians into consideration. Our object is to suggest means that the Government can avail themselves of or not of increasing the natural food supplies in the North-West. You have mentioned beef and bacon ; I suppose you include flour? A. Of course, flour, bacon and beef are the three main articles.

Q. Could you suggest any other healthful food which in your opinion the Indians could be supplied with? The white man would consider those three articles as not much of a variety of diet? A. I cannot suggest anything else.

Q. What grains, grasses, fruit, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits? A. Barley is one, and potatoes and turnips. Barley is a sure crop in our country under almost any circumstances.

By the Honorable Mr. Sutherland :

Q. Do you know how does rye grow? Have you seen it grow? A. It may be cultivated but I am not sure that it is. I have not seen it. Barley is a sure crop and an abundant one.

By the Honorable Mr. Carvell :

Q. Has buckwheat been tried? A. I do not think it has been tried. We have wild buckwheat in our country. It is considered a weed there. It generally grows in a piece of land that is ploughed year after year for several years in succession. It is one of the weeds that we are anxious to destroy.

By the Chairman :

Q. It is simply called buckwheat from its resemblance to the cultivated buckwheat? A. I think so. It is eaten by horses.

Mr. SUTHERLAND.—It is real buckwheat only the grains are smaller, and if it were ground it might make flour.

By the Honorable Mr. Ogilvie :

Q. Is not that the strongest possible evidence that you can cultivate buckwheat there to advantage? A. It would seem so.

By the Honorable Mr. McInnes :

Q. You have never seen it tried? A. No.

By the Honorable Mr. Sutherland :

Q. But you have seen the wild buckwheat grown in the fields? A. Yes. I had a farm out at Battleford which I tilled for two or three years, and the wild buckwheat became a pest on it. There was more buckwheat in it than oats although I cultivated it with oats. Horses seem to be very fond of it.

By the Chairman :

Q. You are acquainted with some of the vetches of that country. Is not the wild pea variety sometimes used by the Indians in their soup when they have no other food? A. I am not aware of it, but I daresay it can be used. I forgot to mention that wild peas are growing in most parts of the territories in abundance.

By the Honorable Mr. Girard :

Q. And they are appreciated by the cattle also? A. Very much so.

The Chairman.—We found in Manitoba long ago that the native horses would fatten as fast on wild vetch as on timothy?

Mr. SUTHERLAND.—Yes, but it has a peculiar flavor. It sometimes gets into a field of wheat and it destroys the flour for bread. The bread made from it has a very peculiar disagreeable flavor.

By the Chairman :

Q. When you mentioned fish, the fish that are found in that country, you also mentioned the varieties which you thought it would be well to re-stock with. Now as to the eleventh question. At the time of the transfer of that country to Canada, what was the food of the Indians, and what were the rations allowed by the Hudson Bay Company and other traders to their employes in the various districts with which you are familiar? Were you up in that country at the time? A. No. At the time of the transfer, in 1870, I was not in that country.

By the Honorable Mr. Girard :

Q. At the time you were there, what was the usual food used by the Indians—the first time you were in the country? A. I believe up to 1876 buffalo meat was the exclusive food of the Indians. Then the buffaloes began to disappear in the summer of 1877. Of course they began to disappear before that, but not to any appreciable extent. It was in 1877 that we perceived the fact that they were gone. Up to that time the herds in the country were sufficient to supply the Indians with food.

Q. Is there not an occasional buffalo killed now in the North-West? A. I have seen it stated in the papers, but I believe the last buffalo killed south of the Saskatchewan, and north of the Red Deer River, was one killed in 1880, when the Marquis of Lorne went down there, by himself or by his party. I think that was the last buffalo killed in that district.

By the Honorable Mr. Kaulbach :

Q. I saw three old stags that had been recently killed at Medicine Hat? A. Yes, but that is not included in the district I mentioned.

By the Chairman :

Q. What is the food supply allowed by the Hudson Bay posts on the Saskatchewan to the half-breeds, Indians and others in their service? A. I do not believe that I could give any information on the subject.

Q. The twelfth question I think you have answered in one of your former answers. Would you like to add anything to it? A. I do not know of anything I could add.

Q. Then the memorandum at the end of the list :

“MEMO.—Although the collecting of information upon the following points is not wholly within the instructions of the Committee, your opinion may be asked as to :

“(a.) The varieties of indigenous and other trees best adapted for treeless districts;

“(b.) The cultivation of hops, hemp, sugar beet, tobacco, and other economic plants ;

“(c.) The best means of developing, transporting and economizing such deposits of coal, iron, gold, silver, copper, petroleum, salt, sulphur, slate, limestone, granite, marble, sandstone, brick, pottery, clay, asphaltum ochre, amber and others, as are found in that part of Canada west of Ontario.” This opens up a very large subject. You have lived in that country a long time and the Committee would be very glad to hear your opinion on any of the points there mentioned? A. I believe that the best tree adapted, for transplanting, is the Balm of Gilead or cotton wood, and the next best one would be soft maple.

By the Honorable Mr. Girard :

Q. That is what we call the ash maple? A. It may be ash maple, but it generally goes by the name of soft maple in our country. The soft or ash maple and Balm of Gilead are about the only trees that are sure to succeed when transplanted. We have tried white poplar, but it is very uncertain. I have known of a settler, Father St. Germain, who has lived a number of years in the Qu'Appelle Valley at Wood Bottom and other parts. He is a gardener by choice and spends his leisure hours in cultivating a very large garden that he has. He has tried all varieties of trees that we have in that country, and he advised me strongly not to try to transplant the white poplar. He says under the most favorable circumstances it will live only two or at least three years and then die.

Q. How about elm? A. We have no elm there. It is not indigenous to the country.

Q. But if it were planted there do you think it would succeed? A. I do not know.

By the Chairman :

Q. There is another variety—the aspen and balsam poplar. You have that already in clumps? A. Yes.

Q. Do you think that could be reproduced? A. I do not know from personal knowledge, but it might be tried, perhaps, with some success, and if it were desired to re-stock the prairies with sure growing timber, the Balm of Gilead is the best variety. Take even a rail of that tree and leave it on the ground and turn a furrow over it and it will grow wherever you make a notch in the bark. That is the hardiest tree that we have to transplant.

The CHAIRMAN—In that connection I would like to make a statement, and those who have not been in Manitoba will hardly believe it is a fact. I have seen in a hastily constructed telegraph line where green poles of Balm of Gilead were stuck down that they have taken root and have leaves growing on them. I have seen the same with fence posts made of that kind of tree.

MR. FORGET—With regard to other trees I may say that at St. Albert, at the Bishop's Place, they have a grove which is in existence only for the last four years, and they have not failed in a single tree that they transplanted, and they have transplanted every kind of tree in the country. But that is a peculiar place. It is a peculiar soil. It is a rich garden soil, such as you will see in a garden which has been thoroughly cultivated for twenty-five or thirty years, well manured and well cultivated, so that anything almost can grow there. They have succeeded with firs there although I have seen the fir fail in other parts of the country.

Q. What kind of fir tree? A. The spruce.

Q. In your former evidence you referred to hops, tobacco and hemp. Sugar beets are also referred to in the list of roots that we desire to know about? A. I have nothing else to add in regard to that. The sugar beet I believe would grow in any part of our country, because all other kinds of beets are grown there.

By the Honorable Mr. Girard :

Q. Were any of them exhibited at your exhibition? A. I believe there must have been, because Mr. Decazes had specimens of all varieties of beets grown in our country on exhibition, and he must have had the sugar beet amongst them.

Q. Will you tell us about the limestones and other mineral products, and about the metals of that country? A. I may say with regard to pottery, during a journey

from Moose Jaw to Wood Mountain, about half way, I happened to leave the camp and walk out on the plains to some high hills, and on the top of one of them we found a little piece of pottery. Mr. Goulet who was accompanying me at the time who was one of the commissioners on the Half-breed claims, told me it was almost identical with the pottery found in those pits in the Red River. How it came to be found on the top of that hill is a matter of surmise. Of course this shows that pottery must have been made there at one time or another by the population residing in that part of the country. So there certainly must have been means of making it.

By the Honorable Mr. Sutherland :

Q. Might it not have been carried there? A. Most likely.

By the Honorable Mr. Girard :

Q. In reference to mines, do you know if gold or silver or any kinds of mines are worked there, in which Indians are employed? A. Gold is found in the Saskatchewan River, and has been worked there for years back. I do not know but it is worked there yet. They find gold but not in very large quantities, and an ordinary laborer provided with ordinary tools will make from \$1.50 to \$2 a day working hard in the Saskatchewan River?

By the Honorable Mr. McInnes :

Q. What tools do they use there? A. I do not know; they just wash the sands.

Q. With a little rocker? A. I do not know. I have never seen the process, but I know they do wash the sands there, and if they happened on a good bar they make as much wages as that; but before they strike a good bar they might perhaps lose some little time for it. However you will find gold in all our sand bars on the Saskatchewan in smaller or greater quantities.

By the Honorable Mr. Girard :

Q. Are there any Indians working in those mines? A. They always search more or less for pebbles that may look precious to them for the purpose of selling them to the white men; but there is no regular working of those mines by the Indians.

Q. Is there no company formed for the exploration of mines? A. I believe there are companies working coal mines. The coal beds in the North-West are inexhaustible.

By the Chairman :

Q. Is there not good brick clay found there? A. I believe you can find good brick clay within easy access of almost any settlement, and also limestone in a great number of places.

The Committee adjourned.

THE SENATE, OTTAWA, 6th June, 1887.

The Committee met at 11 o'clock A. M.

Professor Bell appeared and was examined by the Committee as follows:—

By the Chairman :

Q. When you were last before the Committee you had given answers to some of the questions on the printed paper before us. Could you give us any further information on those questions, keeping in view the fact that we first wish to obtain information specially with regard to the existence of food products; secondly, their preservation, and thirdly, the possibility of replacing the denuded districts with such as are fitted for that purpose. If you give us that first, then you can go on with any other portion of the evidence you choose? A. In the wooded region fishes are the great resources of all the Indians, as you are aware, in the summer time especially, and rabbits in winter. As to the existing food there is not very much on the plains for the plain Indians. The waters of the plains—rivers and ponds—produce comparatively few fishes, and they are so far apart that the Indians cannot depend on fish to any great extent. The buffalo being gone we have to face the problem as to feeding the plain Indians principally from the Government stores.

Q. Then, of the existing food products, you have mentioned the rabbit as being the principal article of winter food. Over what portion of the country, roughly speaking, are they the principal food of the Indians? A. Principally in the woods. We have three species of rabbits or hares native to Canada—I might say four. The principal one is the ordinary bush rabbit which is brown in summer and white in winter; the prairie rabbit I referred to the other day, and further north the Arctic hare. The southern parts of the Dominion have been invaded by the gray American rabbit from Wisconsin and Michigan, supposed by many people in the west to be the English rabbit; but such is not the case. It is an American rabbit working its way eastward. We have, therefore, four native species within our borders. The common or American hare (*Lepus Americanus*) is extremely abundant most years. It is afflicted with disease periodically—once in about seven years the Indians say, and in these years the Indians are reduced to great distress, the bush Indians depending in the winter time on this food for their existence, so that when the rabbits are killed off with disease, the Indians are nearer starvation than at any other time. They do get some fish through the ice. They cut a row of holes through the ice and by means of a pole stretch nets by passing them from one hole to another under the ice, and in that way catch some fish. They also get a few by angling with hooks and lines through holes in the ice. Occasionally they kill a deer or a bear, which serves them for a week or more, but withal the rabbit is their great standby.

Q. Do you regard it as one of their principal food products? A. Yes. The staple food of the wood Indian tribes may be stated as rabbits in winter, and fish in summer.

Q. What is the southern limit of the Arctic rabbit? A. I fancy it would be near the verge of the forests. I have never seen them in the wooded region. Perhaps they do come into the wooded regions, but I think somewhere about the northern limit of the wooded country would be the southern limit of the Arctic hare.

By the Honorable Mr. Kaubach:

Q. Which is the most prolific variety or species of the hare? A. They are all prolific enough. It is hard to say which is the most so, but I should say the more southern species would be the most prolific. They breed three or four times during the season.

By the Chairman:

Q. How many at a litter? A. I should say four on the average probably.

Q. When do they reach maturity so as to propagate again? A. I should think within one year at all events.

Q. Which species of the rabbits you have mentioned would be the best adapted to propagate in districts where none are now found? A. We would have to confine ourselves to those suitable to the climate. I should think that the more southern one, even if it were most advantageous otherwise, would not stand the climate in the north. In the prairie region perhaps we could take the native prairie hare, and in the wooded region take the wood rabbit. I do not know that any attempt has been made to domesticate them, but by proper game laws and with paid officers to protect them much might perhaps be done to increase their numbers.

Q. What season would you designate as the proper close season for the prairie rabbit? A. I should say the whole summer would be the proper close season, as it is their breeding time, and at that time of the year the Indians can get something else to live upon.

By the Honorable Mr. Almon:

Q. Do you know as a fact or have you heard it stated that the English rabbit has two uteri, and that that accounts for their propagating so rapidly? A. I cannot say from personal examination.

Q. It is said that the English rabbit has two wombs, and that therefore she may have brought forth from one womb while the undeveloped foetus may be in the other, and that is the reason they are so prolific? A. Possibly, but reasoning from analogy it would be more likely that the young would develop simultaneously in both.

By the Honorable Mr. McInnes :

Q. Have you ever dissected a rabbit? A. Yes. In connection with that subject, the only curious point that I have noticed—and I have several specimens which I can produce—is the proneness of the common hare to extra uterine gestation. The ovum sometimes adheres to the outside of the intestines, and the fetus of the rabbit will grow in almost any position, and has been known to cause the death of the mother.

Q. Have you ever observed that yourself in the rabbit? A. Yes, I have and I have half a dozen specimens both dried and preserved in alcohol. It is one of the most interesting things in the whole domain of natural history.

Q. Have you discovered in dissecting rabbits that they have two wombs? A. I have not examined into that point. If they have, I should think that gestation would go on in both at the same time.

Q. This extra uterine gestation, you say, is a common thing? A. Yes, a common thing in this hare, I have referred to it to show the prolific nature of the animal.

Q. No matter where the sperm strikes, the ovum becomes impregnated? A. No, no matter, if the ovum is there it becomes impregnated.

By the Chairman :

Q. The Committee understand that the rabbit you would advise for transplanting say to the country between the South Saskatchewan and the boundary line, would be the native rabbit of that district—the jack rabbit? A. Not the jack rabbit. The jack rabbit is a large rabbit and inhabits the Rocky Mountains. We have specimens in the Survey Museum brought from British Columbia.

By the Honorable Mr. McInnes :

Q. We have a rabbit in the country extending between the coast range of mountains and the Selkirks and which is to be found as far south as California which is a tremendously big fellow—four times the size of the ordinary rabbit which you have here: we call it the Jack rabbit? A. We may be talking about different animals. I have shot the prairie rabbit and I know that it is a large rabbit, and the Arctic hare is also much larger than the bush rabbit.

By the Chairman :

Q. Which variety of rabbit would propagate most rapidly? A. It would depend upon the district; we should select the same species that is native there. We should protect the native prairie rabbit and if necessary the bush rabbit.

Q. The Committee received some interesting information with regard to rabbits from Senator Sutherland, who corroborated your own statement when before the Committee last, that after an interval of some years the rabbits are found in great numbers, and very soon afterwards they disappear and their carcasses are found in all directions? A. I know that to be a fact from my own travels. Some years they are so thick that you can easily snare them every night around your tent. They even come into your tent when you leave the door open. You can easily snare or shoot them. Other years you scarcely see any and the Indians complain of their scarcity.

Q. What is the cause of the scarcity? A. The rabbits die from a glandular disease—the glands suppurate, and it is accompanied by a constitutional disease as well—possibly a blood disease. As the disease spreads amongst them the rabbits are found dead in all directions. Then for one or two years afterwards you find very few rabbits, and only occasionally come across their tracks in the snow. Then they gradually increase until they become numerous again.

By the Honorable Mr. Macdonald :

Q. Do they burrow in the ground? A. No, the bush rabbit does not burrow.

By the Honorable Mr. McInnes :

Q. The prairie rabbit does not burrow either. A. No; our so-called rabbits are really hares.

By the Honorable Mr. Macdonald :

Q. What shelter have they in the winter season? A. The bush rabbits find shelter amongst the thickets of coniferous trees.

Q. Do they burrow in the snow? A. They make tracks in the snow, in winter, and in very severe weather they are found sitting quite still under the thickest trees. Bush fires destroy vastly more rabbits than the Indians. A fire that runs over the space of a county destroys nearly all the rabbits within that space; they cannot get away. Some of the larger animals escape by flying before the fire and getting into the water, or getting into sheltered places until the fire passes over, but the smaller ones are all burnt.

By the Chairman :

Q. Would the annual fires have anything to do with the occasional scarcity of rabbits in the prairie country? A. They might, and perhaps the birds of prey and foxes might destroy them.

Q. Would you give the Committee a list of animals and birds that prey on the rabbits? A. Foxes, wolves, lynxes, martens, hawks and eagles.

Q. Supposing that the rabbit was re-introduced in the denuded districts, you would suggest the protection of the animal—the precaution of not allowing them to be killed during the summer? A. Yes; I think there is no necessity for killing them in the summer, because the Indians in the bush can get their food otherwise, and on the plains I do not think they are necessary to the support of the Indians in the summer, and they might as well leave them alone.

Q. In winter, when they are in great abundance, is there any means by which their flesh could be preserved for future use? A. I think that drying and smoking alone would cure them sufficiently for the Indian palate, as the Indians already smoke and dry fish, birds and animals of all kinds. It is a process that they understand.

Q. How long would that process preserve the flesh of the rabbit, if kept in an ordinary dry place? A. I should think for a year.

Q. Would you tell us what other of the natural food products can be preserved in that way? A. Almost any kind. I have seen the Indians preserve the flesh of the deer and bear—any animal that they get—by simply drying it in the summer and smoking it over a fire. It becomes very hard, and requires to be soaked in water to be made soft and palatable again. But they preserve geese, ducks, and the leaner meat of any animal that they are in the habit of killing.

Q. What is the process that you would recommend for the preservation of fish—such means as are at the hands of the Indians or whites in the places where fish are caught? A. If they are allowed to catch the fish just before the winter comes on, as white people do now in large numbers, and just hang them up, they can preserve them for six months. The Hudson's Bay Company's people are often obliged to help the Indians by giving them fish preserved in this way. They call them "hung-by-tail," from the manner in which they are preserved, and keep them in large quantities for winter, and if the Indians were half as provident as white men they could do the same thing. They are caught by thousands while on the spawning beds, it is true, but where they exist in inexhaustible quantities there is no objection to doing that for a time.

Q. What could a family of four or five, living beside one of those lakes, do if they were provided with three gill nets, say at a cost of \$1.75 for the three? A. I should think they could easily put up five thousand fish.

Q. What would the average weight of the fish be? A. They would weigh about three pounds each. It is quite a common thing, when an Indian has preserved nothing for himself, to go to a Hudson's Bay Company's man and ask for "a stick of fish." These fish are hung by the tails from a stick, and there are ten to a stick. When the fish are caught they are punched through the tails with a three-cornered, pointed instrument, and put on a stick by the tails and hung up on poles, so as to keep them out of the reach of dogs. They freeze in the night, and keep better in that position than in any other way. The moisture drains out towards the mouth, and there is nothing that permeates the fish—that would destroy it—as if it were lying on its side. Nothing else is done to preserve the fish.

Q. In what portions of the country could these large quantities of fish be caught by the Indians, and be bought from them by Indian agents and transported to other

parts of the country to be served as rations for other Indians or disposed of? A. Every lake in that northern country, no matter how small, is apt to contain white fish, and in every large lake they exist in great quantities. Lake Manitoba, Winnipegosis, Winnipeg and all the smaller lakes around abound in these fish, and in the tens of thousands of lakes in the wooded Laurentian country, which stretches between the great lakes and Hudson's Bay, fish can be had in abundance. The whole of that country is dotted with lakes, and every one of these contains whitefish—often even a lake not more than a few acres in extent contains large whitefish. The reason is that the waters are cold. In lakes of the same size in this region the water would be too warm in summer and the whitefish would die; but in the north the waters are cold and there is abundance of food for them, and hence the small lakes often contain fish as large as you get in the large lakes.

Q. Are the Committee to understand, that if an Indian suffers from want of food, it is because of his own improvidence? A. Yes, entirely.

Q. Can you tell us what an Indian family could do with a sufficient quantity of sturgeon twine and hooks in a district where sturgeons are abundant?

A. I think if they were taught to be provident—if the chiefs, or the missionaries, or the Hudson's Bay officials, or others, were to instil into them the necessity of being provident, with an outfit such as you speak of, they could supply themselves with plenty of food for a winter.

Q. Sturgeon or white fish? A. Sturgeon can be caught with hooks, but white fish cannot. The Indians catch them in the winter with nets set under the ice.

Q. Are whitefish entirely vegetable feeders? A. I have never found in their stomachs anything but confervæ, small algæ, vegetable substances that grew in the lakes.

A. Is that the case with the sturgeon? A. No; the sturgeon, in these northern waters, lives apparently on small mollusks. There is a little bivalve called cyclas, which is about the size of a pea when it is shut, and globular in shape. It is full of nutritious tempting-looking meat. They are white and translucent looking, and you get them in the stomachs of the sturgeon in large quantities. They are as good as oysters.

Q. Can you give us any other fish that are not predatory in the sense of destroying other fish life? A. The sturgeon and whitefish do not. The lake trout does. It is a good fish but it will eat other fish and all the other fish which the Indians catch, as far as I know, would be apt to prey upon smaller fish if they could get them. Suckers do not, but they are not very good eating. The Indians do eat them when they can get nothing else.

Q. Are the Committee to understand from this that you would advise, in filling up depleted lakes with fish, that these two varieties should be chosen in preference to the jack-fish, which is in the habit of gorging himself with other fish, as you know?

A. The sturgeon is perhaps the best fish of all for the Indians. It takes the place of meat and bread. It approaches more nearly to meat than any other fish?

Q. What is the greatest weight that you have known a sturgeon to be caught? A. Well, I should say fifty pounds would be a large one—six feet in length—sturgeons four and five feet are often caught.

By the Honorable Mr. Turner :

Q. Is the flesh of the sturgeon like the flesh of any other fish? A. It is more solid.

Q. Is it not more like beef than other fish? A. Yes.

Q. How do the Indians cure it for use? A. They dry it and smoke it. They cut it in slices or strips for that purpose.

Q. Neither sturgeon nor white fish are predatory on other fish? A. No, sturgeon live principally on small shell fish.

Q. Are not the small shell fish fit for food? A. They are, no doubt, but it would require a handful of them to make a mouthful. They catch sturgeon in the north with fish bait, but I have never known them to pursue other fish and prey on them.

By the Chairman :

Q. I have heard it stated that the female sturgeon has been known to have as many as a million matured ova at one time? A. I have never counted them myself but the number seems enormous. One might count of course by weighing. Suppose you had six pounds of ova and count an ounce, and multiply the number in an ounce by the number of ounces in the six pounds, of course you would get something like the number in the mass. The ova are very small and the number is enormous. They make *caviare* of it in Russia.

Q. Supposing there was a lake in the west entirely devoid of fish though the conditions were such as sturgeon would thrive there. If you placed a female sturgeon with the ova nearly at maturity and a male sturgeon in such lake, is it reasonable to expect that the eggs would produce a large quantity of young fish?

A. The more certain way of transplanting sturgeon to a new lake would be to put the impregnated ova into a suitable situation in the lake, instead of putting in the adult fishes, as they might not find an appropriate place to deposit the ova, or if they did the male sturgeon might not find it being a stranger.

Q. Are there fish hatcheries in any part of the Dominion where the roe of the sturgeon is acted upon in this way? A. I have not heard of sturgeon being propagated in that way, but it might be easily done in Lake Winnipeg, because there sturgeons are caught in great numbers when they ascend the rivers running into that lake for the purpose of spawning. They are so easily caught that they are frequently taken out of the water alive and carried in boats to pens constructed by the Indians with stakes in the water, where they are kept all the season alive. They are sometimes transported 30 or 40 miles alive.

By the Honorable Mr. McInnes :

Q. In tanks of water? A. No, just in the bottom of the canoe. The water in the bottom of the boat may keep the gills moist, but sturgeon live a good while out of water. The Indians make pens by surrounding an acre or two with stakes, and into those pens they place the sturgeon, where they are kept alive all summer, and when they want a fresh sturgeon they go and take one out.

Q. Are they fed in those enclosures? A. No, they live there without food all the season. At the end of the season some of them are neglected, and are found there the following season, having lived for a year without food so far as one can see.

Q. Do the Indians do this with other fish than the sturgeon? A. No, not that I know of.

Q. You were going on to tell us of other fish that bear this transportation to different waters, and giving that as a means of preserving fish? A. The sturgeon is the only fish that I know of that the Indians keep in pens.

Q. Could the whitefish be kept in that way? A. I should doubt it. The whitefish are a delicate fish and require clean cold water, and they require to move to cold water like the trout.

Q. Can you tell us whether whitefish is produced at any of the fish-breeding establishments in Canada? A. Yes.

Q. What distance will the impregnated ova bear transportation? A. There is no limit to the distance. The roe of equally delicate fish is known to have been transported across the continent. It is not unusual to carry the roe of fish across the continent from the Eastern States to California, and the ova of the salmon has been taken as far as Australia.

Q. Is it your opinion that the impregnated ova of fish could be taken by the Canadian Pacific Railway as far west as the Rocky Mountains successfully? A. Yes.

Q. What other fishes are propagated in the fish hatcheries of Canada? A. Different species of trout, salmon and whitefish. Those are the principal ones in the west; then in the east on the sea coast I believe they breed shad and other fishes which migrate to the sea.

Q. The members of the committee, I see, are looking very anxiously at those specimens on the table, and as it is now 12.30 p.m., and if you would like to give the Committee some explanation of those specimens, please do so, and we shall excuse

your attendance then for the day? A. These (taking up a branch of a pine tree) are specimens of the *Pinus Banksiana*. It is often called the jack pine and scrub pine.

Q. Does it grow very large? A. In the central part of its geographical distribution it sometimes grows to be a tree of two feet in diameter, but more frequently to twenty inches. You will observe that the cones adhere very closely to the wood and never seem to fall off, and they never seem to open. Some of these may have been on the tree for fifty years. It would appear as if there were no provision made by nature for getting the seeds out, but I have observed that after forest fires, when the cones become partially burned they immediately open and the seeds drop out. You can try the experiment, that is, if you scorch one of those cones for a few minutes before the fire the scales will open and the seeds fall out. After forest fires when the seeds of these cones are loosened in that way millions of them blow all over the country. In a *brulé* you will see them sticking in great clusters on the trees and the seeds blowing everywhere. A few years after a fire of that kind the young trees are seen growing in countless numbers all over the country, so that it would seem that fire must have been a natural phenomenon from the beginning. Some of those cones look fresher than others, and doubtless some of them have been on the branches a great many years. I got these specimens north of Lake Superior.

By the Honorable Mr. McInnes :

Q. How far south does this pine grow? A. It extends from southern New Brunswick north-westward almost across the continent. This is about the only tree in North America which we can call strictly Canadian. Both its northern and southern limits are practically in Canada. It runs thousands of miles from the south-east in New Brunswick to the North-West in a belt throughout the Dominion. All other trees which we have in Canada have the southern limit far in the United States, but this one has its southern limit in the Dominion, and its northern limit also as a matter of course.

Q. So that it is purely a Canadian tree? A. Yes, and the only purely Canadian tree we have.

By the Chairman :

Q. I have been requested by my honorable friend beside me to ask you whether those specimens are a mere freak of nature or whether you have noticed this peculiarity of the cones all through the pine country? A. It extends throughout the belt I have mentioned. These cones are, as you will perceive, the shape of a small horn, and grow inwards towards the tree, and in fact are fastened on it. They grow with their points turned into the tree, and this extremity also sometimes becomes embedded in the wood. It is a very abundant tree all the way from New Brunswick to Alaska.

By the Honorable Mr. Gowan :

Q. If they are so numerous it is evidently not a freak of nature? A. I have seen the trees myself all the way from the seaboard of the Atlantic to the Athabasca country, and they have constantly this peculiarity. No animals seem to open the cones, and the only means of propagating this species is by fire. I have scorched the cones myself, and the process has always the effect of setting free the seeds. You will see the same thing in nature after a forest fire, and cones in which the seeds have been imprisoned for half a century are then opened. Last January I brought down a quantity from Lake Superior and gave them to His Excellency the Governor General, and described to him the only way in which he could get at the seed was to burn the cones, and he followed my advice and got out the seed in that way. Some of those cones may have been one hundred years old. The cones, you will notice, adhere directly to the wood, and have no stem at all.

By the Honorable Mr. Turner :

Q. What height does the tree grow? A. One hundred feet and upwards.

Q. And how large in circumference? A. I have seen them six feet in circumference. The largest trees that I have seen of this species are in the upper waters of the southern branches of the Albany River. In general trees attain their greatest perfection in the centre of their geographical distribution.

Q. Sometimes they degenerate into brush? A. Yes, at the outside edge of the territory in which they grow. As you go north, south, east or west, they may become smaller and smaller until they die out, but this is not the case with all kinds of trees. The nature of these cones shows that fire is a natural phenomenon. Forest fires have been attributed to the Indians and others, but this fact proves that they must have existed from as great a time as this tree has.

By the Chairman :

Q. We will suppose that a district burned over completely, and that those cones are opened by this burning, and in process of time trees commence to grow again. Do these seeds grow exactly the same kind of tree or is there any difference in the variety that is reproduced? A. They are precisely the same.

Q. Do any other varieties come up on the burnt district? A. Yes, the aspen poplar, and white birch;

Q. Do you find the aspen as far north as the Banksian pine? A. Yes.

By the Honorable Mr. Gowan :

Q. How are they reproduced on the burnt ground? A. Their seeds are more largely distributed. I fancy they exist in the soil already.

By the Honorable Mr. Sutherland :

Q. Don't you think they grow from the root as well—that the root does not happen to be burnt? A. Yes, they spring up again from the root, but I have seen large districts covered with the Banksian pine alone and no other tree whatever.

By the Chairman :

Q. You have seen the valuable map distributed by the Department of Agriculture in which is laid down the different belts of timber? A. Yes; that is taken from my own map, published in the report of the Geological Survey for 1880.

Q. What trees are found north of the Banksian pine? A. The aspen and the rough-bark poplar grow north of the Banksian pine and also spruce and tamarac.

Q. Supposing a fire occurred in the neighborhood of this line of demarcation extending into the other trees you have mentioned, would it result in their entire destruction, or has their seed some provision by which the trees are reproduced? A. The seeds of the other trees blow about every year and great numbers of them I daresay become covered with decaying leaves, and they are blown into cracks and recesses where a greater or less number will germinate after a fire.

Q. I believe it is also true that forest fires do not burn with that fierceness through a poplar grove that they will through a pine forest of this description? A. No; fire would not run at all except in dry weather in poplar and birch forests, or amongst any deciduous trees.

By the Honorable Mr. Turner :

Q. Is this Banksian pine valuable for lumber? A. Not particularly. It resembles the red pine; it has a coarse, distinct grain and can be used for many purposes, and in England now it would be used for the manufacture of fashionable bedroom furniture.

By the Honorable Mr. Gowan :

Q. It is something like the pine of Florida? A. Yes; like the pine of Florida and Georgia which has been used for some years past in England in the manufacture of furniture.

By the Honorable Mr. Turner :

Q. It would become an article of commerce then? A. Yes.

By the Chairman :

Q. Is it a slow or a quickly growing tree? A. It grows very rapidly.

Q. Is it one of those trees that you would advise the propagation of in the North-West? A. I think it is the most suitable tree of all the coniferous trees for propagating on the open prairie; it would stand a dry climate.

Q. Could you give the Committee some information how best that could be done? A. I think by taking the cones, scorching them and shaking the seeds out, and planting them at once it could be done.

By the Honorable Mr. Sutherland :

Q. What character of soil would be the most suitable for the purpose? A. Rocky and sandy soil, although I have seen it grow in all kinds of soil. I have seen groves of those trees in stiff white clay, but it grows in gravelly and sandy land better than in any other kind.

Q. Is there any practical useful purpose to which that kind of timber could be adapted? A. It would make a splendid wind break on the prairie. It grows one hundred feet high in the best situations. It makes good ties, telegraph poles, and timber for general purposes, besides fuel.

Q. Does it grow straight? A. In groves it grows very straight, but it is more apt to be branchy than red pine. I have seen hundreds of them in groves, affording logs of from 20 to 22 inches in diameter—two or three logs to a tree.

By the Honorable Mr. Reesor :

Q. How far north have you known the Banksian pine to grow? A. I have seen it myself as far north as Lake Athabasca, and it has been noticed far down the Mackenzie River, and west to the Rocky Mountains.

By the Honorable Mr. Turner :

Q. The further north you go the smaller it becomes? A. Yes. It is in its perfection half way across the continent, and half way between its northern and southern limits. It grows very rapidly. I have seen it about the mouth of the Kaministiquia River, in the townships of Neebing and Paiponge, behind Port Arthur. I have seen it growing up there within the last fifteen years, in my experience to be useful trees—whole tracts of these townships covered with it since the surveys were first made.

By the Chairman :

Q. If those cones were planted in the North-West, what size would the trees likely be in fifteen years? A. In fifteen or twenty years they should be at least 25 or 30 feet high. They grow thick and bushy if they have room to spread out, and would afford some protection from the north-west winds.

Q. You think it would be suitable for the protection of barn yards? A. Yes; but the settlers would require to know the nature of the cones before planting them. They could be laid in a wire jack or basket and held over a fire and scorched, so that the scales would open and the seed could be shaken out. The seed would then require to be planted at once after the cones were opened.

Q. Supposing you were telling a settler in the North-West how to plant these seeds, repeat to us what you would say to him? A. I would say to the settler "gather the cones and scorch them in a wire basket over a hot fire for a few seconds, and when they are sufficiently scorched to begin to open, take them off. Do not burn them sufficiently to damage the seed. Then shake them out and plant them immediately."

Q. How deep would you plant them? A. I should think only a couple of inches.

Q. Would you attempt any preparation of the soil? A. I should plant them in ploughed soft soil, two inches deep.

Q. Are there any specific directions as to the attendance to them afterwards? A. No; I should think not. They would bear to be transplanted afterwards. They seem to be very vigorous trees, and the young plants could be carried any distance afterwards.

Q. You are well acquainted with the North-West; what treeless districts are there that you would suggest their being transplanted to? A. Any district that is fit for settlement and in which trees would be required I think these would grow. They would grow, probably, everywhere in the North-West.

Q. Take the Province of Manitoba, for instance? A. In the western and south-western portions of Manitoba where timber is scarce I think the *Banksiana pine* would become a valuable acquisition. They might be expected to grow as far west as the Rocky Mountains, north of the Saskatchewan Valley.

Q. You mean north of the north branch? A. Yes, and even a little south of it in the neighborhood of the North Saskatchewan.

Q. I see you have some other specimens with you; would you please give the Committee a description of them? A. They are specimens of wheat and barley which I got at Norway House in 1879. While I was there they happened to be cutting their grain and I brought these as specimens of the wheat and barley grown in that district. It is grown there every year. I remarked to Mr. Roderick Ross, who was in charge of the fort, that it was interesting as showing that the climate was fit for wheat. He said yes, he grew wheat there and that he never resided anywhere where wheat did not grow, although this is north of the wheat belt as laid down by the maps. The fact that it is a sure crop at Norway House is, I think, owing to its proximity to Lake Winnipeg.

By the Chairman:

Q. Then it will grow much further north as you go westward? A. Yes; but I think in every place where wheat is successfully raised in these northern districts, it is owing to local circumstances—to the proximity of large sheets of water. Lake Winnipeg is a large body of water and sends the warm air from it over a large district of country.

Q. What is the northern limit of barley, in your experience? A. Barley has been raised at Oxford House nearly half way from Norway House to York Factory. It has been grown there as a regular crop. It has also been grown at Osnaburg House, and Moose Factory.

Q. How far north along the Mackenzie River? A. I am not certain, but I know it has been grown at Fort Providence on Great Slave Lake, and it is grown at Fort Chipewyan on Athabasca Lake, every year.

Q. Is it the case that the yield of all these grains is more abundant the nearer you get to the northern limits of growth? A. I understand it is the case, that the grain is more perfect at all events—that any plant is more perfect the nearer you can grow it to its northern limit, provided it can attain to its full development.

Q. It will not grow in larger quantities though? A. No, not perhaps in larger quantities, but of better quality. This applies to grain and vegetables, and it may have something to do with the theory of the natural migration of plants. It is supposed by some that the first home of tropical plants was in the polar regions, and afterwards they travelled south. If, as is supposed to be the case, that plants attain their greatest perfection within the northern limit of their growth, it may have something to do with this theory in natural history.

The Committee adjourned until to-morrow.

OTTAWA, Tuesday, 7th June, 1887.

Mr. BEDSON, Warden of the Penitentiary at Stony Mountain, Manitoba, appeared and was examined as follows:—

By the Chairman:

Q. With your permission we will not adhere to the order of those questions, but simply allow you to make statements, which you think will bear on the questions on the printed paper and in answer to those put to you by members of the Committee, keeping in view, of course, that the object of the Committee is, primarily, information regarding the existing food products; secondly, the manner in which they can be conserved; and, third, the manner in which they can be improved or increased. So that keeping those objects in view, we will ask you first what food products in the North-West are you familiar with? A. Of the animal kind or vegetable?

Q. The order in which you like. You may commence with animals or birds? A. More particularly with birds. There are geese, ducks, partridges, prairie chickens and then there is the rabbit.

Q. Are there any large animals in the North-West? A. I think not.

Q. The Committee were informed by a previous witness, that you were possessed of a herd of buffaloes? A. Yes, but I do not include those, because they are not now a natural product of the North-West.

Q. It is a matter of interest to the Committee, and seeing that you have the last remaining herd that is known of in the North-West, the Committee would be very glad to have some details in regard to them—how you happen to possess them, what their habits are, how far they have increased under your management, &c.? A. About eight years ago I bought a herd of eight buffaloes from the MacKay estate, and three others I got on the plains as calves, and at this moment I think I must have, exclusive of this year's calves, and the calves of half-breed buffalo, 67 or 68 thorough-breds and about sixteen to eighteen half-breeds. The half-breeds have been crossed both ways a buffalo bull with a Durham cow and a Durham bull with a buffalo cow. The half-breeds make up in the hind quarters and give more beef than the thorough-bred buffaloes. The fur is more regular and thicker.

By the Honorable Mr. Turner :

Q. Which is the best class of half-breeds? A. I think they are about equal.

Q. Have you found any difference in the habits of those half-breed animals—the cross between the Durham cow and the buffalo bull—is that any more tame than the other cross? A. The cross between the buffalo bull and the Durham cow is a larger animal than that which comes from a cross between a Durham bull and a buffalo cow.

Q. And much the same with respect to temper? A. The latter remain more with the domestic cattle than those thrown from a buffalo bull as a rule.

Q. That is they partake more of the nature of the father? A. Yes.

By the Honorable Mr. Macdonald :

Q. Do you have to house the buffalo in the winter and feed them? A. No, they are very hardy. We have had instances of buffalo cows calving in winter when the mercury was 38 below zero, and I was surprised to find the calves as lively as when dropped in May or June.

Q. Have you to feed out hay to them? A. Hay has been scarce lately, and they have had a little in the fore part of the winter, but in the later part they have had to seek food for themselves on the plain.

By the Honorable Mr. Turner :

Q. I suppose the half-breeds do not breed again? A. Yes, they breed every year.

Q. Half-breeds with half-breeds? A. Yes, they breed just cross like ordinary cattle.

By the Chairman :

Q. Does the robe still retain the same characteristics as that of the thorough bred buffalo? A. Just the same.

Q. In what manner do you at present care for those hybrid cattle? Do you allow them to roam with the ordinary stock? A. They just go about with ordinary stock on the plains.

Q. Have you tried the experiment of milking any of the buffalo cows? A. No, I have not. I have just allowed them to rear their calves.

Q. Do you think the attempt to raise the calves has been as successful in this mixture of breeds as ordinary cattle? A. There is less trouble with them, and they are more successful than ordinary cattle. That is my experience.

By the Honorable Mr. Merner :

Q. You just let them loose on the plains? A. Yes, we turn them out on the plains and they care for themselves.

Q. Do they roam far away? A. Occasionally a young bull will stray away when he is driven out of the band by the older bulls after the cows have dropped their calves and have come in season again. They do not stray further away than domesticated cattle will from the herd.

By the Honorable Mr. Turner :

Q. What is the comparative value of the meat of the four kinds—the thorough-bred buffalo, the half-breed by the mother, the half-breed by the bull and the meat of the half-breed from a half-breed? A. Of course there being no market for it, it is hard to say?

Q. But in your judgment which is the best meat? A. I think the meat of the half-breed is best. It is not so fibrous.

Q. That is the product of the half-breed with the half-breed? A. Yes.

By the Chairman :

Q. What would be the difference in weight between the varieties of the domestic cattle and the buffalo? A. The hybrids weigh more, because they make up in the hind quarters. The hind quarters of the buffalo, as you know, are very slim.

Q. Do the hind quarters of the half-breed buffalo retain the hump? A. A small portion of the hump is seen on the half-breed.

Q. Have you reason to believe that under favorable conditions the plan which you have adopted for crossing those breeds could be done by farmers and others? A. I have no doubt of it. Mr. Secretan, the secretary of the company, has had many communications about it. There are, I think, two parties in the United States who have got some buffalo bulls, and they are crossing them in the same way. He will give you evidence regarding that.

Q. Is the Committee to understand that the hybrid product of the buffalo with the domestic cow is as good for beef and that there is as much of it, that it is superior in flavor to domestic beef, and that the robe or fur is more valuable than that of the domestic animal? A. Certainly. There is one animal there in the herd, a three years' old ox, which I think will turn the scale, live weight, at over two thousand pounds.

By the Honorable Mr. Kaulbach :

Q. That is a half-breed? A. Yes, a half-breed from a Durham bull and a buffalo cow. He is an immense animal. His hide alone would be worth in the market from a furrier, in its raw state, \$35.

Q. What would the hide of a domestic ox be worth? A. Not more than \$6 or \$7.

By the Honorable Mr. Turner :

Q. Have you lost many of your herd by people shooting them? A. I have lost two.

Q. In a herd of the same number of domestic cattle you would likely lose as many? A. I would have lost more. I have only lost two buffalos in eight years. One was maliciously killed and the other was accidentally killed.

Q. Yours are the ordinary prairie buffalo, and not the wood buffalo? A. I do not really know what the wood buffalo is.

Q. We have heard a good deal of a buffalo that frequents the woods. They say he is a good deal larger, and has heavier fur than the buffalo of the plains? A. The musk ox is called the wood buffalo. The wool or hair—it is really wool—of the buffalo is shed every summer, and I have heard of it being collected and sent to the woollen mills, and there made into yarn for socks.

Q. How does it compare with worsted? A. You could not tell the difference.

Q. From ordinary sheep's wool? A. You could not tell the difference.

Q. The fibre would be longer? A. No; it would not be longer. It is a short matted wool.

Q. You clip them the same as you would a sheep? A. No; nature provides for that. The fur comes off in flakes. The buffalo roll themselves on the ground and the fur comes off in flakes, and you can pick it up in that way. The advantage of raising buffalo as a matter of commerce is that the heads are worth now, because of their scarcity, from \$50 to \$75, and the hide is worth \$30, so that between the head and the hides the animal is worth \$80. The beef is sold in Chicago and other large centres at a high price as a luxury. I have been offered by the butchers, at Christmas time, 40 cts. a pound all round for buffalo meat as a luxury.

By the Honorable Mr. McCallum :

Q. But if others were to go into raising buffalos the competition would bring the price down? A. Yes, I dare say, but I am the only one who is raising them.

Q. If you put 40 cts. a pound as the market price of buffalo meat you will soon have others raising it? A. But I am the only one who has them to raise.

By the Honorable Mr. Turner :

Q. I suppose at three years old is the proper age for killing them? A. Yes.

Q. When they get older their meat is tough? A. Yes.

Q. Are they cross when you go near them? A. No, they are like ordinary cattle.

Q. Can they be used as oxen for ploughing? A. I have had young half-breeds plough.

Q. Can a yoke of half-breed buffalo oxen do as much work as a pair of domestic oxen? A. They can do more; they have immense shoulders.

Q. So that in all respects they can be made as much use of as the ordinary oxen? A. Yes, with more power.

By the Honorable Mr. Macdonald :

Q. Are there any other questions on this published list on which you could give the Committee information? A. I consider that the moose deer in Manitoba and the North-West are not sufficiently protected.

Q. Is there a close season established by the law of the Province? A. There is a close season except for Indians; but the Indians kill moose at all seasons, and at times when they are easily got at I heard of an instance of the Indians on Lake Winnipeg, two years ago, killing about 40 head of moose in the summer just after the calves were dropped.

By the Honorable Mr. Turner :

Q. They would be very poor then? A. Yes, very poor.

Q. How is the flesh of the moose as compared with buffalo meat? A. The flavor is different, and the fibre of the moose meat is much finer.

Q. It is a finer meat? A. Yes, it is a finer meat altogether.

Q. Could they be made use of on a farm and domesticated the same as buffalo? A. Yes, I think so. I have a pair now, and I drive one.

Q. Have you tried to breed them with the ordinary domestic cow? A. No, but I intend to try it this year. I have been unfortunate with my bull moose. I had two of them and lost them. They are very hard to rear.

Q. They are a wilder animal than the buffalo? A. Yes, more timid, more afraid of man. I have only two cow moose at present.

By the Honorable Mr. Sutherland :

Q. What is your opinion with regard to domesticating those animals, the moose, for purposes of food? A. I intend to try it in September. I intend to cross them with the domestic bull.

By the Honorable Mr. Turner :

Q. You are going to try them first with their own class? A. No, I cannot this year, because I have no bull moose. They are both cows that I have, and I am going to try to cross them with a domestic bull.

Q. Have you any antelope there at all? A. No, I have not.

Q. Are there antelopes in the North-West? A. There are antelopes in the North-West, but we have none in Manitoba.

By the Honorable Mr. McCallum :

Q. There is what they call the antelope in the North-West, for I have seen some of them? A. Yes, and they have been very numerous the last two years.

Q. Is there any other animal which you can suggest to the Committee as a valuable food product for the Indians of the North-West? You were saying something about rabbits? A. The Hon. Mr. Sutherland knows that every seven years they are found in great numbers.

Q. How do you manage to feed the buffalos in the winter? A. Last winter we ran short of hay, and we turned them out on the plains to feed themselves. You could not compare the domestic cattle with them in condition, the buffalo and half-breeds are so fat when fed. They really require no food or house or shelter that they cannot find for themselves.

By the Honorable Mr. McDonald :

Q. If the Government commenced to stock the Indian farms with buffalo, do you think they would be better than cattle for that purpose? A. I think it would be very unwise to put buffalo near the Indians. They would not last long.

Q. I suppose the same thing would apply to domesticated cattle? A. Yes, even into the domestic cattle they put a shot now and then.

By the Chairman :

Q. Do you not think it would be well that the experimental farms to be started in the North-West should continue those interesting experiments which you are now

making? A. It would be a very wise move, if the Government experimental farms would take the matter in hand.

Q. What other cross would you suggest between the buffalo bull or buffalo cow?

A. Crossing them with Galloway cattle would make a very good breed.

Q. On account of the long hair? A. No, but on account of the black robe that they would have.

By the Honorable Mr. Allan:

Q. On seeing your herd of buffalos, one peculiarity that struck me is the singular color of the under hair on some of them? A. Those animals were crossed with red cows.

By the Chairman:

Q. First class black buffalo robes used to bring good prices even in the old days of plenty. What would a black robe be worth now? A. From \$75 to \$100.

Q. Then you think by crossing the buffalo with Galloway cattle you would get a robe darker in color and more equally furred? A. Yes, by crossing them with Galloways or polled Angus. The fur would be equal to the fur on a prime black bear skin, but closer, and I put that value on it, knowing the value of a prime black bear skin.

Q. Can you give us an idea of the weight, in a state of nature, of a full grown buffalo bull? A. I think Mr. Secretan will give you that information. He has given it to others in writing, but I forget it.

Q. Can you give us your views as to the possibility of making pemmican from the flesh of the hybrid buffalo? A. There would be no difficulty at all in making pemmican from the hybrid.

Q. Are you aware that the attempts to make pemmican in England for use in Arctic voyages, from domestic cattle, have not been successful? A. I have heard so, but I think it was on account of canning it. They put the pemmican up in tins instead of in raw hide. In fact I was in correspondence with the War Office some time ago to suggest the making of pemmican out of beef, but not as they tried to do it for the Arctic expedition. They think if they could make it as an article of commerce it would be a very good thing for the army and navy.

Q. It would be interesting for the Committee to know what the proper method of making pemmican is—that is supposing an experimental farm were stocked with a large number of hybrid animals, and pemmican was required by the Government for Arctic expeditions or other purposes? A. I think it could be started down by St. Peter's where labor is cheap, and a great many of the inhabitants are accustomed to cutting beef into thin strips and smoking it as they used to do with buffalo meat, when they have more than they require for present use. As an article of military commissariat, beef done in that way is more easily transported than in any other shape, and every bit of it can be used. Even the hides in which it is packed can be cut into strips and used for mending harness, or cut into whips, or lashings for locking the gun wheels, and many other purposes. The pemmican itself, packed in skins, would afford a very efficient means of defence, if necessary, by throwing up an entrenchment with earth and pemmican bags.

Q. Is the meat more likely to retain its flavor and purity than other meats supplied to soldiers? A. My experience of the canned meats supplied in the North-West is, a great many of them were spoiled, the canning being poorly done and the soldering not been as perfect as it should be. In my experience I found a great many canned meats totally unfit for use.

Q. What relation would pemmican bear in nutritive qualities to bacon or salt pork? A. Ration of bacon would be about one and a quarter pounds, and of pemmican one pound would be sufficient. The latter is more nutritive than bacon. Then pemmican can be used in such a variety of ways. Delicious soups can be made with it, it can be stewed with potatoes, or boiled with vegetables, or made into curries for the officers' mess. Then above all it could be used as a ration, men taking it in their haversacks in a raw state, and using it without cooking at all. By that you would save the necessity of making fires when men are on outpost duty. Fires are a source of great danger to men when on outpost duty.

Q. Could you give the Committee an idea of the comparative cost to the Government on the line of railway of a pound and a quarter of bacon as against one pound of pemmican? A. On a line of railway, I suppose bacon could be laid down for 12 cents a pound—about 15 cents. for a ration.

Q. What was the price of pemmican in the old days of plenty? A. Pemmican was bought at from five to eight cents a pound, and I have paid as high as fifteen to twenty cents a pound for it.

Q. Which ration would Indians prefer in time of scarcity—bacon or pemmican? A. Pemmican, certainly.

Q. Have you any reason to believe that it is a more nutritious and more healthful food than bacon? A. You can live on pemmican much longer than you can on bacon. I know that from my own experience. I have heard Hudson Bay officers say that they would rather have pemmican than any other meat except fresh beef, and that they preferred pemmican when travelling to any other food.

Q. You were mentioning that the flesh of the hybrid buffalo could be preserved in strips by smoking it, and the flesh of domestic animals could also be preserved in that way: what other flesh products of the North-West can be preserved in that way? A. The flesh of the moose might be preserved in that way.

Q. Could you preserve the rabbit in the shape of pemmican? A. I do not think the rabbit could be preserved in the same way, the flesh being more tender.

Q. How long can you preserve fish by smoking? A. I have had smoked whitefish for three years.

Q. Sound and good? A. Yes, just as good as they were the year they were smoked.

Q. You were proceeding to tell the Committee some facts in relation to the moose. Would you continue your observations in regard to that? A. I have already noted that I intend to try and cross them this fall with domestic cattle.

Q. What sort of a bull would you cross them with? A. With the small highland bull.

Q. It was stated by Professor Bell in his examination at a former meeting of this Committee, that there still existed in the north the wood buffalo, as distinct, I understand, from our buffalo, which is the true American bison. Have you heard lately how many of those animals remain north of the Peace River? A. I never could ascertain from anyone that such a thing existed as wood buffalo. I think they must have confounded the musk ox with the buffalo.

By the Honorable Mr. McInnes:

Q. How far south is the musk ox found? A. I do not really know. I know a gentleman who spent two years up there, and returned last year. He went up the Yukon River and spent two years up there and came down the Mackenzie, and in all that time he did not see one musk ox.

By the Honorable Mr. Allan:

Q. There is no possibility of mistaking the musk ox for the buffalo, or the buffalo for the musk ox? A. I should say not.

By the Honorable Mr. Macdonald:

Q. The musk ox is not used for food? A. Not often.

By the Honorable Mr. Turner:

Q. The musk ox has no value as for purposes of food? A. The hides are very valuable.

Q. Is the flesh valuable for food? A. Yes; but they are so difficult to get.

By the Chairman:

Q. They are not got within the range of present civilization? A. No.

Q. Have you touched upon the fish of that country as a food product? A. No.

Q. Have you mention the varieties of fish you are acquainted with? A. The river fishes are pickerel, pike and gold eye. Last year I saw for the first time in Red River the regular barred perch. I could not account for the perch, because when living on the river at the lower fort I had never seen any of them. When coming down on the train the other day I got into conversation with a gentleman, who told me that

the Americans had stocked the upper waters of the Red River with perch some ten years ago, and that accounted, to me, for the presence of that fish in the river lower down during late years.

Q. What other varieties of fish did they stock the upper waters of Red River with? A. They put in trout and perch principally, and pickerel.

Q. Are there as many fish caught in Red River now as formerly? A. There are not as many sturgeon caught as formerly, but other fish, I think, are as plentiful as they were fifteen years ago.

Q. How is the supply of whitefish in Lakes Winnipeg and Manitoba? A. There was a very large supply of whitefish last year from Lake Winnipeg—both of whitefish and sturgeon.

Q. Have you heard any complaints from the smaller fishermen of a decrease in quantity? A. I have heard complaints from settlers who fish in the fall for their own supply, that owing to the fish trade being developed there by two or three companies, and the use of large seines for dragging the lake, the supply is decreasing.

Q. Can you give the Committee an idea of the quantity of fish which is exported from those two lakes? A. I really cannot be accurate about that, but I have seen them come from there in carloads. I saw one train of fourteen cars loaded with whitefish leave Selkirk at one time.

By the Honorable Mr. Turner :

Q. Frozen fish of course? A. Yes.

By the Chairman :

Q. The cars would be filled up—ten tons to the car? A. Yes, those were box cars, holding from ten to twelve tons each.

Q. Are the Committee to understand then that this would mean over 200 tons of whitefish? A. Yes; each car would hold from 10 to 12 tons.

HON. MR. TURNER—Twenty tons is the standard size of cars in the North-West on through lines.

By the Chairman :

Q. You think then generally that the quantity of whitefish is decreasing in those lakes? A. If this trade is carried on, I should think it would decrease.

Q. What would be the remedy for that? To prevent the exportation of fish? A. I would limit it in some way; but I would allow them to export the large pike we have there.

Q. The Committee are to understand that you would not prevent the export of the pike, on account of its destructiveness to other fish? A. Yes.

Q. What are the present fishery regulations in force in Manitoba? A. The season has been changed lately, and I do not know what it is now.

Q. Is there a close season? A. There is a close season for whitefish and sturgeon.

Q. Is there a close season for pike? A. No, I think not.

Q. In what way can the whitefish be preserved for transportation other than by freezing them? A. In the ordinary refrigerator cars that they have on the railroads.

Q. Can you describe those to the Committee? A. I do not think I could; I have only seen one. I know they bring fresh salmon through from British Columbia in refrigerator cars, and I should judge that they could do the same with whitefish.

Q. Can you say the price that salmon, brought in that way from British Columbia, sells at in Winnipeg? A. I have bought it as low as twenty cents a pound, and I have paid fifty cents a pound for it. It depends on the supply in the market.

Q. Are the Committee to understand that, in consequence of the success in bringing salmon fresh from British Columbia, in refrigerator cars, to Winnipeg, that you think whitefish could be transported an equal distance in the same way. A. I am positive of it that whitefish could be so transported.

By the Honorable Mr. McCallum :

Q. They use a large quantity of ice in transporting fish? A. Yes; the cars are replenished with ice on the way.

Q. Of course you do not require ice to ship them in the winter? A. Of course not.

By the Chairman :

Q. What other methods are there of preserving fish besides smoking and salting them? A. They are preserved by canning them.

Q. Do the Indians sometimes dry them and pound them? A. I do not know; I have never seen it done.

Q. The Committee have heard the very interesting description of the moose which you have either published or furnished to some persons in writing. Would it be asking too much for you to send a copy of this paper to the secretary of the Committee? A. I will send it with pleasure. In fact I will telegraph for it to be sent to you right away.

Q. Could you tell us about the trees of the North-West? Have you tried amongst your other experiments the transplanting of native or other trees, either fruit trees, such as apple and plum, or ornamental trees? A. I have tried apple trees, some hardy Minnesota varieties, for the last few years.

Q. With what success? A. This is the first season that any of them have bloomed, and I expect to have apples this year on them.

By the Honorable Mr. Merner :

Q. Did you raise them from the seed? A. No; they were grafted seedlings got from Minnesota.

Q. Have you brought them from any more northern nurseries? A. No; Minneapolis is the nursery I got those trees from.

Q. What have you done in the way of transplanting shade trees? A. I have tried transplanting the soft maple, mountain ash, pine and poplar.

Q. What variety of pine? A. The silver pine. It is an ornamental tree.

Q. Have you done anything in the way of transplanting for wind breaks? A. No; I have not.

Q. What was the result of your experiment with those three varieties? A. They have all been successful.

Q. How long ago did you plant the soft maple? A. I have planted those both at the Lower Fort and at Stony Mountain the last fifteen years.

Q. What growth have they now attained—what height? A. Those at the Lower Fort must be fully thirty feet in height, and I suppose three feet in circumference at the butt.

Q. I received a letter recently from Mr. Latuoche Tupper, a gentleman well known in the North-West, who has observed these matters very closely. He has directed my attention and the attention of the Committee to a grove of this kind of trees which was planted ten years ago at the back of the late Senator Skead's country residence at Ottawa, which he says have now attained a very great height and considerable girth. Do you know anything about that particular experience? A. I do not.

Q. Which one of those trees would you advise settlers in the treeless districts to attempt the transplanting of? A. The soft maple by all means.

By the Honorable Mr. Turner :

Q. That is what is called the Red River maple? A. The sugar maple.

Q. Does it yield sugar? A. Yes, very good sugar.

Q. It is altogether different from our soft maple? A. It seems to yield a finer sugar.

By the Chairman :

Q. It is the ash leaved maple? A. Yes.

Q. Then you class that as being the most valuable tree for transplanting in the North-West? What would you suggest in addition to that? A. As a likely tree to grow?

Q. Yes? A. The Balm of Gilead is a hardy tree.

Q. Is that the cotton wood? A. Yes.

Q. What would you place next to that? A. The ordinary soft poplar.

Q. What directions would you give to the intending settler in some of the treeless districts in the West as to the transplanting of those trees? Should they be

planted from the seed or from cuttings? A. I should take small trees of about six or eight feet high, with sufficient roots to them, and transplant them.

Q. You would suggest in all cases the transplanting of small trees? A. Yes. About three years or four would be saved by transplanting the trees, instead of starting them from the seed.

Q. Would this be an expensive experiment, the transplanting of trees? A. Quite the reverse. They could be got in the small patches of bush on the prairie.

Q. Is it not the best plan to grow them from seed in nurseries in Manitoba and then transplant? A. There are lots of trees in the woods through the North-West, which can be taken on to the prairies by the settlers. Nature has provided them in that way with nurseries of young trees.

Q. Before leaving the subject of trees, did you make any experiment with the native plum to see what you could do by cultivating it or grafting on it? A. Yes. I have got some native plums in my garden now. I cut them back three years in order to see how they could be cultivated. I have the native plum and the gooseberry. We succeeded well with the gooseberry. They are very large from cultivation.

Q. Have you tried grafting upon the native plum tree? A. No.

Q. Have you tried the native grape? A. No, I have never tried the native grape.

Q. Have you tried the hop? A. Yes, I have tried hops. Of course they grow to such perfection in their wild state that they may be expected to improve under cultivation.

Q. Are they as good as the hops grown in this country? A. One of our largest brewers would prefer them for making beer.

Q. Have you seen the experiment tried of planting them in gardens? A. I have had them in our garden.

Q. Is the yield of hops more abundant from the cultivated vine than from the native vine? A. I cannot say that it is much more abundant.

Q. What method would you advise for the transplanting of the native hop to districts where they are not found? A. I have no doubt that hops transplanted and cultivated as they are in Canada could be made an article of commerce.

Q. Have you tried any experiment with the sugar beet? A. Yes, I have taken the official prize at one of our exhibitions for sugar made from beets. That was four years ago.

Q. Would you kindly give the Committee an idea of the process which you employed in making it? A. It was just to crush the beets and boil the juice down into syrup. It was made in a very crude way.

Q. Did you notice the quantity of beet and the quantity of sugar you obtained from it? A. I had it all weighed and the weight of water in it, but I forget the figures just now.

Q. Have you any idea how it is done in Germany? A. I have no idea of it at all. I had never seen sugar made from beets until I tried it.

Q. Is there any reason why it should not be made an article of commerce in the North-West? A. I do not see any reason why it should not be so.

Q. Can you give the Committee some information with regard to the quantity of beets used, the amount of evaporation and the quantity of sugar obtained from your process? A. If the Secretary would write me and remind me of it I shall see that the figures are sent to you.

By the Honorable Mr. Turner:

Q. In the choice of a location in planting an orchard what would you recommend? A. It would depend upon what shelter I had for it.

Q. What exposure would you prefer? A. I would prefer a southern exposure. The storms generally come from the north-west.

Q. You would face it south and south-east? A. Yes.

By the Honorable Mr. Girard:

Q. Could you give us some information with reference to certain prisoners that you had in your charge in 1885? I think you had then the custody of some Indian

chiefs, amongst whom were Poundmaker, Big Bear and some others, who were involved in the rebellion at that time? A. Yes.

Q. How were they fed? A. They had their regular ration; in fact, Poundmaker had a ration better than the ordinary prison ration.

Q. How did they appreciate the rations they received? Had they enough to feed on? A. They had more than enough.

Q. What was their appearance amongst other prisoners? Were they worse or did they look as civilized as the others? A. I never saw any change in their appearance from the time they were handed over to me until they were released.

Q. I mean in their disposition. Were they worse than the other prisoners? A. No, I think not.

By the Honorable Mr. Turner:

Q. Were they more difficult to manage? A. No, not at all difficult to manage—quite the reverse.

By the Honorable Mr. Girard:

Q. You kept some of them working in the garden there? A. Yes.

Q. What kind of work were you able to obtain from them? A. Just the ordinary work that we have in the garden—seeding, planting, weeding, hoeing, making beds, &c. The older Indians were employed principally in weeding and keeping the garden clean.

Q. By what you saw of them are you of the opinion that they can be instructed in gardening and cultivating the ground? A. Yes, I am sure they can because they expressed their willingness and their desire to take plants and seeds home with them to make gardens for themselves. After they left I took the trouble to send them seeds and plants.

Q. You never heard any of them expressing regret that they were deprived of some of their natural foods of the lakes and prairies, in their place of confinement? A. No.

Q. What are the products in your garden there—is it cultivated as a vegetable garden? A. All kinds of garden vegetables, from asparagus up to white turnips, strawberries and currants.

Q. I believe that you were living in Ontario before going to the West? A. I do not belong to Ontario, but I came from there to Manitoba.

Q. From what you know of Ontario, can you compare the products of your garden in Manitoba to what you saw in this Province? A. I think the products of our gardens in Manitoba are far ahead of what I have seen in the gardens of Ontario.

Q. Could you tell us the size of some of the products—cabbages, onions and pumpkins, which you raised there? A. I have had pumpkins 80 pounds in weight. I have had cabbages that I could not encircle with my arms.

Q. Have you seen cabbages so large that they could not be thrust through the open head of a flour barrel? A. Yes.

By the Honorable Mr. McInnes:

Q. How large have you seen mushrooms? A. I have seen mushrooms measuring 12 inches in diameter. I have gathered them myself within half a mile of my place on the prairie.

Hon. Mr. OGILVIE—I have seen them more than twice as large near Calgary.

By the Chairman:

Q. Are they good for food? A. Yes, capital.

By the Honorable Mr. McInnes:

Q. A little while ago you were describing the good behavior of the Indians while in the penitentiary at Stony Mountain. What was the effect on their health of the close confinement? A. I saw no effect upon those who were healthy when they came there; but there are a number of Indians who are not healthy—they are scrofulous.

Q. Does scrofula and consumption develop there amongst Indian prisoners? A. Yes.

Q. Are those cases more numerous among Indian prisoners than amongst the white prisoners? A. Yes, they come in suffering, and of course they continue to suffer while they are there.

Q. What is the greatest length of time that you have had Indians confined in the penitentiary? A. Seven years.

Q. And they survived? A. Oh, yes.

By the Chairman :

Q. I may say to the Committee that any Indian who has not some inherent disease is not likely to contract it in the penitentiary, for Mr. Bedson is as careful of their health as he is of the health of the best subject of Her Majesty. In regard to wild rice, would you mention the districts in which you have seen it growing? A. I have seen wild rice grow in the Fort Alexander district, and I have used it as a food in the house. In fact I get four or five bushels of it every winter for use in my family.

By the Honorable Mr. Sutherland :

Q. Have you seen it growing on the west side of Lake Winnipeg? A. No, I have not. It does grow there I believe, but I have not seen it.

Q. Have you tried any experiments in the growing of it? A. I have not tried any experiments with it. The difficulty of getting the seed with the husk on, before it is cleaned by the Indians is considerable.

Q. Can you give to the Committee an idea of the quantities of it and where it grows? A. I am afraid I cannot make an estimate of the quantities that grow to the acre; but I think it is well worth while to take it in hand, and have the seed gathered and propagated.

Q. What are the conditions necessary for its successful growth, so far as you know? A. It would grow in low swampy lands that we have in the districts of Shoal Lake, Lake Manitoba and small lakes to the north—Lakes Rosseau, Russell, Dennis and Morris—in fact in all the small marshy lakes in the country.

Q. Do you think it would grow in the lakes and streams of the North-West beyond Manitoba? A. In fact it would grow throughout the North-West if the seeds were sown in the proper places, and it certainly would be a great help to the Indians as an article of food.

Q. You have mentioned using it in your own family. How does it compare, in your opinion, in point of nutriment, with the ordinary rice of commerce? A. Both my children and myself prefer it to the ordinary rice when made into puddings and used in soup.

Q. Is it a better food for the Indians than the ordinary rice? A. The Indians as a rule prefer it to ordinary rice.

By the Honorable Mr. Girard :

Q. Is it as expensive? A. It is not as expensive as imported rice.

Q. What is it worth per pound? A. I do not exactly remember, but I think wild rice sometimes sells as low as 10 cents a bushel, or something like that.

Q. One gentleman in writing to the Committee offered to supply five tons of wild rice at 3½ cents a pound? A. Is that Matheson, from Rat Portage?

Q. No, it is Nelson from Bad Throat River. Would that be the usual price? A. I should think it would be a very fair price. That would be delivered at Selkirk.

Hon. Mr. SUTHERLAND—I understood that it was to be delivered where grown.

By the Chairman :

Q. Would it be within easy reach, by water, of Selkirk? A. The steamers "Colville" and "Princess," which ply on the lake, could bring it there.

Q. At about what cost for transportation? A. I should think not more than 2 cents a pound or less. You see they cannot run into the shore, and have got to send their small boats for it.

Q. Would you advise settlers who have marshy lands or lakelets upon their lands to plant wild rice in them? A. I would strongly urge them to plant wild rice if they have low lands.

Q. What suggestion would you make as to the time and manner of planting wild rice? A. The seed ripens about the middle of September, and I would say it should be sown about the same time as the seed would likely drop from the straw if it stood without being gathered.

Q. You would follow the course of nature? A. Yes.

Q. It has been stated to the Committee that it is an advantage to have this kind of rice growing because it attracts wild fowls, and the settler who has a pond with wild rice growing in it would have more ducks and geese than he would otherwise have? A. It would certainly attract game.

By the Honorable Mr. Sutherland:

Q. Do you know of your own knowledge that wild rice would grow in stagnant water? A. Yes.

Q. I understood that it was in evidence here that it requires a certain depth of water, and running water? A. I have seen it growing in the lagoon back of Stone Fort near Winnipeg, in stagnant water.

By the Honorable Mr. McInnes:

Q. Does it do as well there as it does where there is a slight current? A. I do not see any difference in it.

By the Chairman:

Q. Does it stand as thickly as an ordinary oat field, from what you saw? A. Not as thickly.

Q. Is it a kind of grain that would keep a length of time? A. It will keep any number of years.

Q. Could it with advantage be added to supplies furnished to Indians in the North-West, in times of scarcity? A. I am sure the Indians would be very much pleased to get it. It grows in sufficient quantities now if gathered.

Q. You have also mentioned another natural product, the wild turnip. Have you ever tried experiments in the cultivation of this vegetable? A. No, the only experiment I have tried with the wild turnip is to preserve it as you would preserve ginger.

Q. What is the result? A. You could hardly tell the difference between that and ginger preserved in sugar.

Q. Is it hot like ginger? A. No, it has not the same heat as ginger. I could hardly describe the flavor of it. There is a slight flavor of the wild turnip about it.

Q. How early in the spring can the Indians get it? A. I think in May and June.

Q. How early could they get the cultivated turnip? A. They could get the cultivated turnip in June.

Q. As early as that? A. Yes, the small white turnip that is grown in gardens.

Q. Would there be any object in transplanting the wild turnip where with equal facility you can grow the ordinary turnip? A. I think it is worthy of a trial.

Q. What would be the result do you think? A. A larger vegetable.

Q. Could you give the Committee an idea of its size? A. It grows long—it is not bulbous at all. It is something about the thickness of a good sized walking stick.

By the Honorable Mr. Turner:

Q. More like a parsnip? A. Yes, more like a parsnip, and just that color.

By the Chairman:

Q. Have you ever heard any other name given to it? A. I have heard the Indian name, but I forget it.

Q. There is the product of the North-West called the buffalo apple or buffalo fruit; is that it? A. No, that is a sort of plum which grows on the prairie on a vine.

Q. Has it a value for food purposes? A. If you were very hungry you could fill the vacuum with it. I also tried the wild onions in the garden two years ago. I have now a bed of them. Last year they did not show any beneficial results from the transplanting.

Q. Is there any other question that you could give us some information on within the scope of this enquiry? A. I should recommend that all those experiments I have been trying be continued on the experimental farm.

By the Honorable Mr. Turner :

Q. I would like to get some information from Mr. Bedson with respect to the seventh and ninth questions? A. I have answered the seventh question in the answers already given.

Q. And the ninth? A. As to the ninth question—"what grains, grasses, fruit, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits—what do you say?" Of course from indifferent tillage you cannot expect any kind of grain to grow properly. Of roots, I should think, potatoes, turnips and carrots would be the best varieties for Indians to grow.

Q. And beets? A. You cannot get an Indian to eat a beet. You have to educate him to it. I know that in the prison we cannot get them to eat it; they have a prejudice against the color.

By the Honorable Mr. McInnes :

Q. What objection have they to eating beets? A. I think it is the color. They will not eat onions either.

By the Chairman :

Q. What is the objection to the onion? A. They hate the smell of it.

By the Honorable Mr. McInnes :

Q. No matter whether they are cooked or not? A. Of course they get them cooked. We never give them in a raw state.

By the Honorable Mr. Girard :

Q. What is the price for partridges and prairie chickens in the North-West? A. You can get partridges two for 25 cents, and prairie chickens for about the same price.

By the Honorable Mr. Turner :

Q. Are you aware that the Dominion Government have a law that these things cannot be exported to the United States? A. We have a local law.

Q. But this is a Customs law that applies to prairie chickens, partridges, deer, and all those things—they cannot be exported? A. I am not aware of it.

By the Honorable Mr. McInnes :

Q. Is there an export duty on game? A. No, but the exportation is prohibited.

By the Chairman :

Q. One of the witnesses before the Committee suggested the domestication of the beaver. Have you made any experiments with any of those wild animals? A. No; I have tried to get beaver but could not manage it. I do not see what good results could be expected from domesticating the beaver.

By the Honorable Mr. Turner :

Q. Don't you think it would be necessary for you to get some new buffalo blood into your herd by and by? A. I dare say it would be better.

By the Honorable Mr. McInness :

Q. I have heard it stated that a great many of the domesticated cows die in calving when the calf is from a buffalo bull. Is that the fact? A. No, it is not true. I have heard plainmen, who were all their lives on the plain, say that it is impossible to have a cross between the buffalo and the domesticated cattle.

H. J. A. SECRETAN, of Stony Mountain, Manitoba, appeared and was examined as follows:—

By the Chairman :

Q. We have placed you a little at a disadvantage in having elicited a great deal of the information that we expected from you, from Mr. Bedson; but there are various points on which you can give us valuable evidence, and if you will take the printed list of questions before you, and give us your views on any portion of them, we will be glad to have them. The first question is what portions of the North-West have you travelled over? A. I have been as far west as British Columbia, and north as far as Edmonton, and all over the northern country and the Calgary district.

Q. The second question relates to the indigenous plants and animals and birds with which you are acquainted, and the districts where they are chiefly to be found?
 A. The ordinary animals of the plains and birds are principally prairie chickens, ducks, geese and waxies.

Q. In speaking of the buffalos at Stony Mountain, I believe you were secretary to the company which was formed with the object of propogating the pure breed of buffalo and of the buffalo and its hybrids. Can you add any information to the information that has been given to us already by Mr. Bedson?
 A. I am afraid Mr. Bedson has rather taken the wind out of my sails. He is the president of the company and he has told you, I think, all that I can tell, and a good deal more. We have had a great deal of correspondence with the Americans and it has been pretty well advertised through the American press. After we started this company there was very much interest taken in it, as it was thought that buffalos could not be domesticated and crossed with the domestic cattle. In fact it was denied, and I wrote to several papers questioning that such a thing was in existence; and some of the statistics that I got went to show that the authorities at Washington had ascertained that only about one thousand head of the bison species were now in existence on the Continent. They did not know anything of the herd at Stony Mountain at all. I also collected information showing where a great many buffalo owned by private parties were, and the biggest lot I found were eight owned by a man in Kansas, and several other persons having one or two.

Q. Preserved as curiosities I suppose?
 A. Yes; they have tried to buy from us. We have had any amount of offers for one buffalo up to two carloads.

Q. It was very patriotic on the part of the company not to dispose of this herd to the Americans?
 A. In fact Buffalo Bill telegraphed me the other day that he would take fifteen head. He wanted to take them over to England. I wired him back that we would take \$15,000 for them and he did not write me any more. He wanted five cows and five bulls.

Q. You heard Mr. Bedson's evidence as to the result of crossing these animals with the Durham bull?
 A. Yes.

Q. Could you give us any additional evidence regarding that?
 A. I think there is one rather interesting question which has been decided in this herd, and that is it was generally considered that the hybrid will not breed again, but in this case they do. I have seen the calves of half breeds already this spring, several of them.

Q. Mr. Bedson mentioned a hybrid three years old, the live weight of which was 2,000 lbs., and said that its robe if taken in mid-winter would be worth \$35. Would that be an exceptional case, or might that be expected to be the value of the robes of other hybrids?
 A. I know the animal he refers to. He is out of a buffalo cow by a Durham bull. He is an ox, and I think he is rather larger than the ordinary run of such cattle. He is the only one in the herd bred in that way. Most of them are bred out of domestic cows from buffalo bulls. There is one point which I would like to touch upon while we are talking about buffalo, and that is the impression which prevailed that the domestic cow would not breed from a buffalo bull on account of the hump. I think that is pretty well exploded by the fact that if you notice the calf of a domestic cow from the buffalo bull soon after it is dopped, there is no appearance of the hump, and there is hardly any hump visible on it for weeks. They just look like any ordinary yellow calf.

By the Honorable Mr. McInnes:

Q. And *vice versa* it is the same?
 A. Yes.

By the Chairman:

Q. Have you tasted the flesh of the hybrid?
 A. No, I have never tasted it.

Q. When does the hump begin to appear on the hybrid calf?
 A. It is nearly three weeks before you are able to tell the difference between it and an ordinary calf.

Q. Does the calf act as an ordinary domestic calf, or does it, when it begins to grow, show a little of the wildness of the father?
 A. Very little. In this herd they are exactly like ordinary cattle in their habits. The half-breed cow, and the

buffalo cow especially, is rather cross when she has her calf with her. I should judge that they are more wicked than the ordinary cattle when you go near them when the calves are with them, but when they are lying down you can drive amongst them and they will not trouble themselves to get up. Last winter we watered them at the ordinary yard pump all season.

By the Honorable Mr. McInnes :

Q. In what part of the North-West is this herd? A. At Stony Mountain, a few miles from Winnipeg.

Q. Mr. Bedson mentioned that the hybrid cow had not been milked, because the calves were allowed to run with their mothers. Has the milk ever been tested for butter? A. They do not give much milk; they have a very small udder.

Q. Has hand feeding ever been tried at all with the buffalo calves? A. No, I think not.

Q. You mentioned that in the information you received from the United States the fact is stated that there remains still perhaps 1,000 buffalo in the whole of the United States? A. That is the estimate they have at Washington.

Q. Will you please state to the Committee where they are supposed to be—in what part of the United States? A. They think that they have about 100 head in Yellowstone Park. They are wild, of course, but they are in some sort of a coulée or a place out of which they cannot get. They have been seen there. Then there has been a small herd of buffalo seen in Southern Montana. I have here an extract from an American newspaper, which is headed "The last of the buffalo." It says:—

"Capt. Jack Bridges, of El Paso, Texas, talking of the extermination of the buffalo, recently said: 'As far as I know, and I try to keep myself posted, there are not 600 buffalo left in the United States. There are about 200 left in the Yellowstone Park, and these will be the sole survivors in a year or two. In the panhandle of Texas there are about 100. These do not include those on the ranch of Charlie Goodnight, who has a lot of them semi-domesticated.' Goodnight's ranch is near Vernon, in Armstrong county. There are about 110 in Kansas and the Indian Territory, 5 or 6 in Colorado, 10 in Montana and 5 in Dakota. The others are in a little herd in an out of the way place which I do not wish to make public."

I do not know whether he refers to the Stony Mountain herd. On being asked he said:—

"This, then, sums up the buffalos left? Yes, though there may be seen a straggling pair or two in Southern Texas. I am told that two old bulls were seen south of San Antonio the other day, and were followed and one killed. But I have been told twice recently, once by an Apache and the other time by a Wacoe Indian, that on the big plains 500 miles south of here, in a country very rarely travelled, there is a great herd. I will know soon, for I am going down there this spring. But the drouth has been so severe in Mexico this season that the game has suffered terribly, and has had to travel many miles for water."

Another writer in an American paper commenting on the extinction of the buffalo says:—

"Gone from prairie and almost gone from plain has the buffalo. Nimmo, the United States statistician, estimates that there are above 1,000 head of the bison species in existence. The fact has induced Charles Goodnight, an extensive cattle dealer in Texas, to keep a herd on his ranche and endeavor to cross them with polled Angus stock. He has a calf crossed between buffalo and native Texas stock. As the polled Angus sire is a shaggy animal and bears a close resemblance to a buffalo, Goodnight thinks the experiment of crossing them will be an interesting and successful one. As for the buffalo, pure and simple, he is as good as gone."

Of course they did not know that we had already made this experiment and had succeeded. They thought he had originated something.

By the Honorable Mr. Girard :

Q. What is the consequence of the domestication of the buffalo. Are they losing their characteristics of shape and quality of their fur? A. No, the robe is just as good in the winter of course as that of the thoroughbred. Of course it is not so at this season of the year.

By the Honorable Mr. McInnes :

Q. What is the greatest age of any of the hybrids that you have? A. I suppose we have them four or five years old.

Q. Are they larger than the domestic cattle? A. As a rule they are larger. They improve on the shape of the buffalo—they make up on the hind quarters.

Q. Are they larger than the domestic cow? A. They are larger than the domestic cow and better shaped than the buffalo.

By the Honorable Mr. Girard:

Q. Are they hardier than the domestic cattle? A. Yes, they are hardier. They live outdoors all winter. We have had calves dropped in November and they lived through the winter all right.

By the Honorable Mr. McInnes:

Q. Those were half-breed calves? A. Yes.

Q. And you say that those half-breeds have bred also? A. Yes. They have been crossed with the buffalo bull, making a three quartered breed. It is a rather prettier animal than the half-breed, and more like the buffalo.

By the Chairman:

Q. What is the ordinary life of the buffalo? A. It is hard to say. I do not know that anyone can trace it.

Q. Have you any reason to think that it is longer than that of the ordinary domestic cattle? A. I should think it would be about the same as ordinary cattle except working cattle. Of course working cattle would not live so long.

By the Honorable Mr. Girard:

Q. You have travelled through the whole of the North-West? A. Pretty much. I was on the Canadian Pacific Railway for a long time.

Q. You have met the Indians on the reserves from time to time? A. Yes. I have been on the Blackfoot reserve and one or two others.

Q. I would like to get some information as to the appearance of these Indians. Are they entirely idle, or do they try to make a living in some way or other? What is your impression from what you have seen of them? A. On the farms a few of them work, but as a general thing around the reserves they do not seem to do much. They loaf about outside of their houses. The young fellows ride horses, and the old bucks look at them.

By the Chairman:

Q. The work devolves upon the women and children? A. Exactly. They do most of the work. If there is anything to carry, they always carry it, and the man walks ahead.

Q. In that condition of things, what kind of plant or root or grain would you suggest as being the most easy of cultivation and as producing the greatest results? A. I agree with Mr. Bedson, that potatoes are the principal article for cultivation. The Indians like potatoes; they get the greatest return for the smallest amount of labor from them.

Q. How is it with barley? One of the witnesses stated to the Committee that barley was useful as a product, because it needed no milling. The Indians have a method of putting it in lye to divest it of its outer husk and use it in that shape in soup? A. I have never seen them do that.

Q. Can you give the Committee any information with regard to the native trees, that it is desirable to transplant to the treeless districts in the North-West? A. I have never experimented on it myself, so that I can only tell you what I have seen done. I have seen the maples transplanted in Manitoba from small sprouts or slips, and they have all seemed to live and grow vigorously.

Q. Have you seen any experiment tried with fruit trees? A. No, with the exception of the apple tree that Mr. Bedson has spoken of. I notice this year that they seem as if they were going to bear apples.

Q. What kind of apples are those? A. I do not know what variety they are.

Q. You have mentioned the hybrid buffalo, and we have had extensive information as to its value as a meat-producing animal. Have you ever known its being worked as an ordinary ox? A. Yes. This ox that we were speaking of just now, I believe has been worked, quite lately, a year or two ago we tried it.

Q. Do you consider the buffalo bull a stronger animal than the domestic bull? A. Yes. For instance take this ox as an example. I should think he must be over six feet high to the top of his withers, with an immense foreshoulder and tremendous

hindquarters, much larger than any ordinary working ox. So that a pair of them would be a splendid team.

Q. It has been worked in a way? A. I think simply hitched up.

Q. And with what result? Does he show a degree of strength greater than the ordinary ox? A. Yes, there is no mistake about his being stronger. It was not in continuous work that he was used; it was simply an experiment to see if he would haul anything at all.

Q. Would he be reasonably tractable? A. I think so. They are no harder to break I fancy than ordinary steers.

Q. In this particular case was there much trouble in making those experiments with him? A. A little. He was a little lively at first.

By the Honorable Mr. Girard :

Q. Can you give us some information on the seventh question—what food in your opinion can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? A. Of course this question applies to some natural foods which already exist?

Q. Yes. If you can suggest anything that can be supplied to the Indians in time of scarcity? A. It is a very hard question to answer?

By the Chairman :

Q. You are under a disadvantage in a double sense. It has been our habit to send this list of questions to the witness two or three days before calling him to give evidence, so that I can quite understand your coming suddenly upon them; but this is an important question and if you can throw any light upon it this Committee will be pleased to hear you? A. Does it refer to meat and vegetables?

Q. Yes; anything that is met with on the prairies as a natural product? A. I do not know whether you would approve of it as an answer, but I would suggest that you send out men to kill off the gophers and feed the Indians with them. I know there are millions of gophers, and I know that the Indians eat them.

Q. The Committee are to understand that gophers are a nuisance to the white settlers, and it would be an advantage to furnish them as food to the Indians? A. Yes.

Q. How many varieties of those gophers are you acquainted with? A. The principal one is the little grey gopher of the North-West. He destroys the crops and makes holes in the prairie.

Q. Could you mention any other animals? A. No, I cannot mention any others just now.

Q. How about fish as a diet for the Indians? Of course the waters out there have the greatest amount of whitefish.

By the Honorable Mr. Girard :

Q. Have you seen plenty of those different qualities of fish in different parts of the North-West? A. I cannot say that I have in the North-West. I think, with the exception of Lake Winnipeg and Lake Manitoba, that fish are rather a scarcity in the North-West Territories.

Q. I understood that you were at Edmonton? A. Yes.

Q. Have you been living there for any time—in the district of Alberta? A. No, only for a trip.

Q. When you were there I suppose you heard of the gold mines of Edmonton and vicinity? A. Yes, on the Saskatchewan River.

Q. Can you give us some information of what you heard at the time, from reliable persons, as to the value of those gold mines? A. I heard that miners were working on the sand bars there with ordinary rockers and were making fair wages, which a miner would call \$7 or \$8 a day.

By the Honorable Mr. Turner :

Q. Is that on the Saskatchewan? A. On the North Saskatchewan.

By the Honorable Mr. Girard :

Q. Have you heard that throughout all the streams and rivers coming from the Saskatchewan, gold is found? A. It is found principally in the Saskatchewan itself.

By the Honorable Mr. Turner :

Q. That is above Edmonton, I suppose? A. Yes. I did not see them washing gold there myself.

Q. I understand that the Beaver River, which runs in a little below Fort Saskatchewan, is the best place for gold—that they get more out of that branch than they do out of the Saskatchewan itself? A. I do not know.

THE SENATE, OTTAWA, 8th June, 1887.

PROFESSOR BELL re-called and examined.

By the Honorable Mr. Almon :

Q. Is the badger found in the North-West? A. Yes, all over the dry prairie.

Q. I thought the badger was almost exterminated? A. They used to be very common over the western plains, over the second and third prairie steppes particularly, and they were valuable for food as well as for their fur.

By the Chairman :

Q. I understand that you have a diagram showing the two uteri of the rabbit? A. Yes; it is from a book by Rymer Jones, an English naturalist, on the general structure of the animal kingdom. I colored it to make it more graphic. This diagram represents the double uterus of the English rabbit. It seems that the animal has two distinct uteri opening into the vagina by two orifices, and that each of them bears young, but I cannot find whether it is at the same time or not. I cannot find any author who refers to that point, although I can find several who mention the fact that the rabbit has two uteri. The rabbit, it seems, is the only placental animal that has this arrangement of the bladder and rectum, so that the urine and the faeces are excreted by the same aperture.

Q. You say that gestation does not take place in the two uteri at the same time? A. I cannot find out about that. I have looked up several authors on the subject, but none of them make any mention of it. I have asked all the naturalists that I could find in town about it, but they know nothing of this subject. The opinion was about equally divided as to whether they should expect it or not.

Q. Seeing that the Australian rabbit is of the the English species, would this peculiarity account for their extraordinary increase in this country? A. No doubt it would to a great extent in that climate. Rabbits would probably breed all the year round there. There would be no check as there is in this country on account of the climate, and if one uterus took a rest while the other was active they might keep it going as long as they lived from the time they commenced to breed until they stopped. I have here the specimens to which I referred the other day. They consist of five young rabbits all taken separately from the general cavity of the body of female rabbits. I took the membranous sac off one of them so as to show the young animal, but it remained on the others, as it was in the body of a female. I have dried specimens also, but they are not so good for purposes of illustration. These specimens were taken from separate rabbits. They were procured for me by a gentleman in the North-West who had an opportunity of getting them as the rabbits were brought in.

Q. These illustrate the extra-uterine gestation? A. Yes. These were not found in the uterus of the rabbit but in the general cavity of the body—anywhere within the peritoneum.

Q. The Committee will be disposed to let you take the other questions on the list in whatever order will suit your convenience? A. I think the last regular question were at was the seventh: "What food in your opinion can most economically and healthfully be supplied to the Indians of the North-West in time of scarcity? From what districts and at what cost can such food be supplied?" I understand that the food at present supplied by the Government consists principally of pork, beef and flour—salt pork, salt beef and sometimes fresh beef. It seems to

me that other food such as either the wild rice or imported rice and oatmeal, might be advantageously supplied to the Indians. I know that they like these articles of diet, and if they were supplied something to eat with it, syrup and molasses, you might furnish a large amount of food to the Indians at much less cost, and vary their diet in a way that would please them. One pound of rice would make about six and a half pounds of what might be called food. Place one measure of rice in five and a half of water and it boils solid. If you put more or less water and it does not do so well. If you put more it makes a slushy mess; if you put less water it dries before it is cooked. Then, a handful of oatmeal will make a kettleful of food. Ten measures, or thereabouts, of water to one of oatmeal will make good porridge, and it contains all the elements necessary to sustain the human body. A Scotchman will thrive on it and as the Indians do not work so hard as Scotchmen it ought to serve as food for them also. One pound of oatmeal will give you about eleven pounds of such food. Molasses and syrup are very much cheaper nowadays than pork or beef, and a little of that would go a long way towards pleasing the Indians with their rations.

By the Honorable Mr. Almon:

Q. Would not cornmeal satisfy them? A. It would not be so wholesome, especially when new. It requires to be more cooked and it is not so nutritious.

By the Honorable Mr. Macdonald:

Q. I suppose small white beans could be supplied to them? A. Yes, provided the Indians would have the patience to boil them.

Q. The beans require a great deal of boiling? A. Yes.

By the Honorable Mr. Turner:

Q. In some parts of the country they get syrup from the maple, do they not? A. Not to any great extent. Our sugar maple does not grow in the North-West. There is a tree which yields sugar—the ash-leaved maple.

Q. Could not the Indians get syrup from that? A. Yes, it yields a rich sap.

Q. I suppose it is only in certain localities that they can get this ash-leaved maple? A. It grows native in all the more southern parts of the country along the rivers and I have seen it cultivated by the missionaries where it does not grow naturally. It is cultivated at Lac la Biche, some three hundred miles north-west of its natural northern limit. The missionaries at Lac la Biche cultivate it for the purpose of getting sugar from it, and the Indians might do likewise.

By the Honorable Mr. Sutherland:

Q. We had evidence before the Committee that this ash-leaved maple gives a finer sugar than the ordinary maple? A. It is capable of being refined, of course. The sap contains two and a half per cent. of sugar to its weight.

By the Honorable Mr. Turner:

Q. Do the Indians do anything at all in the way of making sugar? A. They boil down the sap of this tree to make sugar: it is the maple sugar of the North-West. The tree might be cultivated not only for sugar but for shelter and fuel and general purposes. It is a hardy tree, and it has been found to thrive far away from its native soil.

Q. Is it a large tree? A. Yes; I have seen it nearly as large as our sugar maples here. It grows very rapidly. It would grow to be a serviceable tree in fifteen or twenty years. You may see a number of them here on Metcalf street, between Queen and Slater, and again in the main walk of the Park.

Q. Is that what is called the Red River Maple? A. Yes; the Red River or ash leaved maple. It is a very pretty ornamental tree, and grows rapidly. It is not indigenous to this part of Canada, but I think it grows here as well as any other tree.

By the Chairman:

Q. We had your opinion before as to the value of other trees: I believe you mentioned the cottonwood and Banksian pine. Did you mention any other varieties? A. The maple, the cottonwood, and rough-barked poplar would all grow along rivers. The Banksian pine would be suitable for open plains. Spruce, balsam, cedar and so on require more moisture than they could get there, but the Banksian pine I think

would thrive. Then some of the trees that are not indigenous to the country at all would grow—imported poplars and willows.

Q. Would you mention the varieties? A. I think what is called the large white willow in this country—I believe it is brought from England—would grow there. We would require to confine our attention to the trees which would stand the cold winter. The green ash would be a very good tree, I should think, to cultivate in the North-West. It is a tree that is not found here, but it is something like the black ash, and has a tougher wood. It grows far out on the prairie. I have seen it on the South Saskatchewan.

Q. The Northern Pacific Railway, in some of their cuttings on the open prairie, planted some years ago different varieties of trees for a wind break. Are you familiar with any of these instances, or do you know anything of the result? A. No, I have not travelled on the Northern Pacific, but I have heard gentlemen who have travelled by that railway, describe the growth of the trees which have been artificially introduced. They say their introduction was an unexpected success, and that it was very refreshing to see timber in these treeless regions, and to see it thriving so well.

Q. With which variety of fish is it desirable, in your opinion, to re-stock denuded lakes and streams? A. I think the whitefish would be the best where the circumstances were sufficiently favorable to them. Some of the lakes, which have been partially fished out, might be re-stocked by protecting them for a few years, such as the lake near St. Albert mission. There is a lake there which was very productive in whitefish, but which has been almost fished out, and there are other lakes in the North-West which have been, to some extent, denuded by over-fishing.

Q. What means would you suggest for restocking these lakes and streams? A. I think the most effectual means would be simply to protect the fish that exist already. Probably introducing the spawn might accomplish the object, but the fish themselves are there, and they are very prolific. The fish remaining in the lakes would soon restock them if they were left alone for a time.

Q. The last witness that we had before the Committee stated that Lake Winnipeg was becoming depleted from the fact that fishing was being carried on with very large seines and modern appliances. He mentioned, as an illustration of the manner in which the lake was being fished out, that he saw eighteen ear loads of fish shipped in one day, presumably about 200 tons. It may be a matter of profit to keep on catching these fish. Could the quantity be kept up in the lake by supplying young whitefish from the spawning establishments here? A. I do not think that that would be very effectual. The whitefish there no doubt exist in sufficient numbers to replenish the lake if they were allowed a fair chance, but it is a mistake to suppose that fish in large lakes are inexhaustible. Experience has proved that even the sea fish may be exterminated. The cod fisheries of New England have been ruined, and the fisheries of the Lower St. Lawrence and the Maritime Provinces are greatly exhausted, one may say. In Newfoundland the cod fishing along the shore has become unprofitable, and the inhabitants of the colony do not attempt it to any great extent. Their fishing appliances are all going to ruin; you can see them in all the coves along the coast. They are no longer in use, because the fish are not there to be caught. The fishermen have to go to the Labrador coast and fish along a stretch of coast of about 1,000 miles. They go there with small schooners, taking their families with them. They camp on the shore, build shanties or live in their vessels, and fish there during the season. When the sea fisheries can be exhausted by overfishing in a few years, you can easily perceive how the lake fisheries can be exhausted.

Q. What is your suggestion to the Committee as to a means of obviating this? A. Immediate steps might be taken where the fishing had been in a manner exhausted, to prohibit the fishing altogether for a year or two, or only for a very limited season, and later on fishing out of season might be prohibited generally. At present the greatest fishing is done while the fish are spawning—both whitefish and

trout—while they are in the shallow waters spawning. They are not as good by any means for food then as at other seasons of the year.

By the Honorable Mr. Almon :

Q. The fish required for the consumption of the people around there cannot be a very great quantity. Would it not be sufficient protection if a law were passed preventing the exportation of fish? A. That would go a long way to remedy the evil. I think there is enough fish to supply all the wants of the inhabitants without injuring the fisheries, if they were not exported.

Q. Some gentleman spoke about eels; I forget whether he said that you had eels in the waters of the North-West or not? A. No, there are no eels in those waters.

Q. Why should there not be eels? A. I could scarcely tell; eels require to go to the sea.

Q. In Nova Scotia fresh water eels are to be found in the lakes where there is no communication at all with the salt water? A. A lake without any outlet would be brackish, one would think.

By the Chairman :

Q. State your opinion as to the best means of preserving, by canning, drying, smoking, salting, freezing, pemmicanizing or other processes, such of the natural food products of the North-West as you are familiar with? A. I do not know any process that the Indians understand or practice except drying and smoking. If the matter were left to them, these would be the only means of preserving animal food that I know of, unless larger animals, such as the deer, which have tallow enough to pemmicanize are the kind that you refer to. The very meaning of the word pemmican is fat meat. The lean meat is first dried and partially roasted; then it is pounded and mixed with hot tallow. The hot tallow is poured over it and it is pounded or tramped and forced into bags while it is hot.

Q. If beef tallow were supplied, could their animals be pemmicanized as well as those you have mentioned? A. It might do to pemmicanize rabbits. I do not know whether it could be done or not, it would be a thing to be tried; but any lean meat could be pemmicanized if you had tallow enough to do it with. It is a process that is best understood by the Indians and half-breeds, and is not understood at all in England. In one of the outfits for an Arctic expedition, they tried to make pemmican, but they did not take the trouble to find out the process of pemmicanizing. They thought they had it, and the result was the manufacture of a disgusting mess that nobody could eat.

Q. What was the process? A. I forget the details, but it was tried in connection with one of the Arctic expeditions. I think it was by drying beef, pounding it, putting it into tin cans and pouring hot lard upon it. The natives who were served with it on this expedition told me that it was a soft greasy mixture with a very disgusting taste, and no one could eat it. It was not fit for human food; whereas pemmican made by the Indians and half-breeds is very palatable. It has a peculiar taste, but I never met anyone who could not eat it.

Q. How long will pemmican keep? A. There is no limit that I know of for the time pemmican will keep. I had a specimen for a number of years, and there was no perceptible change in it. The dried meat is so effectually preserved by the hard reindeer or buffalo tallow that it will keep for a great number of years.

Q. How long will the other animal food prepared by smoking and drying by the Indians keep? A. If it were made in the fall of the year I should think it would keep till the next summer, because in the winter time it would undergo no change, and it would come out in as good condition in the spring as when it was made in the autumn, and it would probably keep over next summer.

By the Honorable Mr. Sutherland :

Q. Do you think that the pemmican made in the summer is the best for keeping? A. Yes.

Q. It will keep longer than the pemmican made in the autumn? A. Yes; the pemmican made in the summer is completely pemmicanized by the time the cold

weather comes on, and it will keep without change in the winter, and would keep over the next summer I should think.

Q. My impression of it was that it did not depend so much on the season as on the drying of the meat? A. Yes; the complete drying of the meat.

Q. I understood that the drying of the meat was the principal cause of its keeping better? A. Yes; in the Hudson's Bay Company's trade the pemmican was made in bags weighing 100 pounds or upwards, and it would keep an unlimited time in a dry, cool place. If it got wet it was liable to become mouldy, but even that did not spoil it completely, because after it was cooked it lost the mouldy appearance and taste. Even what appeared to be completely mouldy was good enough to eat when cooked.

By the Honorable Mr. Almon :

Q. In those days, what was the price of pemmican? A. It was very cheap, threepence to sixpence per pound. It was bought at threepence and sold at sixpence. Of late it has been selling in the north for a shilling sterling per pound, and as compared with pork or beef, it was well worth that price.

By the Honorable Mr. Turner :

Q. In the event of your having a choice as to location for planting an orchard, what exposure would you prefer? A. I have not had much experience in the matter. I planted an orchard once on a slightly northern slope and it did very well.

Q. But you would not like to express a decided opinion on the subject? A. No.

By the Honorable Mr. Kaulbach :

Q. Do the wooded districts increase in density as you go north? A. To a certain extent. In leaving the half-wooded prairie country and going north-eastward, you get into denser forests until you attain the maximum. There are dense forests north of the prairie country, and as you go towards their northern limit, the trees become gradually smaller and the country more open.

Q. Have you been north of the limit of the timber? A. Yes, far beyond the northern limit of timber in many directions.

DONALD W. DAVIS, M. P. for Alberta, called and examined.

By the Chairman :

Q. Over what portions of Canada, west of Lake Superior, have you travelled, and what other portions of that region are you familiar with from the reports of reliable persons? A. The eastern slope of the Rockies—I should say about two hundred miles, and running about four or five hundred miles north and south.

Q. The whole district of Alberta? A. Very nearly the whole of it. Some portions of the north I have not travelled over.

Q. Will you give a list to the Committee of the plants, animals, birds and fishes with which you are acquainted and the districts in which they are chiefly to be found? A. As to plants, of course the main plants that we have there now are what we have to plant ourselves—potatoes, turnips and other cultivated vegetables. There is on the eastern slope, close to the mountains, what the Indians call *camus*. It is a species of wild onion, I should call it. It grows very abundantly on the eastern slope near the foot of the mountain. Our Indians, that is, the Blackfeet nation do not use it so much as the Kootenay Indians. They live on it to a great extent. It has a small root, and it grows very much in the shape of what we call the potato onion.

By the Honorable Mr. Macdonald :

Q. The Indians bake those roots? A. The Indians bake them in pits and iron pots, and when the vegetable comes out it looks very like licorice and tastes sweet.

By the Chairman :

Q. Is it found in large quantities? A. Along the slope of the mountains it is found in large quantities.

By the Honorable Mr. Almon :

Q. Cultivated or wild? A. It grows wild. On the western slope of the mountains in the Kootenay district they call it *Camass prairie*.

By the Chairman :

Q. I suppose it is so-called from the abundance of the vegetable which they gather? A. I presume so.

By the Honorable Mr. Turner :

Q. Is it the same thing as the vegetable which grows on the other side of the mountain? A. Yes.

By the Chairman :

Q. Has nobody had the curiosity to see if it could be improved by cultivation? A. I have never heard of anyone trying to improve it by cultivation.

By the Honorable Mr. Almon :

Q. Did you ever eat any of it? A. Yes, I have eaten it. It is very pleasant to the taste and very nourishing. I believe no man would starve to death on half a pound a day of it.

By the Chairman :

Q. It would alone preserve life? A. Yes.

By the Honorable Mr. Turner :

Q. Have you heard of the white men using it as an article of food? A. No; only out of curiosity. Then there is another species of plant that grows abundantly all over the prairies, which our Indians dig and eat raw or baked. It tastes something like the sweet potato.

By the Chairman :

Q. Is that what is called the Indian carrot? A. Yes; it is called the Indian carrot. It grows from two to five inches in length.

By the Honorable Mr. Almon :

Q. Can they be dug in the winter season? A. No, they are only dug in the summer.

By the Chairman :

Q. How early in the summer is it possible to obtain them for food? A. This Indian turnip or carrot is one of the first vegetables they get in the spring. The Indians commence to dig them out of the ground as soon as the frost is out.

Q. A witness suggested the other day the planting of this because it ripened six weeks before the ordinary turnip? A. I never saw any of them transplanted, and I never took the pains to see where the seed comes from. It is one of the first plants you see growing on the prairie in the spring.

By the Honorable Mr. Turner :

Q. Do the cattle eat them? A. They may eat the tops of them but the root grows four or five inches under the ground. It has just a little slim vine above ground.

By the Chairman :

Q. Have you plenty of berries throughout the North-West? A. There is any quantity of what they call the sarviceberry, a species of huckleberry. They grow on a higher bush than the huckleberry. They grow very large and are very sweet.

Q. Are they nutritious? A. They are gathered in large quantities by the Indians who dry them and save them for winter use.

By the Honorable Mr. Almon :

Q. I suppose the bears eat them also? A. Yes. Along the foot of the mountains there are a great many raspberries and blackberries to be found.

Q. And strawberries? A. Yes, and strawberries also.

By the Chairman :

Q. Do wild plums grow in that district? A. I have seen wild plums, but they are not very plentiful there.

Q. Have you seen any attempt made to cultivate them? A. Not to any extent. One man at Crows' Nest Pass, in the Rocky Mountains, has tried it very successfully.

By the Honorable Mr. Almon :

Q. By grafting, I suppose? A. Yes.

By the Chairman :

Q. Does it produce a larger fruit from grafting? A. The grafted trees have not borne any fruit yet, but they will this year.

By the Honorable Mr. Turner :

Q. You have the cactus out there? A. Yes.

Q. Are they of any use, or are they looked upon as a weed? A. They are only a nuisance.

Q. Do they flower? A. Yes, they flower.

By the Honorable Mr. Sanford :

Q. How large are they? A. Some of them are about two feet in height.

Q. And what diameter? A. They are all sizes and kinds. Some of them are two feet high and with leaves on them six inches wide to one foot in length.

By the Honorable Mr. Almon :

Q. How does the cactus live outdoors there when here it is a house plant? A. I do not know. I know it lives there; it would be a blessing if it did not. I am sure no one wants it to live.

By the Chairman :

Q. Have you any information to give with respect to the animals, birds and fish—we mean of course by this the native animals, birds and fish of that district? A. The native animals we have in that section are becoming scarce. There is just the black tailed deer, the white tailed deer, and the antelope, and then in the mountains there are a few red deer or elk. There is also the bear, the mountain goat and the mountain sheep.

Q. Those two latter are distinct varieties? A. Yes. The goat is like the ordinary goat. It has very long white hair, and small slim horns, while the sheep has very large horns.

By the Honorable Mr. Kaubach :

Q. They are not very large? A. No, they are not very large.

By the Honorable Mr. Almon :

Q. You have also the fur-producing animals—the beaver and the fox and marten? A. Yes.

By the Honorable Mr. Sanford :

Q. Are the mountain sheep plentiful? A. Sometimes I have seen herds of fifty of them away up in the mountains.

By the Chairman :

Q. Has anyone tried the experiment of domesticating them? A. No, I think not.

Q. Have you any information about the fishes of that district? A. The fish in our district are principally what they call mountain trout—that is in and near the mountains. Then we have the black trout, and we have the salmon trout in the lakes.

By the Honorable Mr. Turner :

Q. And whitefish? A. Very few whitefish. There are one or two lakes in which you can get whitefish in that section. There are a great many of what we call jackfish or pike.

By the Chairman :

Q. The Committee have received the impression from former witnesses that except in the streams coming from the mountains, the prairie country in Alberta is badly supplied with fish—that many of your lakes are brackish? A. There are no fish in those lakes until you get near the mountains.

Q. Is that on account of the brackish water? A. I presume so.

Q. Have you reason to believe that fish if placed there, proper kinds, would live? A. I do not think they would.

THE CHAIRMAN.—My reason for asking you that question is, there is a large salt lake in Dakota known as Devil's Lake, the waters of which are quite brackish, and very large fish, pike and maskinongé, are caught there.

By the Honorable Mr. Sutherland :

Q. What fish do you catch in the South Saskatchewan? A. We get more of the jackfish or pike than anything else, until we get up near the mountains.

By the Honorable Mr. Turner :

Q. There are no whitefish in the Saskatchewan? A. No; at least I have never heard of any whitefish being got there. There are some sturgeon. They come up in the spring of the year, in high water.

By the Chairman :

Q. Up the south branch? A. Yes, they come up all those rivers; they even run up the Belly River. I have seen them up as high as St. Mary's.

Q. What size have you seen them? A. I have seen sturgeon caught there that would weigh fifteen or twenty pounds.

Q. Do you know the varieties of birds in that district that would be considered as food products? A. We have the prairie chicken, the blue grouse and the fool hen.

By the Honorable Mr. Almon :

Q. Have you wild pigeons? A. There are no wild pigeons out there.

By the Honorable Mr. Turner :

Q. Have you a great many prairie chickens? A. Yes, they are very plentiful.

By the Honorable Mr. Sanford :

Q. What is the fool hen? A. It is a bird that looks very like a partridge. It would sit on a tree and allow a man to knock it down with a stick.

Q. What is the difference between the hen and the partridge? A. We have always called the partridge a wild bird—easily frightened. The fool hen is not, though its meat is like that of the partridge.

By the Honorable Mr. Sutherland :

Q. Is the flesh of the prairie chicken and that of the fool hen similar in color? A. No; the flesh of the prairie chicken is dark, and that of the fool hen and blue grouse is white. We have also any quantity of geese, ducks, wavies, swans and water fowls of all kinds in the spring and fall.

By the Honorable Mr. Turner :

Q. Have you wild rice for them to feed upon? A. No. They only stop as they go north or south. They generally stop to rest, and they are very plentiful in those seasons for a few weeks.

By the Honorable Mr. Almon :

Q. What is the size of the swan? A. The usual size. I have seen them stand six feet.

By the Chairman :

Q. They stop at gravel beds, I suppose? A. Yes.

By the Honorable Mr. Turner :

Q. Have you any small birds at all? A. Yes, plenty of them.

Q. Are they good for food? A. They are good eating, but it would take a great many of them to make a meal.

Q. Have you the same varieties that we find here? A. Yes, pretty much. I have never seen a robin or wild pigeon in that country. There are a great many curlews, snipe and ducks and geese.

By the Chairman :

Q. Are there any varieties of animals, plants or fishes in any portion of the North-West that you think might be with advantage transplanted or transplanted into other portions of the North West? A. Not with any profit.

Q. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? A. I should say the cheapest and most healthful food that you could feed to Indians at the present time would be flour and beef.

By the Honorable Mr. Almon :

Q. And bacon? A. No; flour and beef. The Indians will not eat bacon?

By the Chairman :

Q. What seems to be the Indians' objection to bacon? A. I do not know what the objection is, but the Indians do not like it, and no one can live on bacon alone. If you eat it three times a day, and nothing else with it for one week, you get sick of it.

Q. Is it not apt to become deteriorated by careless handling after giving it to the Indians? So much is served out to the families, and they themselves are careless in handling all kinds of provisions, and does not the bacon in this way become rancid? A. Yes. They like a little bacon occasionally for the sake of the grease they get from it, but beef is the only meat they would ask for and require. They would live on beef without anything else.

Q. Would you inform us what grains, grasses, fruits, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits? A. As to the grains and grasses, they have never been tried by the Indians very much. Wheat will grow under their tillage and does very well. I have seen Indians raise as good wheat as you would wish to see anywhere.

By the Honorable Mr. Almon :

Q. What do they do with it? A. They have no use for it; they just sow it for chicken feed. They have no mills to grind it. I believe myself if they can buy flour they should not be advised to raise grain at all.

Q. In lieu of wheat what would you advise them to plant? A. Roots—potatoes turnips and carrots. They are all articles of food that they are very fond of; they are easy of cultivation, and unless the Indians have something that is easily grown they will not grow it.

By the Honorable Mr. Turner :

Q. Would you advise the cultivation of the native onions? A. The Indians do not care for onions.

By the Honorable Mr. Almon :

Q. Is there any rot in the potatoes there? A. I have never seen any rot in the potatoes in the North-West.

By the Honorable Mr. Turner :

Q. The Indians do not care for beets? A. No. They like carrots, turnips and potatoes. These are the only vegetables they seem to care for.

Q. Would you advise the cultivation of cabbage by the Indians? A. They do not care for cabbage.

By the Chairman :

Q. Would you advise them to cultivate barley and Indian corn? A. I would advise the cultivation of barley.

By the Honorable Mr. Sutherland :

Q. How would pease do up there? A. They do very well. I think this year is the first year the Indians ever had any seed of the kind. I know that they have been cultivated in the country and have done well.

By the Chairman :

Q. Is that climate warm enough for the growth of corn? A. I think not. It has been ripened but not in any quantity with such success as to make any use of it.

By the Honorable Mr. Sanford :

Q. Will buckwheat grow there? A. I have never seen any of it tried in that country. There was some corn brought up from the House of the Missouri River, which was grown by the Indians in that section, and it succeeded with our Indians. It was of all colors—black, white and speckled. It will grow in our country.

Q. Have you heard any name given for that variety? A. It is called Indian corn. It came from the tribe of Indians that lived below Fort Barthold.

By the Honorable Mr. Sutherland :

Q. Have you seen rye grown there? A. I have no doubt it would grow. Barley grows well, and oats also.

Q. You have stated your opinion that fresh beef and flour, with the root you have mentioned, would be really the best food for the Indians? A. I think it is the best and cheapest food to provide for the Indians.

Q. But in districts where it is not convenient or possible to drive the animal alive, will you state your opinion as to the best means of preserving the meat by canning, drying, salting and other processes such as can be adopted there? A. There are a very few places but you can drive an animal to alive in certain seasons of the year.

Q. But in winter I suppose there are distant parts where you could not drive cattle to? A. In places like that where it gets so difficult I would drive the animals in the fall and slaughter them and let them freeze for winter use.

Q. The beef there, I suppose, is susceptible of the curing that is given to it in Chicago—dried beef, salted, hung and smoked? A. Oh, yes.

By the Honorable Mr. Turner :

Q. Is there any sheep raising there at all now? A. Yes, there is.

Q. Do they do well? A. They have done splendidly. I suppose you understand that sheep are not allowed in the southern part of Alberta. There are no sheep ranches allowed south of the Bow River.

By the Honorable Mr. Almon :

Q. How is that? A. It is prohibited by law. They set aside one part of the country as a cattle district and let the other part go for whatever they like and use it for. Sheep will run cattle out. Let a sheep run over a cattle ranche and the cattle will not eat the grass after.

Q. Are sheep more easily kept than cattle? A. Sheep have to be covered in the winter in any country and in that respect are more difficult to keep than cattle.

By the Honorable Mr. Almon ;

Q. What month do you take them in as a general rule? A. You can let them run as long as the snow is off the ground.

By the Honorable Mr. Turner :

Q. What do they feed upon in the winter—hay or turnips? A. Hay. When the snow is off the ground there is no occasion to feed at all.

By the Honorable Mr. Almon :

Q. When would you reasonably expect to take them in and house them? A. About the 1st January.

Q. The winter usually begins about Christmas? A. Yes.

Q. How long does it last? A. You might have to feed sheep three months.

Q. Do you say the Indians eat salt beef? A. It has never been tried. I expect they would, but they prefer fresh meat altogether.

By the Honorable Mr. Turner :

Q. Do they boil it or roast it? A. Yes.

By the Honorable Mr. Almon :

Q. How much would you allow an Indian for his dinner if you asked him to dine with you? A. It would depend upon how long since he had a meal before. I would allow about ten pounds, although I believe that the ration they are allowed at the present time is a pound and a quarter, which is allowed to every man, woman and child, is sufficient. Of course that means for a baby only one day old a pound and a quarter the same as for a man. That would, I suppose, give to a grown man probably two pounds or three pounds a day. I do not see any of them looking very thin either.

By the Chairman :

Q. Which of the varieties of cattle have been found most successful out there? If you were starting a ranche in that district yourself to-day, what cattle would you take there or try to raise? A. The cattle that have been the best in that country of course are the cows that were brought in from Montana, which were bred up to a very good grade. They are probably half Durhams most of them. The majority of the cattle through Montana are bred through Durham stock.

Q. Do you find that the cross of the Durham with Montana cattle are as good in that climate as a cross with bulls of a longer herd stock such as Galloways or Polled Angus? A. There has never been enough of the Galloways or Polled Angus in the country yet to make a difference. They do splendidly some of them that I have seen; but I think that the Durham, as far as the beef producing quality is concerned, is about as good cattle as we can use.

By the Honorable Mr. Almon :

Q. Do they work the oxen there? A. Yes.

By the Honorable Mr. Kaulbach :

Q. How do you yoke them—by the horns? A. No; they are regularly yoked by the neck.

By the Honorable Mr. Almon :

Q. There are parts of Nova Scotia where oxen are hitched by the tails to the plough. I suppose they never do that in the North-West? A. When you get further north, they use a single ox in a cart.

By the Chairman :

Q. A considerable portion of the district of Alberta is comparatively devoid of trees, is it not? A. Yes, most of it.

Q. Will you give the Committee your views as to the best variety of indigenous and other trees to adopt for the treeless districts? A. That is a pretty hard question to answer, because I have never seen it tried enough on the prairies to know what kind of a tree would grow. I think the cotton tree however would grow almost anywhere.

Q. You mention then cottonwood as perhaps being the best? A. It grows so rapidly that I think it would be the best.

Q. What other varieties would be worth trying in your opinion—what native trees? A. The native tree is the spruce or red fir.

Q. What variety of the spruce? Do you mean what we call the jack-pine? A. No; it is a little different from the jack-pine. It is a species of pine though.

Q. Is it a rapid growing tree? A. Very rapid.

Q. Is it easily transplanted? A. I should judge it would be and it looks to me as it grows up in the mountains that it would be very hardy and should grow on any soil, although I have not seen any of them transplanted.

By the Honorable Mr. Almon :

Q. Is the hop indigenous with you as it is in the Red River? A. No; we have not seen it in the North-West.

By the Chairman :

Q. Will the tobacco plant grow in your district? A. It will grow, but not with any success. Mushrooms are very plentiful and of a very large size. Some of them are found at least six inches in diameter. All the varieties we have are edible. In some places I have seen them so plentiful that a waggon box might be filled with them inside of an hour.

By the Honorable Mr. Kaubach :

Q. Are they as well flavored as our mushrooms? A. They are.

Q. How long do they continue in season? A. As long as we have the rains.

Q. Do they commence in the spring and go on until autumn? A. We get them along through the summer, as long as the rains continue.

Q. Have you fruit trees in your country? A. Yes, but so few that it is hard to say what they will do. There were a great many transplanted and set out last year and they have all lived through the summer.

Q. What kind? A. All kinds—apples, pears, plums, and all varieties, and cherries.

By the Chairman :

Q. From what nurseries have those been procured? A. Mostly from nurseries in Ontario.

THE CHAIRMAN.—There is a memorandum attached to the list of printed questions, and the Committee will not detain you further to-night, but they will be very glad to hear from you in writing in regard to any other points that you find there, or any questions that you have already answered and would like to enlarge upon, and we would require to have any communication that you wish to send us sent in by Tuesday next.

D. H. MACDOWALL, M.P. for Saskatchewan, appeared and was examined by the Committee.

By the Chairman :

Q. The Committee have to make the same explanation to you that they made to Mr. Davis with regard to not having given you sufficient notice, and, of course, they can scarcely expect you to answer those questions at length. We would be glad, however, to have you answer any portion that you like, and will be pleased to have the remainder of the answers which you can give submitted to us in writing. If you take the list of questions and look over them, and give us any information

you can with respect to any of them, we shall be glad to hear from you? A. To the first question, over what portions of Canada west of Lake Superior have I travelled, and what other portions am I familiar with, from the reports of reliable persons, I would say the first year I came to Canada was in the spring of 1878, and I visited every Province in the Dominion, except British Columbia, in that year. In 1879 I made a more extended tour over the North-West. I went up as far north as the Shoal Lake district in Manitoba, and then started out from Winnipeg again, and went down to Emerson along the boundary line as far as Purple Mountains. Then I went out on the Souris, and from there to Prince Albert. From the latter place I went to Battleford, and from Battleford I struck out for the Red Deer River, a little above the elbow of the Red Deer and Bow Rivers. I crossed the plains there. Then I went to Fort Walsh, and from Fort Walsh to Fort Benton, and from there down to Western Iowa. It took me about six months to make the trip, and I saw a good deal of the country, but my observations were only superficial, because I went over a great deal of mileage in the time.

By the Honorable Mr. Almon:

Q. How did you travel—on horseback? A. Partly on horseback, partly on Red River carts, and partly by waggon.

Q. Can you give us any information on the second question? What plants, animals, birds and fishes, suitable for food, are you acquainted with, and in what districts are they chiefly to be found? A. I know no more about native fruits than native plants. I know that there are a number of them which the Indians eat on the prairie. There is a little onion that the Indians use for food; then there is a weed which grows in the North-West and looks very like spinach—lamb's quarter I believe they call it. It makes a capital substitute for spinach. The fruits which grow in the North Saskatchewan are very numerous. The small fruits, especially strawberries, are very numerous indeed. I have also found the cherry, which is a very good fruit, but small.

By the Honorable Mr. Sanford:

Q. Do you find mushrooms there? A. Yes, in large numbers.

Q. Do they grow to a large size? A. Sometimes; but in the northern districts they are more like the button mushroom. In fruits there are strawberries in any quantity, and on the north side of the North Saskatchewan, opposite Prince Albert, you get wild cherries in abundance.

By the Honorable Mr. Almon:

Q. Are they small? A. Yes, small, but very sweet and very good. You also get the wild currant, red, white and black of good size, and one thing is peculiar about them, they seem to grow best of all in a tamarac swamp. You go into a tamarac swamp where it is nice and cool, and you pull them and you find they have a piney flavor. They seem to grow wonderfully well. Raspberries also grow very well indeed. As for strawberries, we have transplanted some into a little garden near our mill, and they grow much larger. The raspberries when they are transplanted also improve in size and grow much stronger. I should think if they are properly cultivated as garden fruits are they would increase very much in size and be good fruit. I think that the plant life that you see in the North-West would give a great deal of encouragement to anybody who would attempt to grow them; but as it is the settlement there is so early in the Saskatchewan district that nobody has the time to devote to that. I believe myself that if one of these experimental farms, such as I see established near Ottawa, were established not only in Manitoba but in each of the districts of the North-West it would be most valuable to the country, because it is only by means of an experimental farm of that kind that you can really test what is valuable to grow in the country. In the pioneer state of a settlement nobody can give the time and attention necessary to find out what is really worth growing. The wild fruits that are indigenous to the country seem to grow wonderfully well, and that ought to give one encouragement to experiment on the cultivated fruits. I am sure that these fruits that grow in Northern Russia—the apples, pears and other fruits that grow there—ought to thrive well, better than in Northern Russia because

we have a finer summer, and have only to contend with a hard winter and it cannot be more severe than in Russia. The only way to experiment with these fruits to advantage I think would be by means of a Government farm, and my idea is that if the Government do not see their way to establishing experimental farms in each one of the divisions or territories of the North-West, they might see their way to setting aside a certain grant of land near the towns in those territories for the purpose of establishing farms in the future; and in the meantime they might have some man who is either a resident of the neighborhood and has some knowledge of gardening (and such are to be found in the country) or send some one up to experiment under the orders of the head of the farm down here in Ottawa. It would be a very inexpensive way of carrying out these experiments, and I believe very valuable to the country.

By the Honorable Mr. Turner :

Q. Have you any grapes? A. I do not think that grapes have been grown in the Saskatchewan country—I do not think they have been tried.

Q. Have you any hops? A. Hops grow wonderfully well. I have hops growing at my house from seed imported from England for baking purposes. They were planted at my house, and you will find the Kentish hop growing in the Saskatchewan valley most luxuriantly. It is growing up over my verandah, and is perfectly loaded down with hops.

Q. Where is that? A. At Prince Albert, Saskatchewan. The wild hops grow in profusion all over that country.

By the Chairman :

Q. Are these Kentish hops as good as they are in Kent? A. I do not think they could be better, because the vines are perfectly covered with them.

Q. Is the native hop prolific? A. Yes, the native hop is very prolific, too, but this is a finer hop. I have seen them growing at Fort à la Corne, further north. Mr. Goodfellow, who has charge of the Hudson Bay Company's post there, is fond of gardening, and has a very nice garden in which he has poles erected in the ordinary way that you see them in the Kentish hop fields, and he showed what beer could be brewed in that country if the North-West Territories Act were amended.

Q. You mean if the Scott Act were repealed? A. I mean if they were to do away with the prohibition law.

Q. Would you advise a farmer in the North-West to plant the Kentish hop in preference to the native variety? A. Yes, I should advise him to plant the Kentish hop if there were any sale for it, but there is no sale for it.

Q. Is it as hardy as the native hop? A. It seems to be thoroughly hardy. No plant could be more hardy. It spreads out and increases rapidly. If you put in a small root of this hop, in a few years it sends vines all over the place.

Q. Have you the wild plum there? A. I have not mentioned the plum, because I have not seen it growing there. I have seen the cherry, the gooseberry and other wild fruits growing there, but not the plum.

Q. Have any attempts been made to improve those wild fruits by cultivation? A. I have had raspberries in my garden and they have much improved, and so have the wild strawberries. They have grown stronger and more like cultivated strawberries, but still not so large.

By the Honorable Mr. Almon :

Q. I should think you could easily compress hops and send them out? A. But there is no means of getting any crops you raise in the Saskatchewan to market. There is no railway there. They charge about ten cents a pound to bring freight to the nearest railway, and you would be ruined on the freight alone.

Q. With regard to the sunflower, which appears to grow wild in that country, it is a very small plant, is it not? A. There is a small yellow flower there—I do not know whether it is the sunflower or not. I am not sufficiently up in the subject to say. I have grown the regular sunflower from seed, and it seems to thrive very well. There is the cranberry, of which there are two varieties—the high bush and the low bush cranberry. There is a berry they call the moose berry, which is a very

nice berry to eat when you are going through the woods, but the low bush cranberry is a great standby. You can go out any New Year's week and kick away the snow and bring in those cranberries and make a cranberry pie for yourself. You can get them when the mercury is 60 degrees below zero, as I have seen it there at times. In spite of this low temperature, you do not feel the cold as you do in the east. My partner and I had a band of three hundred cattle which were driven from the Missouri nearly eight hundred miles and arrived at our place in the first week of November. We had no hay put up for them, and we just wintered them by cutting out a place where there was a bluff—cutting out a hole in that place just large enough for the cattle to lie down, with a winding road cut through the timber leading into this place. The cattle would lie there in the night and rise quite warm in the morning. You could see the steam rising off them. They were driven to water across the swamp where there was something like blue joint growing—I believe the blue joint actually does grow there, and being driven once or twice through there they eat the grass. There were eleven calves born that winter, and we only lost one by cold; two were killed by wolves and the rest all lived. The following winter we put up a little hay, but not much. We got straw from the farmers and wintered the cattle on straw.

By the Honorable Mr. Kaulbach :

Q. Did the cows calve out in the open? A. Yes, they calved out in the open. We gave them a little hay, and the calves sucked the cows all winter. An extraordinary fact was that the cows' udders did not freeze, the temperature did not appear to affect them. We killed about fourteen head of cattle during the winter. They were all kinds of cattle, and they averaged about 600 lbs. weight. The next year we killed 1,000 lbs. weight of beef, and we killed a few the next year and drove the herd back to Calgary, and we sold the cattle for the same figure we had given originally for the herd, so it shows the sort of country the Saskatchewan is if these things were looked after.

By the Honorable Mr. Turner :

Q. Have you any fish in the Saskatchewan? A. Yes, we have what I call the king fish—the sturgeon.

Q. Do you catch it with hook and line? A. No, with nets; it is a splendid fish.

Q. Have you any whitefish? A. We have a splendid whitefish in all the lakes north. In some of the streams running into the North Saskatchewan I think I have seen small trout. In the lakes away in the north—north of Fort Pitt—there is a lake called Cold Lake, where I have caught splendid large trout. In the Birch Hills, south of Prince Albert and east of the south branch, you get the trout there also in the lakes called the Fishing Lakes.

By the Honorable Mr. Kaulbach :

Q. What would you call a large trout? A. One about two feet in length.

Q. That is what you would call a salmon trout? A. I do not call anything a salmon trout unless it runs to the sea. Some are red fleshed and others white fleshed. They are more like English lake trout.

By the Chairman :

Q. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? From what districts and at what cost can such food be supplied? A. I believe that flour is one of them. I believe the most healthful, and probably the most economical, is beef, and I know that the Indians in the north like to have some bacon for this reason; they are not so well fed as the Bloods and Blackfeet. I believe the Indian Commissioner is more afraid of the Bloods and Blackfeet and Piegans than he is of the good-natured Crees in the north who took up arms two years ago, and he does not feed them so well. This being the case, they like to have bacon, because when they shoot game they like to have the fat to cook the game in. Otherwise they like beef, but I believe a mixture of beef and bacon would be good.

By the Honorable Mr. Turner :

Q. Have you much game there? A. Some years there is a great deal; other years not so much. Moose are sometimes very plentiful, and at other times they

are not. They seem to come and go. Bears are generally very plentiful. There are some of the large wapiti about, and the Indians who are willing to hunt generally get some of them. The jumping deer also can be had. I heard Mr. Bell answering some questions about rabbits. He said that it would be a good idea to have a close season for rabbits. I hardly think it is necessary, because when they get plentiful they die off. If they were killed off more they would not breed so much in and in, and would not be subject to the disease which kills them off.

Q Do you ascribe the disease to in and in breeding? A. I should think so. Of course I am not up in the scientific aspect of the question.

Q. What is the nature of the disease? A. I think it is a disease in the throat. I should think it was a scrofulous disease produced by breeding in and in—caused by running out of animal life. During the years of plenty, I have found them running over me in my tent, they have been so plentiful. The cook in the lumber camp would take crumbs and throw them out to the rabbits, and they would run away and come back again like chickens. It shows how plentiful they are at such times and how difficult it is to frighten them. I have known them to eat harness also.

Q. After this epidemic begins, how long is it before they are all killed off? A. I think it takes two or three years before they are all killed off.

Q. And that is followed by how long a time of scarcity? A. Remember I have only been nine years in the country, so it is difficult for me to say, but from my small experience I have only seen rabbits really plentiful this last time. They were just going out when I came first: they almost disappeared and now they are plentiful again—I should imagine it would be about seven years.

Q. Are they an important part of food to the Indians? A. They are an important part of food to the Indians to a certain extent, but the Indians and half-breeds that I have seen in the North-West, and I have been amongst them a good deal hunting for timber, tell me that they could not live on rabbits, could not make a staple of rabbits in the same way they could of ducks or other fowl. When the rabbits begin to increase so much, they say they are not a wholesome food, therefore they cannot make a thoroughly reliable article of food.

By the Honorable Mr. Turner :

Q. The country north of where you live is mostly wooded, is it not? A. Yes.

Q. I suppose you have no prairie chickens there? A. Yes, we have prairie chickens.

Q. In the woods? A. I have seen both the real prairie chicken of America—that is the bird without feathers on the legs—and I have seen the prairie grouse, a bird that has a good coating of feathers on his legs, and stands up like a Scotch grouse. Then there is another grouse, the partridge, a beautiful bird. I have also seen a black and white spotted bird, I think it is the same as we have in Nova Scotia. It is called, I think, the spruce partridge.

Q. Are there any pigeons? A. Yes, there are pigeons too, and there is another bird that you get up there in the woods that we call the pheasant, a nice little bird, something like an English hen pheasant. I have seen them in coveys of about six, a sort of brown bird with a long tail.

By the Honorable Mr. Kaulbach :

Q. You say you have the wild pigeons? A. Yes, but I do not think the pigeon breeds there.

By the Honorable Mr. Turner :

Q. I suppose you have ducks and geese too? A. Yes, any amount of ducks and geese. I have killed in one day seven kinds of ducks. You get the celebrated canvas-back duck up there, and I am told that you can get it as far north as the Mackenzie River; there is the snipe of various kinds, the plover on the salt lakes, and on the salt plain there is a little plover, a beautiful bird that I have never seen anywhere else—it is a very small plover, about the size of an English peewit.

Q. Are there any songster birds and beautiful plumaged birds? A. Yes, there are. There is a bird with a red and yellow plumage, a sort of little oriole.

By the Honorable Mr. Kaulbach :

Q. Have you the woodcock or English snipe? A. We have the large snipe, not the jack snipe, but I have never seen the woodcock there or in Manitoba either.

Q. Have you the yellow-legged plover? A. Yes, the yellow-legged plover—we have most of the varieties of plover.

By the Chairman :

Q. Can you give the Committee a statement of the results of the planting of trees for shelter in the treeless districts? A. The only trees we have tried to plant for shelter are the ash leaved maple—the box alder they call it in Montana. The sugar trees that we use are this box alder. The Indians make maple syrup from these trees, just the same as you make maple syrup from the sugar maple down here. There is a place fifty miles from Carlton, at Eagle Lake on the North Saskatchewan, where there is about ten acres of this maple that is known as the sugar bush, and the Indians make a regular maple syrup from these trees. I have tasted some of it myself, and it is very good.

By the Honorable Mr. Turner :

Q. Are there many fish in the Saskatchewan River itself? A. Yes; any amount of fish in the Saskatchewan river.

Q. What kinds? A. The sturgeon is the principal fish, and of course there are gold eyes, pike, suckers, and all the ordinary fish of these rivers.

By the Chairman :

Q. What are whitefish worth per thousand at Prince Albert? A. It is a matter of trade; you have to make your bargain. If you hit the right man you get them very cheap.

Q. What is the general price? A. I really forget; we generally buy some every year, but I do not recollect just now what they are—about the same price that they are in Winnipeg, I fancy, or cheaper. But with regard to these fish there is a suggestion that might be worth considering, as your Committee is concerned in these matters which are of so great value to the North-West, that is, about the preservation of fish in the lakes of the North-West. I think that is a matter that is worth considering now, and it should not be allowed to go too long before some action is taken.

By the Honorable Mr. Turner :

Q. The great harm is done by exporting; they cannot export from there now, and surely no harm can be done if the people only supply their own wants? A. The great harm is as to what can be done, and my suggestion is as to what should be done. I believe that more fish might be introduced into the lakes and rivers of the North-West than there are—I mean the good kinds of fish. Experiments in that direction have been tried in the United States, and have been attended with great success, and I do not see why those experiments should not be tried and be equally successful in the North-West. Take the lakes and rivers of the North-West where there is no exportation of fish now; they should be stocked now and by the time that exportation begins, you have a good stock of fish ready, and I believe that is a great matter for the North-West. The suggestion I make is that the Indian Department is the one which is most largely concerned in the North-West, because they have their agents everywhere throughout the country. Their inspectors are travelling about everywhere. I know one man among the Indian agents who has made a special study of this fish question; he is the Indian agent now at the Touchwood Hills. I believe if such men were appointed in connection with the inspection of Indian affairs, or some work connected with the Indian Department, and if a small additional salary were given him for looking after the propagation of fish, that they could combine the two duties. It would be economical to the country and it would be sufficient to try the experiment of what fish can be transplanted into our waters, and that would be more valuable than making laws for the protection of the fish already there.

Q. What fish would you suggest should be added to the fish that are indigenous there? A. I think that a fish farm should be started, and that you should try almost every kind of fish, those that you find in the waters down here, trout especially and other food fishes. I would try all the fish that you get in the lakes and rivers of

Canada. Washington has been most successful in those experiments, and there is no reason why Ottawa should not be equally successful.

By the Honorable Mr. Sanford :

Q. Would you require in that case to have your breeding arrangement up in that district? A. I should begin up near Lake Winnipeg or somewhere along the Saskatchewan near where the two connect, and I should let the fish go in Lake Winnipeg and along the Saskatchewan, and I should give some of the Indians a small payment for protecting them and taking an interest in reporting any breaches of the law.

Q. Would you suggest the propagation of trout also? A. There are trout in the Saskatchewan already. When you go to Edmonton and above Edmonton you can get trout of a large size, and in the lakes in the Birch Hills you could get the perch, so I think you would have a good representation of the fish in the North-West, and that ought to give encouragement to the Government to lay out small sums of money in experimenting and transplanting.

By the Honorable Mr. Turner :

Q. Are there any fresh water herrings in those waters? A. No.

By the Honorable Mr. Sutherland :

Q. The nearest approach to the fresh water herrings in our waters is what they call the gold eye? A. Yes, and the gold eye will take the fly.

By the Honorable Mr. Turner :

Q. I should think the fresh water herring would be good fish to introduce there? A. Yes, I should say so.

By the Chairman :

Q. At what point in the North-West do you think it would be best to make this experiment? A. I should say that near Grand Rapids, on Lake Winnipeg, would be a capital place. It would be a good distributing point, you would have two thousand miles of navigable water on the Saskatchewan alone to distribute on, with all its tributaries.

Q. You would consider that a good point to collect them also? A. Yes, I am told by some persons who have been up north that in the Great Slave Lake there are enormous trout. Mr. McKay, who is in the Hudson Bay Company's employ, tells me of trout that he caught weighing—I would not like to tell you the weight he said for fear you would think I was exaggerating—I have heard him say 70 lbs. I think the whitefish is perhaps the most valuable fish of all, and I do not see why whitefish should not be an important article of commerce in the North-West. We have in Scotland the Finnan haddie, which have attained a great celebrity, and whitefish is something of the same character, and if it was cured in the same way as Finnan haddie I do not see why it should not become an important article of commerce—and the sturgeon as well.

By the Honorable Mr. Turner :

Q. How do you cure the sturgeon? A. The sturgeon is a good fish to eat. It is very fat and the oil is valuable, if for nothing else than lubricating machinery. If the oil from codfish is valuable, I do not see why there should not also be an equal value in sturgeon oil.

By the Honorable Mr. Kaubach :

Q. Cod oil is taken from the liver of the codfish? A. The oil of the sturgeon is certainly not taken from the liver; but it is a valuable oil for lubricating purposes. It has not got a strong smell, and it burns freely. By putting a dip in a plate of sturgeon oil, it burns freely and affords a good light. The roe of the sturgeon ought to be valuable also. We have to pay \$2.50 for a small tin of Russian caviare which is made from the sturgeon roe. Dr. Bell has told you the large quantity of roe in a sturgeon—you can get a bucketful sometimes from one fish, and if that bucketful of roe was made into caviare, it would be worth a good many dollar bills at the market price of the Russian article.

By the Chairman :

Q. Is it a fact that the isinglass of commerce can be made from portions of the sturgeon? A. Yes.

By the Honorable Mr. Kaulbach :

Q. What is the size of the largest sturgeon that you ever saw up there? A. I would prefer to let that rest on Dr. Ball's evidence, for I never took much notice of the size of the fish.

Q. Will sturgeon take a bait? A. They are always caught in nets there.

By the Chairman :

Q. Would you approve of fish forming a portion of the ration given to Indians? A. Yes, I should think fish would make capital rations for the Indians; but if I were a beef producer or contractor in the North-West I should rather see them fed on beef.

By the Honorable Mr. Turner :

Q. What height have you seen the Saskatchewan rise in the night? A. I think the water of the Saskatchewan has risen about four feet in a night, to my knowledge.

Q. And it goes down at what rate? A. Sometimes it goes down as rapidly as a foot a day.

Q. What season of the year does the rise usually take place? A. There is a rise when the ice goes out; it rises then very fast. Then there is the June freshet and the August freshet.

Q. Is it, generally speaking, in wet weather that it rises? A. No; after extremely hot weather, no matter how dry it may be. It is caused by the snow melting in the mountains.

By the Honorable Mr. Kaulbach :

Q. Does that rise extend over the whole river or only a portion of it? A. Yes, over the whole river.

Hon. Mr. TURNER—While I was there it rose six feet in one night.

By the Chairman :

Q. Do you think wild rice could be, with advantage, added to the fish and flesh food supplied to Indians? A. I have never seen it, but I have no doubt if wild rice were planted in the North-West it would grow.

By the Honorable Mr. Kaulbach :

Q. Is the wild sage plant used as food by the Indians? A. I have never seen it used by the Indians, but horses eat and seem to like it. After it has been pulled and eaten by the horses in the vicinity of the camp the whole air is perfumed with it.

OTTAWA, Thursday, 9th June, 1887.

Professor BELL re-appeared and was examined by the Committee as follows :—

By the Chairman :

Q. Could you now give to the Committee any further information to the printed list of questions which you have before you? A. I have nothing special that I wish to say this morning, but I had a summons from the clerk of the Committee asking me to come up this morning. I do not know what for, but I am here to answer any questions that may be asked of me by the Committee.

Q. I thought you were to give more ample explanations of some of the facts which you gave in evidence recently in respect to the hare or rabbit? A. I called the Chairman's attention to the fact that we had not got the specimens before us, and he sent down to Mr. Whiteaves to have them brought up from the Geological Survey.

Q. In connection with the seventh question, what food can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity, and from what districts and at what cost can such food be supplied? A. In connection with the latter part of the question, it seems to me that the very teaching of the Indians' habits of providing for themselves and for others would be beneficial to them. If they are employed to preserve food for other Indians, they will certainly learn to preserve and keep it for themselves. The great cause of the frequent starvation amongst the Indians is their total want of care for the future. They will work for anybody who will direct them. There is no diffi-

culty in hiring an Indian to catch and put up fish for you, but he will not do it for himself. He will do it if directed to, but he will not do it for himself. The Indians are not wanting in industry, if employed in congenial work such as this.

By the Honorable Mr. Macdonald :

Q. But they need direction ? A. They need direction and instruction. They do not seem to think of the future. They have no means of storing food for themselves, their wandering life is against it. They have no idea of keeping more than enough for a meal or two, and they are impatient if asked to lay up provisions for the future.

Q. At the village of Metlakatla, in the northern part of British Columbia, the Indians canned over \$40,000 worth of fish last year, and they were the best preserved fish put upon the coast. The Indians are very improvident however; they sell their produce to white men or to other Indians, then they buy again at a higher price ? A. Yes, with the winter coming on they will sell their last bushel of potatoes or corn for money, and no sooner do they begin to get hungry than they want to get it back again, like children. I have known them to sell cheaply the last morsel of food.

Q. To buy a pocket handkerchief. A. Yes; in order to get money to buy some trifle. I know a case of a very old Indian at Norway House, a man who was probably a hundred years old, who had no means of support, and who was too feeble to look after himself. He was sent for by Mr. Roderick Ross, the Hudson's Bay Company's agent there, who wanted to make arrangements for his future support, as he had grown up sons. He called the old Indian's sons together and said he wished to assess them so much, say five pounds each, that he would pay five pounds himself and the Hudson's Bay Company would give five pounds, and amongst them they would make up the annuity that would support him during the rest of his life. The old Indian replied: "Bother the annuities; give me a pound of pemmican and let me go back to my wigwam." He had not the patience to think of the future. They cannot and will not think of the future. The information before the Committee respecting the natural food products of the country, will show that it is possible for the Indians to store up provisions for themselves—rice, frozen fish, smoked rabbits or pemmicanized rabbits or beaver meat or caribou; but they will not do so. Speaking of the varieties of fish with which it is desirable to restock the denuded streams and lakes, I had only time to refer to the whitefish the other day, but the same rules would apply to all the finer varieties of fish, such as trout, sturgeon and graylings, and the same principle would apply, I think, to their propagation that it does elsewhere—simply to afford them proper protection where they have been over-fished. It seems to me that experiments might be tried with a view of introducing fishes into waters in which they do not exist naturally, but I have no great faith myself in the probable success of transplanting fishes into waters in which they do not naturally exist. I was asked to give written answers to the supplementary questions on this list. Perhaps I might take the present opportunity to answer such questions as you desire information upon.

By the Honorable Mr. Girard :

Q. You know the object of the Committee and you can give any addition to your evidence that you are prepared to give, that will come within the scope of our enquiry ? A. First then as to the indigenous trees, and other trees best adapted for treeless districts. On a previous occasion I have gone somewhat into this question and I mentioned native trees which I thought were best adapted for transplanting in the treeless districts, and showed that such experiments had succeeded in the United States and to some extent, as far as tried, also in the North-West. It would be well also to try the most promising exotic trees, such as some of the poplars and willows. In the northern country we must confine our experiments to trees that would stand the cold winters. It does not seem as if we were going to succeed very well in raising apples in the North-West, for some of the most hardy Russian varieties have been tried and have not succeeded to any extent—in fact have rather failed.

By the Honorable Mr. Macdonald :

Q. Do the trees die out? A. Yes. They seem to freeze down to the ground. They have produced a few apples in sheltered places showing that it can be done, but they are not very good varieties and I think they cannot be grown as cheaply as they can be imported.

By the Honorable Mr. Kaulbach :

Q. Where have the experiments been made? A. The experiments have been made for many years by the Bishop of Rupert's Land, Dr. Machray, and they have failed.

By the Honorable Mr. Ferrier :

Q. Failed on account of the climate? A. Yes. The winters have been too severe. The bark of the trees seems to burst with the frost and the wood dies down close to the ground.

By the Honorable Mr. Kaulbach :

Q. Mr. Davis, I think it was, spoke yesterday of experiments being favourable in his district near the Rocky Mountains? A. It may be more sheltered there or not so cold. Mr. Charles Gibb, of Abbotsford, in the Province of Quebec, has travelled extensively in Russia with a view of seeing what varieties of trees and fruits can be introduced into this country, and he has been the means of bringing over personally, and agents have sent him, seeds and cuttings of a considerable number of trees. He visited Manitoba, Dakota and Minnesota with a view of ascertaining whether it was possible to grow apples in Manitoba. The results of his enquiries and experiments have been rather unfavourable in Manitoba. In Minnesota they have succeeded in introducing some Russian varieties of crab apples—large and improved varieties. But the most hardy of these varieties do not succeed in Manitoba.

By the Honorable Mr. Macdonald :

Q. It is still colder there? A. The soil and situation may have much to do with it. The experiments have been tried principally in the Assiniboine and Red River valleys or the low lands. They may have had something to do with it. Further experiments on a higher and drier land in Manitoba might succeed. All I can speak of are the experiments hitherto made. Mr. Gibb could answer these questions in regard to trees better than anyone I know. I did not happen to think of him when you were speaking of gentlemen to whom questions might be sent to be answered in writing.

By the Honorable Mr. Girard :

Q. Have you had any information that the difficulties experienced in raising apple trees in the North-West, were also experienced in other countries at first, where they now succeed very well—as in St. Paul and Minneapolis and some other places in the United States, where for a while it was believed they could not succeed in growing apples, and now they are looked upon as apple districts. A. That they have overcome the difficulties?

Q. Yes. Have you any information by which you could give reliable evidence on this point? A. No; I have no personal knowledge of this matter.

At this point Mr. J. F. Whiteaves of the Geological Survey appeared with four stuffed specimens of the native hares to be found in British North America, and being asked by the Committee to give what information he could in relation to these varieties of animals, he said:—

I am a little afraid that I hardly know the scope of the information desired. All I can say is that I received a letter this morning from the Chairman of the Committee, asking me to bring certain specimens up to the Committee room. I did not know what specimens would be required so I thought it better to bring specimens of the four species of hares that we have.

By the Chairman :

Q. They all belong to the Dominion? A. Yes.

Q. Would you indicate the localities where these specimens have been found? A. I think it would be more judicious that Mr. J. B. Tyrrell of our staff should be summoned to answer these questions because he collected some of them. One of these specimens of large white hares is from Morley, District of Alberta. It is called the jack

or prairie rabbit; the other large white hare is from Hudson's Straits, and is called the Arctic hare. The small brown hare is the common American hare from the Lake of the Woods; and the other brown hare is from Cooksville, near Toronto. It is a species that was formerly very common in Illinois, and is said to be coming eastward into Canada, driving the common American hare before it. The peculiarity of this hare, the *Lepus sylvaticus*, is that it never turns white in winter like the varying hare.

Q. Have you been yourself in any part of the North-West Territories? A. No.

Q. Can you give any particular information as to the Arctic hare? A. Not any further than we received this specimen from Mr. F. Payne, who was in charge of one of the south stations of the "Alert" expedition. We received another from Mr. J. W. Tyrrell who had charge of a station on the north side of Hudson's Strait.

By the Honorable Mr. Macdonald:

Q. Do these Arctic hares change their colour in winter time? A. They are grey in summer and white in winter.

Professor BELL.—I might remark that I have seen those hares grey in summer time in the sub-Arctic regions. They are hunted by the foxes there and get upon islands in the sea which are accessible in the winter time, and when the ice goes away they have peace and quiet to breed, and they become very numerous. On one of those islands a few men can crowd the hares into a corner and kill all they want. Foxes will not swim across salt water to get at them, and those islands form places of refuge where the Arctic hare breeds and recuperates its numbers very largely in the summer season.

Q. Are they very common? A. Yes, in some regions.

Q. As much so as the deer? A. Yes, and they are very good eating. The flesh is very fine.

By the Honorable Mr. McInnes.

Q. What do they live on there? A. The ground willows and herbaceous plants of that country. There is plenty of vegetation in the summer season and in the winter they browse on the small willow and birch. They occur as far north as Melville Island in the Arctic Sea, the most distant part of the North-West Archipelago. They must live on lichens and moss in the winter season there.

Q. Do the Eskimos eat them? A. The Eskimos eat them, but they prefer fatter meat. They were a great resource to our station men in Hudson's Straits on the expedition. They killed large numbers of them, both winter and summer, and relished them very much as food. The flesh is fine eating. It was a pleasant change for them from salt food and the men often had a number of them hanging up in their quarters at the Meteorological stations which the Government have maintained for two years in Hudson's Straits.

Q. Have you met the Eskimos in their native country? A. Yes.

Q. Do they exist in large numbers? A. No, they are not a very numerous people.

Q. Is there increase or diminution in their numbers? A. Where they are not interfered with by civilization they seem to maintain their numbers very well; but where attempts have been made to civilize them it has rapidly proved fatal. They die out. It is the result of too many luxuries and comforts—weakness introduced by too much comfort, heated houses and easy life when they get European food. The civilized Eskimos have guns instead of their own weapons, and iron kettles instead of stone ones, and in many cases their constitutions are broken down by weakness superinduced by civilization, and they die of lung disease.

Q. I suppose the Eskimos are a breed of Indians? A. No, they are a different race from the Indians.

Q. Do they differ in every way? A. They differ very much in their habits, language, appearance and instincts.

Q. On what do they live generally? A: Animal food, almost entirely derived from the sea; they also hunt the reindeer. Their principal supplies of food are the walrus, seals and whales—small whales especially, and of land animals they kill the reindeer, but they also eat anything they can get in the shape of fish and birds.

They kill large numbers of birds on the sea and spear salmon with spears of their own making.

Q. There is no danger of scarcity of food amongst them? A. No; there is no reason why food should be scarce amongst the Eskimos; but occasionally from exceptional circumstances or by their crowding together in a large number in one place, the area inhabited does not provide food enough for them all. At such times long and unexpectedly severe weather prevents them from hunting, and sometimes reduces them to the verge of starvation; but when they are left alone and scattered about in small bands over the whole country, so that every family can get a share of the marine animals that they live upon, they have plenty. They are more provident than the Indians of the North-West. They lay up food in advance.

Q. Has civilization made any noticeable progress amongst them? A. On the Atlantic coast of Labrador they have become mostly civilized by the efforts of the Moravian missionaries from Europe, who have been working amongst them for 130 years.

Q. Do they live a civilized life there? A. It is a civilized life, but they follow out their own habits to some extent.

Q. But where they are met in the Hudson's Bay country, are they civilized in the same way as on the Labrador coast? A. No.

Q. Is there any beginning of civilization amongst them—have they schools or ministers? A. Yes. The missionaries on both sides of the bay are beginning to teach them a little—the missionaries of Moosonee. The Episcopal diocese of Moosonee extends all round Hudson's Bay. The Bishop of Moosonee has the largest diocese in the world; it is about twelve times as large as all England.

Hon. Mr. TURNER.—His diocese extends up to the north pole? A. The diocese includes a certain area of country around the bay. For instance, east his diocese meets that of the Bishop of Newfoundland; on the west it meets the diocese of the Bishop of Rupert's Land; on the south it meets the diocese of the Bishop of Algoma and also those of the Bishops of Ontario and Quebec.

Q. Are there many of the natural products of the Hudson's Bay country that would be available as articles of commerce for the Dominion? A. Yes, the country has many resources.

Q. Could you give us a general description of what might be expected from there? A. The most immediately profitable products are the rich and valuable furs which have been traded in for the last two hundred years by the Hudson's Bay Company.

By the Honorable Mr. Macdonald:

Q. Are there salmon in James' Bay? A. They are not found in James' Bay, but in Labrador and Hudson's Straits you get the common salmon.

By the Chairman:

Q. That is not the same salmon that is found below Quebec? A. Yes, the same fish exactly is found around the Labrador coast and in the entrance to Hudson's Straits—in the Georges' River, and the Ungava or Koksoak.

By the Honorable Mr. Turner:

Q. Are there any codfish in Hudson's Bay? A. Yes.

Q. Of good quality? A. The variety I have seen is called the "rock cod" which is not of as good quality as the common variety of the Atlantic, but I understand that it is the same species.

Q. Has James' Bay a proper depth of water for navigation or is it a shallow bay? A. It is a shallow bay.

Q. What depth of water is there; is it sufficiently deep for vessels to come in there? A. Yes, it is deep enough for navigation.

Q. Up to the very head of it? A. Yes. Of course, towards the head of the bay, it is generally shallow, but there are channels which vessels can navigate.

Q. What is the best bay at the south end for navigation? A. It is hard to say. It is not sufficiently explored or surveyed yet; but sea-going vessels can enter close to Moose Factory, Rupert's House, East Main and Fort George.

Q. It is all deep enough for navigation? A. Speaking generally it is deep enough for navigation.

Q. Generally speaking, they can navigate the whole of the bay except on some banks? A. Yes.

Q. What kind of fish is there in James' Bay? A. The best fish there is a variety of whitefish, apparently identical with the large whitefish of Lake Superior.

Q. Do they live in salt water? A. Yes, the whitefish lives equally well, if not better, in salt water. They run up the rivers also. They belong to the salmon family. Then we have trout of different kinds, and at the northern part of James' Bay we have Hearne's salmon.

Q. What kind are they? A. They are small salmon, but of very fine quality. The flesh is equal to that of the common salmon, perhaps better.

Q. Is it as firm? A. Firm and red and well flavoured. Hearne's salmon seldom exceeds 10 pounds in weight. It is found all around Hudson's Bay, and on both sides of Hudson's Straits.

Q. Are whales, porpoises and animals of that sort found in James' Bay? A. Yes, porpoises, or more properly speaking, the small white whale are abundant in James' Bay, and very abundant in Hudson's Bay proper.

Q. Are there large whales in Hudson's Bay? A. Some.

Q. Are they found in James' Bay also? A. No, I have never heard of them in James' Bay, but in the northern part of Hudson's Bay the black whale has been found and has been killed in considerable numbers there by whalers for the last 180 years.

Q. Are fur seals found there? A. No, the fur seal is not found there, but the seals of Hudson's Bay are valuable for their oil.

Q. Are they abundant? A. They are tolerably abundant. There are six species of seal in the Bay. There is the bearded seal for instance, which grows to the length of 13 feet, the ringed seal, the Greenland seal in Hudson's Straits, the grey seal and the harbor seal, which is quite common in those waters, also the spotted or fresh-water seal.

Q. Do they run up the rivers after salmon and whitefish? A. Yes, the fresh-water seal, a large spotted species with an almost white or light grey coat, with distinct black spots thickly scattered over his body. This seal ascends the rivers for long distances inland.

Q. How far inland? A. Sometimes as much as 200 miles.

Q. Following the salmon? A. They live on fish and they sometimes remain in the lakes in the interior.

By the Honorable Mr. Sutherland:

Q. Is the skin valuable? A. Yes; it makes a very good coat.

By the Honorable Mr. Turner:

Q. Is the variety of fish called sea trout found in those rivers? A. They are found at the mouths of the rivers. They do not go far up the stream; they are never found beyond the first fall in a river.

Q. Are there any sea trout in James' Bay? A. Yes; and in Hudson's Bay, at the mouths of the rivers.

Q. Are they the same variety as we have on the Atlantic coast here? A. Yes; they have the same habits. There is also the speckled trout. The marine animals—fishes and mammals of Hudson's Bay—have precisely the same habits as similar species have on the Atlantic coast.

Q. Are there any bivalves there? A. There is an abundance of mussels—the common blue mussels, and white clams. The latter form the food of the walrus, just as the sturgeon lives on cyclas in the North-West waters. They are very small in proportion to the size of the animals which feed on them.

Q. Are there any lobsters up there? A. No, but there are crabs. The kind I have seen are what are called spider crabs.

Q. Do they grow to a good size? A. Not very large.

By the Honorable Mr. Girard :

Q. What are they used for? A. They might be eaten, but I have never seen the Indians use them as food. There are many things which poor Englishmen eat that the Eskimos would not pay any attention to as items of food. For instance, there are shrimps in abundance, which are not used by the Eskimos.

By the Honorable Mr. Turner :

Q. Are there any eels there? A. Yes, but not the same eel as we have here. It is a small reddish eel. I have seen it both in Hudson's Straits and Bay; and also lampreys.

Q. Are there any herrings? A. Herrings come into the entrance of Hudson's Straits, but they do not go far in.

Q. Do they get into the Hudson's Bay and James' Bay? A. I think not. I may say that the fisheries of Hudson's Bay are not explored as yet—they are not tested, and we do not know as a matter of fact what fishes exist there.

Q. Are there any lings there? A. Yes, there are salt water lings there of good quality, also fresh water lings, the liver of which is very good food. The liver is eaten by the Indians and by the white people too. They are very abundant in the lakes and large rivers, and in winter time they are caught with hooks and lines through the ice. The Indians eat the livers and throw the rest of the fish to the dogs, and possibly that is the reason why it is also called dog fish. I have also seen small flat fish in Hudson's Straits.

Q. Are there any turbot in the Hudson's Bay? A. Not that I am aware of. The fisheries of Hudson's Bay will, no doubt, be very valuable. It would be strange if such large bodies of salt and fresh water did not contain valuable fishes. The home of the best fishes is in the cold waters of the north, both salt and fresh.

Q. Any fish that are found there ought to be of the very finest quality? A. I have no doubt that when the matter comes to be investigated Hudson's Bay and Straits will be found to abound with the finest of fishes.

Q. Is the whitefish found in all the lakes and streams as well as in the salt water? A. Yes.

By the Honorable Mr. McInnes :

Q. Are they the same variety as we find in the waters here? A. Yes, they are the same whitefish that we have in Lake Superior.

Q. And also in the lower lakes? A. I presume they are of the same species, only the fish grow larger in the cold waters of the north.

By the Honorable Mr. Girard :

Q. Is it possible for white people to live in the climate of Hudson's Bay? A. Yes, when they get enough to eat they can live there easily.

Q. Can they get easily all that is necessary to sustain life? A. Yes, I think a white man could provide for himself very well there if he had a good start—if he had nets, traps and ammunition and so on; but what would be the use of his living there except to catch fur?

Q. Have you completed your evidence in reference to the fur to be found there? A. I have said nothing about that.

By the Honorable Mr. Sutherland :

Q. Have you seen any cedar trees north of Lake of the Woods? A. Yes.

Q. How far north? A. The cedar is peculiar as to its northern limit. Starting from the west, on the east side of the valley of the Red River, the line running north is very well defined indeed and runs close to the south-east corner of Lake Winnipeg, it then turns eastward and northward, and crosses the centre of Lonely Lake.

Q. That would be about the northern limit? A. No, it still runs north-eastward and sweeps around to the east and takes in the most northern part of Attawapishkat River.

By the Honorable Mr. Turner :

Q. Does the cedar diminish in size as it approaches its northern limit? A. Not much. The most northern trees I have seen were small but they were not very far from large timber.

Q. Are they similar to the cedars we see here? A. Yes, it is the same tree.

Q. Would you not expect it to grow on the prairies? A. Cedar requires moisture at its roots—moisture and air. In the most northern parts of its distribution it grows almost entirely on the edges of rivers, as a sort of fringe between the water and the other kinds of trees behind. Occasionally you get a swamp inland which is full of cedars, but as a rule they grow close to the water's edge; and although they always grow in wet land or near water, the cedar is the easiest tree to drown. If a lake is dammed so as to raise the water level above the roots of the trees, the cedar is the first tree to die. Others that you would think would drown more easily will live for a year after the water is raised.

By the Honorable Mr. Sutherland:

Q. The object of my question is to ascertain if this tree could be grown on the prairies as wind break or hedges? A. They might grow on the prairie. The cedar tree is very peculiar in its habits. In some parts of the country, for instance in the County of Grey, Ontario, the cedar grows along the brinks of cliffs, and immediately behind it is hardwood—maple and elm.

By the Honorable Mr. Turner:

Q. Where there is no moisture? A. The tree may catch the moisture from the air. There may be constant precipitation of moisture from the air, which would be absorbed by the roots and leaves of the trees. The air of the North-West is very dry, and the soil also; still all such experiments are worth trying, for you get most unexpected results sometimes. If the white cedar would grow on the prairies, it would make an excellent wind break.

Q. How would spruce live on the prairie? A. The spruce does not seem to thrive on the prairies until you get north of the Saskatchewan.

By the Honorable Mr. Turner:

Q. Is there any coal around Hudson's Bay and James' Bay? A. Yes; anthracite has been found on Long Island in Hudson's Bay; but I think the quantity is small. It is of first class quality, and is found on the southern part of the island, just as you pass out of James' Bay into Hudson's Bay on the east side. The island is about thirty miles long.

Q. Is there bituminous coal there? A. Lignite is found inland in the country south and west of James' Bay. It belongs to a more recent geological formation than the lignite in the vicinity of Edmonton.

By the Honorable Mr. McInnes:

Q. What is the depth of the vein of anthracite on Long Island? A. I did not examine it myself, but some members of my party did. I had previously got specimens of it from some of the natives and thought I had missed the place; but one of my men found it one day and neglected to tell me of it until we left the island, and I did not have an opportunity of examining it myself.

By the Honorable Mr. Turner:

Q. Is there any iron found there? A. Yes, literally inexhaustible quantities of iron are found along the east side of Hudson's Bay, on the islands.

Q. And in James' Bay also? A. I think so. I have not found it in place, but I think it occurs there. A very small amount of exploration has yet been done in that region, and I have to judge from indications. In the drift, that is the boulder clay derived from the bed of James' Bay, there is an abundance of iron ore.

By the Honorable Mr. McInnes:

Q. To go back to the coal question: Those mines that have been discovered there have not yet been developed, and I suppose you cannot tell whether large beds of it exist or not? It is merely the croppings that you are able to see? A. The geological age of that country is against it. It belongs to rocks too old to expect workable anthracite to be found in them. I think it is more in the nature of a vein, resembling the vein of Albertite which was worked in New Brunswick. Albertite is a highly bituminous mineral, but this contains only a trace of bitumen though the origin may be the same. For instance, in the Albertite petroleum and pitch are merely consolidated, while in this mineral of Hudson's Bay the bitumen is driven off.

Q. Is there any petroleum found there? A. Not yet, but on the Abitibi River the limestone contains traces of petroleum. Speaking of petroleum, probably the greatest field for petroleum in the world is the Athabasca country.

Q. Are the shores of James' Bay and Hudson's Bay wooded? A. On the east side of those bays the forest extends north to Richmond Gulf and a little beyond, and on the west side to Seal River, a little beyond Churchill.

Q. Would the timber there make good lumber? A. Yes, commercial timber could be obtained from all the rivers flowing into the southern part of James' Bay, from the south, east and west.

Q. Just the same description as we have—oak, &c.? A. There is no oak. You might get the white and red pine from the headwaters of the streams flowing in from the south, and jack pine from some, and spruce and tamarac from all the rivers of James' Bay.

Q. And all of merchantable size? A. Yes; not extraordinarily large, but plenty of it.

Q. Such as you get along the Red River and the Saskatchewan? A. No, there is no spruce and tamarac to speak of there.

Q. I mean such sized timber as that? A. You can scarcely compare them, they are so different. The spruce might be described as generally of a small size, but making up in quantity—in the number of logs that might be obtained. The tamarac, though, is large.

Q. That is the usual Norway spruce? A. Both black and white spruce. There are three species of spruce in Canada. The Norway spruce does not grow in the west that I know of. A tree like it grows in the Maritime Provinces. It is called the red spruce in this country. It is distinguished from the others by having large and long cones. The black and white spruce have small cones. Each of these species of spruce has specific characteristics by which it may be distinguished from the other. The tamarac is misnamed "red spruce" by some.

Q. Would potatoes grow in the Hudson's Bay district? A. Yes.

Q. And all such vegetables? A. Yes; but the immediate influence of the sea is unfavorable for gardens. Gardens close to the sea do not flourish as well as gardens inland. The frequent changes from heat to cold and the fogs from the sea prejudicially affect them, and cause a sort of blight on vegetation close to the sea shore. But a few miles inland it is more rank, and you can grow potatoes and the ordinary root crops.

Q. Are there plenty of grasses there to keep cattle and sheep? A. Yes.

Q. Are they like the prairie grasses? A. There are many kinds of grasses there; also sedges, wild peas or vetches, and lentils.

Q. Are they good food for cattle? A. Yes, they make splendid feed for cattle.

Q. Is there not an article of wild tea which grows there and is used to a certain extent? A. There are several plants which are called Labrador tea, and the finest species grow round Hudson's Bay. In the early history of the Hudson's Bay Company it is a curious fact that the flowers of those plants were collected and sent to England as tea. It began to find favor in the English market, so much so that the East India Company, jealous that it might interfere with their trade, and as an interference with their supposed rights brought some influence to bear against the Hudson's Bay Company to prevent them importing this tea into England.

Q. The leaves were dried in the sun? A. It was the flowers only. The flowers make the finest tea, but the leaves have a better odor than taste.

By the Honorable Mr. Macdonald:

Q. How do you account for its becoming popular in the English market when it has not a palatable taste? A. I think it was introduced in fashionable quarters. It was very scarce, and was considered a curiosity and a luxury, and was probably talked of as such by the nobility of the country, which would create a demand for it, though the flavor was not very agreeable, and to those who tasted it first it was something like the Indian notion of the taste of whiskey.

By the Honorable Mr. Sutherland :

Q. The area in which this Labrador tea grows is very large? A. Yes; different species grow everywhere in the north.

By the Honorable Mr. Turner :

Q. Are the same species of water fowl and other birds found in the Hudson's Bay that are seen in the North-West? A. Yes, in a general way, but there is some difference in the species. Some of them migrate northwards and southwards on the eastern side of the continent, and others migrate north and south on the western side of the continent, and therefore you might not have the same species in the northern regions on the east side of Hudson's Bay that you have in the northern regions on the west side.

Q. They are the usual salt water fowl that you find almost everywhere else? A. Yes, on the shores of Hudson's Bay and Straits you have nearly all the sea birds that you find in the northern part of this continent, and some of those of Europe.

By the Chairman :

Q. Are they in large quantities? A. Some species are abundant. Surf ducks, scoters, eider ducks, &c., are abundant.

Q. The eider duck is valuable on account of its feathers? A. Yes, of its down. Of geese, the grey goose and blue and white waxies are very abundant in the spring and fall on the shores of Hudson's Bay—and especially towards the southern parts of James' Bay.

Q. And swans? A. Swans are common. Swans breed on the islands and some on the shores of Hudson's Bay, and their skins are an article of trade. In former years swans' down was used for trimming ladies' garments, and swans' skins formed an item of export for the Hudson's Bay Company.

Q. Are there any white bears found there? A. White bears are found in the northern part of Hudson's Bay, and there are plenty of black bears around the southern parts. The white bear is principally found at Cape Wolstenholme at the western entrance of Hudson's Straits.

Q. At what season of the year is James' Bay and Hudson's Bay clear of ice and open for navigation, and how long does the seasons last in both cases? A. Hudson's Bay is open all the year round, like the Atlantic Ocean, except around the shores and in the shallow places and sheltered parts which are more apt to freeze than the more exposed waters.

Q. How is James' Bay? A. The greater part of it is open all the year also, from what I heard. I have not been there myself in the winter.

Q. So that they are clear of ice, except along the shore, most of the year? A. Yes, clear of ice from June to November—in both cases—say from the 15th June up to the 15th November, on the average.

Q. Open for navigation? A. Yes.

Q. How is it with Hudson's Straits? A. In the Straits the conditions are different. There the coming and going of the ice does not depend upon the heat of the sun as it does in inland lakes, but from far away causes. The ice comes from far north—from Baffin's Bay and Davis' Straits—and its abundance or otherwise is principally due to the winds which prevail at certain seasons.

Q. It is not the blowing out of the ice from the Bay itself, but the ice that comes from the north that closes up the Straits? A. Yes, the ice comes down from Baffin's Bay—field ice—and encumbers the Straits.

By the Honorable Mr. Turner :

Q. When are the Straits clear of ice? A. There is no stated time at which the navigation of Hudson's Straits is opened. It may open one year in April and remain open until Christmas, and in another year it may not open until July and close again in November.

Q. Is it solid ice? A. No, it is floating field ice. The average time of opening could be obtained, such as it is, if we had the data for a hundred years or so, but taking any limited number of years there is no means of making an average.

By the Honorable Mr. Sutherland :

Q. Have you heard of a vessel going out there some six or seven years ago, on or about the 6th January? A. I have read of one going out about that date, but it is a long time ago. The vessel put into some inlet in Hudson's Straits in going out, on account of the ice, and as the ice left sometime about Christmas, the vessel started to finish her voyage.

By the Honorable Mr. Turner :

Q. I suppose on account of the ice remaining so long in the Bay and Straits the trees and vegetation generally would be very inferior all through that region? A. There are no trees at all in Hudson's Straits.

Q. And nothing can be grown there? A. There is a great variety of small plants. The vegetation is quite rich, and as soon as the summer comes the country becomes green, and in walking through it one meets with abundance of flowers of bright colors.

Q. I suppose there is no fruit? A. There are some blueberries.

Q. Could you grow roots such as potatoes there? A. Not in Hudson's Straits. You could grow nothing there but the natural flora in the open air.

Q. Is it just a wild moor? A. Yes, the country in some respects has a resemblance to the moors in Scotland, but there is no timber to be seen.

Q. Are there any high hills? A. Yes, on both sides of the Straits the hills attain a height of 2,000 feet and upwards.

Q. Have you heard of many shipwrecks in the Straits on account of ice? A. No, none in the Straits, but through storms and gales of wind some have occurred in the Bay.

Q. That country is wholly unsuitable for settlement? A. No, it is not. A man by fishing and hunting might live in the Straits, but he could never make a living there by agriculture.

Q. There would be plenty of herring at the mouth of the Straits? A. Yes, abundance of herring and codfish too at the entrance of the Straits.

Q. In fact I suppose that is the best fishing ground for purposes in the north? A. Yes, for commercial fish such as cod and herring and other fine fish.

Q. And ling? A. I do not know about ling being caught there, but I know the ling occurs in the salt waters of Hudson's Bay. Speaking of shipwrecks, it has been noticed that disasters have been more frequent to Hudson's Bay ships of late years than formerly, but they have not been due to ice, but to gales of wind casting them on shore.

Q. Is there any coal or iron about the Straits? A. Plenty of iron I believe and other minerals, but no coal.

Q. What other minerals? A. Principally mica and graphite, or plumbago.

Q. Is there gold or silver there? A. Yes, I found both at the Straits, and in some parts of the Bay.

Q. And in James' Bay also? A. I have not yet found gold or silver in James' Bay, but I think they are likely to be found there.

By the Honorable Mr. McInnes :

Q. In what form is the gold found? A. In pyrites and as free gold. Free visible gold has been found in quartz at Repulse Bay.

Q. Has any fine gold been found in any of the streams up there, to your knowledge? A. The fact is we have not had an opportunity to investigate all those things yet. My own opportunities for discovery were limited on account of the fact that when I was at the most likely places for finding gold or silver I had very little chance to get ashore. I had to take just what opportunity I had when going ashore with boats for ballast or to land materials at the stations. The main object of all the expeditions was to establish and supply the stations. If I had an expedition under my own control, fitted out for that object, I have no doubt I could make valuable discoveries of minerals, as I have now a sufficient knowledge of the geography and geology of the country to explore successfully.

Q. Did you see any of those quartz ledges yourself? A. Yes.

Q. What was the size of them? A. They varied in size. I could not look entirely for economic minerals, for in the few hours I had at any place, I had to ascertain as much as possible of the geological structure of the country, and incidentally if I found anything worthy of notice, I brought away specimens.

Q. What was the size of those ledges that you saw? A. I saw many large veins of quartz, but those from which I brought the specimens which happened to contain gold and silver, were not as large as others I have seen.

Q. A few inches in width, I suppose? A. Some were several feet wide.

Q. You did not find free gold in any of those? A. I did not find visible free gold myself at all. The free gold I speak of as coming from Repulse Bay was noticed by Professor James Tennant, of King's College, London, England.

Q. Has copper been found up there? A. Yes, plenty of it. I have found it in small quantities myself, and it has been found as occurring in large quantities among specimens brought from the west coast of Hudson's Bay by others.

Q. You were not as far north as Copper Mine River? A. No.

Q. Has there been any copper found in James' Bay? A. No.

Q. Have you found any tin there? A. No.

Q. You believe that the country is rich in minerals? A. I have reason to believe it is.

By the Honorable Mr. Girard:

Q. There has been no work done as yet in mining in that country? A. Some lead ore has been mined in the vicinity of Little Whale River, and sent to England.

Q. But no large amount of money has been expended yet on mining there?
A. No.

OTTAWA, 11th June, 1887.

To the Secretary of the Select Committee
on Natural Food Products of the North-West.

SIR,—I have to acknowledge the receipt of your communication of inst., covering a list of questions to which you require the answers in writing. In giving these answers the Committee will please bear in mind that they relate to the food products of five years ago, since which time I have been mainly absent from the North-West.

In reply to the first question my answer is: That I have travelled over the space in the North-West which is bounded on the south by the United States boundary line, on the east by Lake Superior, on the north by the sources of the northern affluents of the Winnipeg River and the main Saskatchewan, and on the west by the 106th degree of longitude. I may also add that I have also travelled over a considerable portion of Minnesota and Northern Dakota.

I have lived in the North-West over twenty years, and am familiar with it, as well Minnesota, Dakota, Manitoba, Keewatin and some portions of the North-West Territories. I may here say that I have lived on the borders of civilization about forty years, and shot, and fished through a large portion of the country, and have traded, shot, fished, trapped and lived with the Indians part of that time, when I found that they ate the most of the wild animals, birds, fishes, rice, barley, corn and in some places potatoes. I have seen them eat all the animals which I now mention, and have partaken of most of those varieties myself:—

Wild Cat,
Common Skunk,
Black Bear,
Grey Gopher,
Striped Gopher,
Musk Rat,
Grey Rabbit,

Bats, grey, striped and red,
Several varieties of mice,
White and Grey Wolf,
Missouri Badger,
Cinnamon Bear,
Yellow Gopher,
American Beaver,

Lynx,	Porcupine (and very good eating this last is),
Cross Fox,	Red Fox,
Kitt Fox,	Silver Fox and Black Fox,
Marten,	Fisher,
Mink,	Weasel,
Otter,	Wolverine,
Cariboo,	Moose,
Antelope,	Black-tailed Deer,
Several varieties of Rabbits, as the Wood, Hare, Prairie Hare and Rocky Mountain Hare (known as the Jack Rabbit),	Buffalo,
	Beaver.

I have eaten wild rice in Minnesota, where it grows in the following waters: Mississippi River, Crowning, Long, Prairie and Ottertail Rivers, and in Red Lake, Leech Lake, Cass Lake, Rice Lake, Tunnbooses Lake, Mill Lake, Whitefish Lake, Pokegane Lake, and in many other places. And in Manitoba and the North-West Territories, in every river from the Rosseau, near the boundary, to Black River, north of Berens River, and the lakes, the rivers of which flow into Lake Winnipeg, and in Berens, Pigeon, Black and Winnipeg Rivers, which all abound in rice, and there is a little found near the mouth of the Red River sown there by Joseph Monkman.

I should think the encouragement of the cultivation of the Canadian wild rice would be of great assistance to the Government in helping to provide for the Indians, as well as finding employment for them. In rice producing waters it will produce from 30 to 60 bushels per acre, and two pounds per day is the average used per head where the inhabitants live solely upon it. It can, and will grow in any sluggish stream or lake with a muddy bottom and the water not too deep. The water fowl are very fond of it and fatten quickly on it, and I am told the domestic like it also. The Wood and River Indians all think highly of it, and gather, clean it, and stow it away in rogans (baskets made of bark) for their winter use, and sell to the trader any extra supply for the use of their men trading amongst them. In the northern districts where I traded, I used to feed my men mostly upon it in the following manner: Taking a three or four gallon kettle and allowing one-third of a quart of rice to each man for a meal, with one-third of the two ounces of fat allowed each man a day, instead of fish and rabbits when provisions were scarce, with a sufficient quantity of water. This was allowed to boil for a few hours, and when sufficiently boiled, it used to make a very palatable soup, and when some game was added to it, such as bear lynx, rat, beaver, deer, goose, duck, or chicken, it was food considered "fit for any one."

I have known some families gather some forty or fifty bushels in a season for their own use and for sale to the trader.

The fishes I am acquainted with are:

Perch.	Pike.
Sun fish.	Black Bass.
Whitefish.	Tullabees.
Catfish.	Sturgeon.
Maskinongé.	Pickrel.
Carp (two varieties).	Brook Trout.
Lake Trout.	Morai.
Lake Herring.	Gold Eyes.
Mud Oat (fish resembling the eel).	

And the following is a list of birds I have observed in the North-West:—

Western Wood Pewee.	Whip-poor-will.
Night Hawk.	Humming Bird.
Kingfisher.	Woodpecker (several varieties).

Great Horned Owl.
 Great Grey Owl.
 Gos Hawk.
 Sparrow Hawk.
 Bald Eagle.
 Wild Pigeon.
 Whistling Swan.
 Canada Goose.
 Pintail Duck.
 American Widgeon
 Blue Winged Teal.
 Spoon Bill.
 Blue Bird, Broad Bill.
 Canvas-back Duck.
 Diver or Loon (several varieties).
 Grebe (different varieties).
 Spruce Partridge.
 Prairie Hen.
 White-tailed Ptarmigan.
 Plover (several varieties).
 Sandpiper (two or three kinds).
 Greater Yellow Shanks.
 Spotted Sandpiper.
 Long-billed Curlew.
 Great Blue Herron.
 Bittern.
 Sandhill Crane or Brown Crane.
 Carolina Rail.
 The Robin.
 Blue Bird.
 House.
 Winter Wren.
 Summer Yellow Bird.
 Canadian Fly-catching Warbler.
 Bank Swallow.
 Butcher Bird.
 Snow Bunting.
 Snow Bird.
 Bob-o-link.
 Red winged Blackbird.
 Raven Barking Crow.
 Blue Jay.

Screech Owl.
 Great White or Snowy Owl.
 Pigeon Hawk.
 Rough Legged Hawk.
 Turkey Buzzard.
 Trumpeter Swan.
 Snow Goose Wavy.
 Mallard or Stock Duck.
 Grey Duck.
 Green Winged Teal.
 Cinnamon Teal.
 Wood Duck.
 Red Head.
 White Pelican.
 Gull (many varieties).
 Dab-chick.
 Grouse (several varieties).
 Partridge.
 White Ptarmigan.
 American Snipe.
 Jack Snipe.
 Lesser Yellow Shanks.
 Prairie Plover.
 Green Herron.
 White or Whooping Crane.
 Virginia Rail.
 Mud Hen.
 Thrush (several varieties).
 Chick-a-dee.
 House Wren.
 Skylark.
 Water Thrush.
 Swallow (several varieties).
 Purple Martin.
 Yellow Burd Canary.
 Sparrow (several varieties).
 White-Winged Blackbird.
 Cow Bird.
 Meadow Lark.
 American Magpie.
 Whiskey Jack.

Of edible plants there are the following indigenous varieties:—

Wild Grape.
 Wild Plum.
 Wood Strawberry.
 Dew Berry.
 Saskatoon.
 Black Currants.
 Wild Parsnip (Indian Turnip).
 Pembina berries.
 Low Bush Cranberries.
 Blue Berries.
 Hazel Nut.

Coke Cherry.
 Wild Strawberry.
 Cloud Berry.
 Raspberry.
 Black Gooseberries.
 Red Currants.

Swamp Apple.
 Bear Berry.
 Wild Rice.

I cannot answer the fifth question, because I have not been supplied with the list to which it refers.

In answer to the sixth question, I may say I have covered some of the ground in my former answers. As to the cost of transplanting and restocking, I may say that I know of parties willing to supply seed rice not far from Fort Alexander, in quantities not exceeding five tons, at three and a-half cents per pound. Rabbits could be procured in live state for transplanting at about twenty-five cents each. Of fish, only the sturgeon could at present be used for re-stocking other waters, and the smaller fish of that variety might be had in pairs at the mouth of each of the large rivers flowing into Lake Winnipeg at a cost of twenty-five cents each. Small sized plum trees could be had, delivered at Winnipeg, at a cost of fifty cents each, and the native grape vine, native hop, berry bushes, native turnip, can be procured at the cost of the labor used in procuring them, which would be about \$1.50 per day.

In answer to the seventh question, I may say that where other things are equal, the nearest substitute for their natural food should be supplied. I have not heard of any very great or long continued scarcity among the Wood Indians, and especially those near large lakes and streams, and I think the food of these Indians—fish, wild rice, rabbits' meat and game preserved by drying and smoking—would be the most healthy and as economical as any other food that could be supplied, and would answer well with such vegetables and grain as are grown by the Indians themselves.

As to the districts where native food could be at present procured, I may say all of the well-watered districts east of Fort Ellice produce fish in quantities, and nearly all the waters east of the Red River produce rice in abundance, while rabbits, ducks, geese and the flesh of the cariboo and other animals can be so prepared as to be transported anywhere, and kept for months.

To the eighth question my answer is, the plum, currants, gooseberry, raspberry, saskatoon and all native berries. The grape might be improved by cultivation and by being engrafted with foreign varieties, and from these raisins might be made. Most of the native berries can be and are dried by the Indians and kept till spring. The hop grows well, and everywhere, and though not likely to be improved by cultivation, yet can be transplanted easily, and the Manitoba brewers value them as highly and give as much per pound as for the imported variety.

In regard to the ninth question, I would suggest rice, barley, Indian corn, turnips, potatoes and the artichoke (of the Jerusalem variety.) I mention this last because it does not require much care or frequent re-seeding. I mean by the turnip the indigenous variety which ripens a month earlier than the others and the ordinary turnips as well, and I have spoken of Indian corn and barley, because the trouble of grinding is saved, the Indians using it boiled with their game, meat or fish, after the outer husk has been removed by soaking in lye, which also breaks down some of the cell structure of the grain. Wild rice I regard as most important, as in my opinion it will grow west as well as east of the Red River, requires no care, can be reaped by the squaw and does not trench upon land devoted to any other agricultural purpose. I have, of course, seen Indians in the neighborhood of long settled communities who farmed as the white man does, but I give this answer in view of the larger number of Indians who do not take kindly to these pursuits.

In answer to the tenth question, I may say that it is desirable to re-stock denuded lakes and streams with all fish originally found there, except the Jack-fish and the other predatory fishes of that variety, such as the maskinongé, &c., these varieties being well enough under ordinary circumstances but are too destructive of other fish and of their own young to be in any way increased. They also consume, I think, the newly laid eggs of all other fish and of their own variety as well. This portion of my answer relates to the ordinary western lakes and streams. As regards the brackish lakes so often found in the southern and south-western portions of the North-West Territories, the re-stocking would have to be done with that otherwise objectionable variety, the pike, it being possible for them apparently to live where fish accustomed to pure water cannot live. Carp, such as are now found in the eastern lakes and streams, may be tried also in brackish lakes with a fair prospect of success, but I have no doubt that nearly all of the brackish lakes of the North-West will support fish life of the pike variety. There are varieties of fish caught in the

large chain of lakes which might be desirable to try, for instance the lake herring, which is analogous to the indigenous Gold Eye. The "horned perch" have been known to thrive from the fact that some years ago the Fishery Department of the United States stocked the upper waters of the Red River and Mississippi River with that variety of fish and with some varieties of trout, and while brook trout have been caught in some of the small streams near the sources of the Red River, yet, they never have been caught north of the boundary line to my knowledge, and probably from the muddy character which the river assumes after it is joined at Breckridge in Minnesota, by the Sioux Wood River, while the horned perch have been caught sixty miles below the boundary line. In the absence of fish spawn the easiest method of reproduction would be to try the smallest varieties of sturgeon, which as I have stated before in answer to a former question, possess a remarkable power of living out of the water, if simply its gills are moistened from time to time. I have mentioned the sturgeon, which, while not being to my taste as fine an eating fish as the white-fish, yet the immense number of eggs which the female produces, sometimes reaching (it is said) a million, and the fact that all parts of this fish are useful in Indian and pioneer life. For instance, the oil is not only useful for cooking purposes, and for light or friction, but is, I believe, when purified and with the addition of an infinitesimal portion of iodine in some form, to be, if not equal to, an excellent substitute for cod liver oil in cases of anemia, scrofula and tubercular consumption. The oil of the white-fish is also useful for the same purpose, and has the advantage of having a pleasanter flavor, but the disadvantage of being much smaller in quantity to a given weight of fish. The isinglass made from the skin and other portions of the sturgeon is quite equal to the isinglass of commerce, and also affords a good glue which is largely used in the northern departments.

My answer to the eleventh question is, that at the time of the transfer of that country in Canada the food of the Indians everywhere between the boundary line on the south, the Red River on the east, the Rocky Mountains on the west and the Main Saskatchewan on the north, was the buffalo. When I first went to that country, twenty-three years ago, its flesh in every form was used by white and Indian alike. The fall hunters returned with carts heavily laden with what was termed "green meat," this being the choicest portions of the animal with all the inferior portions cast away. The hump was a special tid bit, the unused muscle alternating with layers of fat, which constituted it a dish, if either boiled, fried or roasted, fit for a king. The tongue was scarcely less dainty, while the rump steak fried in the marrow of the animal, made a dish which makes my mouth water even now to think of. This meat was sold to the Red River settlers at twopence sterling per pound. These carts were otherwise loaded with dried meat that, being from the fattest cows killed before it was cold enough to preserve the green meat, the choicest portions cut into thin layers dried in the sun and afterwards slightly smoked. Meat in this shape would keep a year and command a price of 2½d. per pound. The large portion, however, of the freighting of these carts was made up of pemmican bags. These varied in weight from fifty pounds to two hundred pounds. This pemmican has been so much spoken of and so well-known that I need not give a description of its making, and may only state that it varied in price from twopence to threepence halfpenny sterling per pound according as it was made from the choicest portions of a young cow, having marrow fat mixed with the tallow that preserved it and having carefully mixed through it, the saskatoon and buffalo berries, this latter being held as an especial delicacy. This pemmican has been known to keep for five years. The ration allowed by the Hudson Bay Company and other traders in the buffalo country was one pound pemmican per day, or one and a-half pounds dried meat per day, or in the case of green meat, (*i. e.* fresh buffalo meat) all they could eat.

This state of comparative plenty of these forms of food lasted for ten years, and then the results, which might have been anticipated, in the enormous destruction of the animals themselves by causes which need not be recapitulated began to be apparent. For instance, travellers for sport in passing through the country killed large numbers with their breech-loading rifles and navy revolvers, only to take the

tongue and hump of the animal for food, and sometimes the horns as a trophy. In addition to these civilized destructors the next perhaps and second only in point of destruction were the prairie and sometimes the wood wolf, who fiercely chasing the bands of buffalo not only quickly despatched the calves and those injured by the mass of other buffalos in the attempt to get away, but in the mad rush of thousands of these animals to escape their dread pursuers, hundreds were killed by the foremost of the herd being pushed over precipices into deep streams or into morasses from which there was no escape. So that for the past fifteen years they have been steadily decreasing, and I believe that, with the exception of about a hundred, no buffalo remains north of the boundary line. In the portion of the North-West Territories outside of the limits I have mentioned fish, wild rice, rabbits, deer, elk, bear, moose and especially duck and geese have been the main-stay or the ordinary food of the Indians since the time of the transfer. In these districts the ration allowed by the Hudson Bay Company varied with the position of the post and with the stock on hand of pemmican, which was always brought to their most distant posts because of the great advantage it gave in its light weight to their winter voyageurs and dogs. The food allowed by me for many years in trading in the interior of various portions of the wood districts was, as I have stated before, two pounds of wild rice and two ounces of fat, and fish in proportion as they were plentiful or otherwise in that particular neighborhood. The main-stay, however, being the wild rice, and in my opinion two pounds of this food with two ounces of fat possesses all the requirements for health and strength, and with the addition of an occasional rabbit, is well liked by the Indians. It must be remembered, however, that the wild rice, like the ordinary rice of commerce, swells very much in cooking, so that a quart of this rice would, when cooked, represent an amount which white men would at first think impossible for one stomach to digest in twenty-four hours. In other districts I have been forced to depend myself, and to ration my men, upon rabbits and muskrats, and no objection could be urged against this food either in point of taste or strength-giving qualities. The ration to my men was two rabbits per day.

While I have mentioned these food products as being those in general use at the time of the transfer to Canada, I wish it understood that there were many others which I have not enumerated. The Indians, both of the wood and prairie, eat everything that has life, and while they kill many animals for the sake of their fur, I think they never fail to eat the flesh as well. An idea of the kind of animals that are killed mainly for their peltries, but which are eaten as well, may be gathered from the list of furs which I append to my answer, and from it the Committee will also see the prices which were paid for these furs then in exchange, more particularly in the northern districts where money was not used at all, but trade was carried on on the basis of one beaver skin, *i. e.*, this was the standard currency of the district, and the prices as given relate to that.

In answer to the twelfth question, I believe that the whitefish, sturgeon, jackfish and pike can be preserved by all the processes which are mentioned in the question. The experiment of canning, so far as I know, has not been systematically gone into. They are dried, smoked, sliced and frozen constantly as a means of preservation, and in some of the districts the Indians put them through part of the processes which are used in the pemmicanizing, that is, the fish are sliced, dried slightly, smoked, and then beaten into a coarse powder in the same manner as the flesh of the buffalo and other animals pass through in the process of being made into pemmican, the flesh of many of the existing wild animals being treated in the same manner. Moose, deer, elk, bear, all make excellent pemmican, because they have fat enough to complete the process, and some of the pemmican prepared in this way will keep for years. The less fatty animals, as the rabbit, may be and are extensively dried and smoked for after use, and they might be with equal facility pemmicanized if the Indians or others had sufficient beef tallow to supply the natural want of fat. As regards birds, the only kinds which I have known to be preserved by this process are the swan, goose, duck, prairie chicken and partridge. Some of these, in the Hudson Bay service, preserved by drying and salting in that state, will keep a year

and form part of the rations of their men at some of their posts. The Indians, however, who generally dislike much salt, preserve that by drying and partially smoking them, and, if in that state boiled for an extra length of time and adding wild rice to the soup thus made, forms a very palatable and I believe health-giving food.

With regard to the varieties of indigenous and other trees best adapted for treeless districts, my own experience and observations upon the experiments of others leads me to place the cottonwood or ash leaved poplar in the first rank of easily and rapidly growing trees, forming an admirable wind-break and rapidly furnishing fuel in districts where that is scarce. The jack pine may be grown, I think, all over the North-West, and should be added to clumps or parks of these and other trees, so as to effect a better wind-break in winter from the fact of its being an evergreen. For foreign trees, I have found that in corresponding districts in Minnesota and Dakota the white willow, Lombardy and other poplars grow well and rapidly, although I do not think any varieties of trees likely to give satisfaction more than the varieties which are now found everywhere in the northern and eastern borders of the fertile belt.

With regard to the question of the cultivation of hops, hemp, sugar beet, and tobacco, I may say that hops can and do grow everywhere in the North-West. There is not much possibility of improving the variety in my opinion, which is quite good enough for all purposes, but something might be done in the selecting and transplanting of the lager vines. Hemp grows well in Manitoba, and by analogy I think would be grown under similar conditions in various portions of the North-West. The sugar beet was tried by me as an experiment in the garden twelve years ago, the seed being furnished by a gentleman who was then engaged in commencing a sugar factory in Quebec. The beets turned out very well indeed, answering all the purposes of that vegetable, and the result of the experiment of the gentleman who had given me the seed, on a trunk full of beets which I sent him, showed as large a proportion of saccharine matter as is obtained in France. Tobacco has been grown in the southern portion of Manitoba as an experiment, and resembles the coarse flavored tobacco of Lower Canada, but a Virginia gentleman with whom I was acquainted seemed to think that by judicious and experienced cultivation its quality might be much improved. With regard to the question as to the developing, transporting and economizing deposits of iron, gold, copper, silver, slate, limestone, marble, sandstone, brick and pottery clay, asphalt and other metals, I may say that while I know of the existence of all these varieties I have mentioned, I have never made it a subject of study, and, therefore, cannot give to the Committee any answers which would be useful to them.

Trusting that I have not taken up too much space in answering these questions,

I am, Sir,

Yours very truly,

WALTER ROBERT BOWN.

J. G. A. CREIGHTON, Esq.,

Law Clerk of the Senate, Ottawa.

I herewith append, as showing the animals dealt in and the prices paid for them 30 years ago, an Indian and Esquimaux tariff in the Hudson Bay district of East Main. It will be remembered, in connection with the list, that money, being wholly unused, prime beaver, technically termed "made beaver," was the basis of exchange. All rates of goods supplied being so many beaver, and all furs taken on the same basis. For instance, a badger was counted as half a beaver and a prime black bear as three beavers, &c., and goods were counted in the same way, one awl being one-eighth of a beaver, and a string of agate beads two beavers, and a large blanket eight beavers, and so on.

Tariff of furs and provisions.		Tariff of goods.	
Badgers.....	$\frac{1}{2}$ beaver.	Awls.....	$\frac{1}{2}$ beaver.
Bears, large black.....	3 do	Beads, large.....	2 do
Beavers, large.....	1 do	Bells, dog.....	$\frac{1}{2}$ do
do small.....	$\frac{1}{2}$ do	Belts, worsted.....	2 do
Blubber, 96 lbs.....	1 do	Biscuits, per lb.....	$\frac{1}{8}$ do
Castor rum, per lb.....	1 do	Bonnets, Glengarry.....	2 do
Cats, wild.....	1 do	Boxes, tobacco.....	2 do
Feathers, per 10 lbs.....	1 do	Blankets, large.....	8 do
Fat skunks.....	$\frac{1}{8}$ do	do small.....	4 do
Fox, blue and white.....	$\frac{1}{2}$ do	Capotes, blanket.....	6 do
do cross.....	2 do	do small.....	3 do
do red.....	1 do	Cloth, per yd.....	4 do
do silver.....	3 do	Combs, ivory... ..	1 do
Hares, Arctic.....	$\frac{1}{8}$ do	Flour, per lb.....	$\frac{1}{8}$ do
Ivory, per 3 lbs.....	1 do	Flannel, per yd.....	1 do
Lines for harpoons.....	$\frac{1}{2}$ do	Handkerchiefs, large.....	1 do
do sealskins, dried.....	$\frac{1}{8}$ do	do small.....	$\frac{1}{2}$ do
Loons skin.....	$\frac{1}{8}$ do	Guns, single barrelled.....	10 do
Martens, large.....	1 do	do double do.....	20 do
do small.....	$\frac{1}{2}$ do	Flints, per doz.....	$\frac{1}{2}$ do
Muskrats.... ..	$\frac{1}{2}$ do	Kettles, copper, per lb.....	2 do
Oil, seal and whale, per gal....	$\frac{1}{8}$ do	Tin, 12 galls.....	7 do
Otters, large.....	2 do	do 1 do	2 do
do small.....	1 do	Knives, pocket.....	1 do
Quills, per 100 lbs.....	$\frac{1}{2}$ do	do scalping.....	$\frac{1}{2}$ do
Rabbits.....	$\frac{1}{10}$ do	Crooked.....	2 do
Swan skins.....	$\frac{1}{2}$ do	Oatmeal, per lb.....	$\frac{1}{2}$ do
Skins, dressed deer.....	3 do	Pork, per lb.....	$\frac{1}{2}$ do
do small.....	$\frac{1}{2}$ do	Tea, per lb.....	4 do
do seal.....	1 do	Tobacco, per lb.....	$1\frac{1}{2}$ do
do porpoise.....	$\frac{2}{3}$ do	Sugar, per lb.....	$\frac{1}{2}$ do
do wolf.....	1 do	Vermillion, per lb.....	16 do
Wolverine.....	1 do	Cotton, fancy print, per yd....	1 do
Ducks, per doz.....	$\frac{1}{2}$ do	Gunpowder, per lb.....	1 do
Deer tongues.....	$\frac{1}{8}$ do	Molasses, per gall.....	4 do
Geese.....	$\frac{1}{8}$ do	Rings, gilt.....	2 do
Partridge.....	$\frac{1}{10}$ do	do fine.....	$\frac{1}{2}$ do
Rabbits.....	$\frac{1}{10}$ do	Saws.....	$\frac{1}{2}$ do
Venison, dried, per lb.....	$\frac{1}{10}$ do	Scissors, per pair.....	1 do
do pounded do.....	$\frac{1}{10}$ do	Ribbon, silk, per yd.....	$\frac{1}{8}$ do
do green do.....	$\frac{1}{10}$ do	Snuff, per lb.....	4 do

The following communication from Rev. John McDougall was read :

MORLEY, ALBERTA, 4th June, 1887.

SIR,—In answer to yours of 30th May, I beg to send the following answers :

Question 1.—From Lake Winnipeg to the summit of the Rocky Mountains, and from Peace River to the boundary line or 49th parallel.

Question 2.—Plants, none; moose, elk, cariboo, black tail deer, white tail deer, antelope, mountain goat, mountain sheep, bear, beaver. Many varieties of duck, three varieties of geese, swan, crane, partridge, prairie chicken, plover, grouse, pigeon, sturgeon, whitefish, pike or jackfish, pickerel, suckers, trout. Moose and cariboo are more especially found in the north and east, wooded portions of the country; elk, deer, antelope, in season, all over the territory. Sheep and goat in the mountains only.

All varieties of fowl to be found more or less everywhere, especially north and east. Sturgeon in Lake Winnipeg and in the streams tributary to it; whitefish, pickerel, pike and suckers in all lakes having outlets into the large streams running parallel through the country.

Question 3.—Whitefish, pike and suckers could be translated with profit to the population.

Question 5.—Have not seen the list from Central Farm.

Question 7.—Flour and beef—these to be obtained from the settlements and ranches already in the country. Flour just now in Manitoba, later on in many places in the North-West Territory, where it will undoubtedly be manufactured. Beef from the farms and ranchmen of Manitoba and the North-West generally.

Question 8.—Gooseberry, cranberry, cherry.

Question 9.—Barley and oats, potatoes and turnips, carrots, beets.

Question 10.—Whitefish, pike, suckers, trout.

Question 11.—Buffalo meat principally. All the game and fish and fowl above mentioned. Sometimes the sap of trees and some roots indigenous to the soil, but in my opinion not worth cultivating. The buffalo meat ration, if an adult, was fresh meat, 8 lbs., dried meat, 3 lbs., pemmican, 2 lbs. If fish, three whitefish or equivalent per day. In the Saskatchewan, 50 lbs. of flour per annum; and 10 bushels potatoes also per annum.

Question 12.—The only modes of preservation of food I am familiar with are drying and pemmicanizing; both of these accomplished by the heat of fire or sun, without any salt or ingredient of any kind. I have made thousands of pounds of pemmican and dried meat and also have lived for long periods on dried fish.

Memorandum A.—Poplar, spruce, soft maple. These seem to do better than any others as yet tried.

Memorandum B.—Hops grow wild in some parts and I believe could be profitably grown anywhere. Sugar beet would grow almost anywhere.

Memorandum C.—Building of railroads, and by giving any encouragement to the actual settler, who is the true developer and discoverer of a country's resources.

JOHN LOWE, Secretary of the Department of Agriculture, called and examined.

By the Chairman:

Q. Over what portion of Canada, west of Lake Superior, have you travelled, and what other portions of that region are you familiar with, from the reports of reliable persons? A. I have been to the North-West every year since 1877, and that for the object of obtaining all the information that was possible for me to obtain for official use. I have been over all the portions of the North-West from Red River to the Columbia River—that is the southern portions on the line and contiguous to the line of the Canadian Pacific Railway.

Q. Most of the fertile belt? A. Yes, and as respects the information from reports and interviews, it has also been my official duty to read all available reports, both manuscript and printed, and also to interview persons of all sorts and conditions, with the object of obtaining all possible information. I should say, however, that my studies have not had relation to the object of your Committee. On the contrary it comes almost new to me, but as I come to think over it, the field certainly expands, and I see a great many facts. I should say also that there is a point of view in which the natural capabilities of the North-West have been brought to the notice of the Department of Agriculture, and that is statistically. The North-West contains an aboriginal population of 56,000. It is a large population to subsist on natural products and resources, although, of course, spread over a very wide field. That population, however, is not found to be declining, but on the contrary is increasing, although of course it is a well-known statistical fact that populations of that kind, subsisting by hunting and on natural products almost always remain stationary, or nearly so. It has, however, been found, by the information we have been

able to gather by the census, that the increase of the aboriginal population of the whole of Canada in the ten years, between 1871 and 1881, was about 6,000, the figures in 1871 being in round numbers, 102,000, and in 1881, 108,000. I give the round numbers, speaking from memory. The fact may be held to be substantially proof of the existence of a very large and continuous supply, year after year, of natural food products.

Q. Will you give a list to the Committee of the plants, animals, birds and fishes suitable for food, with which you are acquainted, and the districts in which they are chiefly to be found? A. I could scarcely supply you that information from memory, but I may state that the various facts to which I have referred have given me the same information as that which is stated in those two letters that have been read to the Committee to-day.

Q. Would it be a matter of much trouble for you to afterwards give us a list? A. I could give you a list, but I could scarcely do so from my own observation. It would be a list of gathered information. I have noticed myself the presence of those animals in the North-West. I have noticed, for instance, that at times of the year it perfectly swarms with wild fowl of different varieties, and I have also noticed very numerous small animals, and the animals of the deer variety which have been mentioned in those letters.

Q. You would think, generally, that the lists mentioned by these two gentlemen would cover most of them? A. I think so. I do not recall any animal not mentioned in those lists, or from the articles I have been reading, or from the interviews that I have been able to obtain with persons.

Q. Which of the varieties you have mentioned are suitable for transplanting and transplanting into other portions of the North-West? State also the districts to which, in your opinion, they could be translated with advantage to the white and Indian populations? A. Professor Saunders, of the Experimental Farm, will possibly furnish much practical information on that subject in the course of the experiments about to be tried. The question, as regards fruits, is one that I myself have, to some extent, practically tried in Manitoba, in the neighborhood of Morris. We have tried the planting of several kinds of fruit trees, without, however, very much success. We did not take any special pains to shelter them, but the desideratum which I think is to be gained, is to obtain some species of stock or wood which will so fully ripen its wood during the season to bear the frosts. We find that the trees which were planted became attacked with some disease or some disability from the combined effects of the frost and sun, or the starting of germination by the sun and afterwards injury by severe frosts. I think, however, that all those things are matters of experiment which will be both scientifically and practically demonstrated by the Department of Agriculture, and possibly I had better not attempt to say anything further on the subject. I may also state, as a matter of my own observation, that the Mennonite colonists, who settled in Manitoba, I think in 1875 or 1876, brought with them a number of varieties of trees from Russia, and I have seen some of those trees growing in the Mennonite colonies, but on later visits to the Mennonite colonies I have never seen anything which could approach the dimensions of what might be called orchards. The inference would therefore be, I think, either that they had been unskilful and had not the right kinds, or that they had found some disability.

Q. Would you mention the varieties that they tried? A. I cannot give you the names of the varieties, but I was about to remark that possibly I might obtain them from Mr. Schantz, of Berlin, Ontario. Mr. Schantz happens now to be in the Mennonite colonies, and I also happen to be in correspondence with him. I think, therefore, if I were to ask Mr. Schantz the specific question, he would furnish the information for the Committee.

Q. Will you please state generally to the Committee how such transplanting, restocking and adding to the indigenous food supplies can best be effected, and at what probable cost? A. This comes under the general remarks which I made in reply to the last question.

Q. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? From what districts and at what cost can such food be supplied? A. I have no doubt that when the Indians do not find their natural supplies of game, they would very much prefer the cattle which are raised on the ranches, to almost any other kind that could be furnished from the outside. There is also one other item, and that is the locust. Professor Riley, in his report, distinctly states that the locust is edible, and I believe it is also used in some portions of the east. I also was informed that the Mennonites would not be averse to its use, but of this my information is of a general kind. I merely make mention of that insect, because Professor Riley distinctly states in the report which he made on the locusts of the North-West, that the insect is edible, that he had himself eaten it and found it by no means unpalatable.

Q. We were troubled some years ago in Manitoba with them and some of the Ojibway Indians eat their flesh, and they had a mode of drying them. Some gentlemen, experimentally inclined, tested soup made from them and a little of the cake they made, and they thought that with hunger as sauce in would not be bad food? A. I should think the locust lives as cleanly a life as many of the animals we use for our every day food. I do not suppose, however, that our settlers would be obliged to anyone for a large supply of that kind of food at present. As to the eighth question— which of the indigenous plants, can, in your opinion, be materially improved in quantity and size by cultivation, grafting or budding?—I think it would be answered, so far as I can answer it, by the general remarks which I have already made. As to the ninth question—What grains, grasses, fruits, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits?—I believe that all may be grown, and I believe also that wheat may be grown and ripened with success, even in such years as those which have brought very early frosts; and in fact it has been proved to a demonstration that very much wheat did ripen in Manitoba and the North-West, both in 1883 and 1884, which were the two first years of the severe frost, although much more went to waste. The fact which has been demonstrated, may I think, lead to some different views or practices with regard to wheat culture. I think that it is very doubtful indeed, if we may at all expect those early frosts, whether the soil can be profitably ploughed in the spring and the necessary time taken after that to sow wheat to be always certain of a crop. But if the ground is prepared the previous year and the grain put in the moment there is sufficient thawing out of the soil to receive it, I think it is almost sure to ripen. In proof of this I may state a very striking fact within my own knowledge in the County of Morris. An Ontario farmer there, in one of those years of frost, had prepared his land the previous fall and began to sow very early in the season—the moment in fact there was sufficient earth thawed out in which to plant it. Very severe weather came after that sowing—both of frost and snow. In fact he thought he had lost his crop and almost regretted that he had put in so much. However, the wheat he planted ripened early in August and he had the grain in the elevator and a large crop indeed. As regards the other portions of the farm which he had left to plant at a later period of the spring it was almost ruined. That is a fact of actual experience which I think has an important bearing.

Q. Are the Committee to understand that you would recommend to obviate the difficulty of the early frost, the preparation of the ground the year before, and the early planting of the varieties of wheat? A. I think the red Fyfe may be made to ripen, and it is so far the most valuable of all varieties. Professor Saunders has already caused to be imported from Russia, from very high latitudes, varieties of grain which may possibly ripen very much earlier. Experiments have been tried in Minnesota, and wheat has been imported from Russia, and the result has been that somewhat earlier ripening has been obtained, without, however, the same quality of wheat as the red Fyfe, which is an important desideratum.

Q. The result of the very valuable distribution made by your Department of Russian seed grown is that it is reported from several districts that the grain seems to be thriving? A. Yes, they are reported as doing very well indeed.

Q. Have you reason to believe that it is a rapid growing wheat? A. The object of the importation was to obtain that result, and the rapidity of the germination seems to justify that object so far.

Q. What has been the shortest time from the date of sowing to the date of ripening that you have known any wheat in ripening? A. The earliest ripening of wheat that I have known in Manitoba has been in the middle of August—wheat that had been planted in the early part of April. I may state with regard to this question of wheat growing, I speak from a point of very considerable experience. Of course as regards other grains there can be no question about getting them in abundance almost any year. There is a question, however, whether some northern varieties of rye would not be specially adapted for the North-West of Canada, and there are persons who think that that grain, which is very largely used in Europe, and especially in Germany, might be almost as advantageously exported as some of the wheat, at prices, which in the past, have prevailed. This is a question on which I think experiments might be made.

Q. We will suppose the case of an enfranchised Indian who is commencing a farm for himself, or a new settler of limited means. You would recommend the red Fyfe variety of wheat for sowing? A. Red Fyfe I should say would be the most difficult kind of wheat to grow, for the reason that it is longer in ripening than other qualities. The great advantage of red Fyfe is its commercial value for purposes of roller milling. Mr. Howland told me that he considered that value as high as 10 per cent over other kinds of grain.

Q. Then supposing in the extreme west a farmer of limited means, owning a small amount of land, who would not probably ship to the east, what variety of barley, rye, wheat or oats would you recommend him to sow? A. Possibly for such cultivation as the Indian would make rye would be the most certain of grains for his use. Of course he might grow barley, oats or other grains. I believe, also, that Professor Saunders has imported some specimens of rye, and the Department will very thoroughly make the experiment which will be of great practical use to the North-West.

By the Honorable Mr. Merner :

Q. Can they raise Indian corn there? A. Yes; there is a variety of corn which I have seen grown there, but as to the certainty of the crop ripening I should not like to speak from my own knowledge. I have, however, seen a variety of corn ripened in Manitoba.

By the Chairman :

Q. It is the intention to direct the experimental farms of that region, I suppose, to try all those experiments? A. The object of the experimental farm is to ascertain all those facts which are likely to be of any practical utility to the North West and then to diffuse the information in bulletins.

Q. They would also be instructed to try the indigenous products? A. I have no doubt that Professor Saunders will try all those experiments, and think he will do it with a care and prudence which will give the results desired. Dr. Dawson told me he had seen wheat ripen in the Peace River region in the year which was supposed to be an unfavourable year for the frost, and he told me that he had seen that with his own eyes. I was also present when Dr. Dawson gave similar evidence before the Immigration Committee of the other House whether it is of record now.

Q. Speaking of the raising of grain, are you aware from general report that in some parts of the less well watered regions of the west that cereals were a comparative failure last year? Is there a reason to hope that with better cultivation and with tree planting that that condition may be altered and that a greater rainfall may be obtained? A. I have no doubt that tree planting and more extended cultivation will prevent the enormous evaporation which takes place on those plains and that the opening of the earth would absorb the water instead of its running off with great rapidity in the coulees there to be evaporated. I think also, that it will be found, and I am sure that I have seen the experiment tried myself sufficiently to demonstrate the fact for my own information, that grain which is

planted and takes root immediately after the frost and before the frost goes will shoot and grow where grain planted later will be dried up by the sun. With respect to fish I think I would not like to offer any opinions as to the point involved in this question, for the reason that my knowledge of it is so general.

Q. We have a letter from the Deputy Minister of Fisheries saying he will be in attendance on the Committee on Monday. I suppose he will cover that ground?
A. He can give that information better than I can. With respect to the twelfth question—State your opinion as to the best means of preserving, by canning, drying, smoking, salting, freezing, pemmicanizing, or other process, such of the natural food products of the North-West as you are familiar with? A. There are some points which I have observed which are quite special to the higher and drier plateaus or steppes of the continent. It is found as a matter of fact that in those dry atmospheres that when the flesh of animals is hung out it dries and becomes easily preserved, there being an absence of the moistures which produce decay and fermentation on the eastern slope of the continent; and as respects the use of food without salt I have had similar information from North-Westers of great experience in that matter. I may mention specially the name of the Archbishop. He told me that for years and years long ago he had accustomed himself to do without salt and that he cared very little about it as regards its presence in meat, so that I think in the conditions of that country it is not a necessity although it may be readily found in enormous quantities in the North-West. I should think the greatest of all disabilities in many parts of the North-West in dry seasons would be the question of water. That is where the season has been persistently dry and where the drought has been persistent. Even in some parts of the country where we have too much water some seasons—last season, for instance—it has become a most serious question. That, however has not been confined to Manitoba or our North-West, for I see by the newspaper reports that it has extended throughout the continent and has become a more serious question in the north-west portion of the United States than with us. We have had a practical demonstration of the necessity by the fact of many of the ranchemen of the more westerly states driving their cattle into our territory for water and pasturage, which took place to a considerable extent last year.

Q. You were speaking of the possibility of preserving meat by hanging it in the sun, owing to the dry temperature. Is it not the case that a little smoke can be used with advantage and give it a better flavour and perhaps adding to the preserving power? A. I think that is undoubted, although you have the fact that the desiccation which takes place by simply hanging up will preserve meat. Of course the flavor of the smoke is to a large extent a matter of taste.

Q. Do you think that flesh should be preserved for some months in that manner?
A. I have no doubt that flesh would keep well for a time time, if kept from the presence of moisture. If subject to moisture, then it is certain sure that the process of decay would go on. Possibly smoking and salting would be the only means of preventing that. I was going to say that weak solutions of salicylic acid have been used successfully in preventing putrefaction. The effect I have found to be perfectly wonderful. That is a means which has been used to bring cargoes of meat from South America and also from Australia to the English markets. A very small quantity of salicylic acid is dissolved in water and the carcase is washed with it. The effect of that in preventing putrefaction seems to be remarkable.

Q. Simply washed on the outside? A. Yes.

Q. Do you happen to remember the proportions? A. It is a very weak solution. I should think that a teaspoonful of the acid dissolved in a little hot water and put in an ordinary pailful of water would be absolute protection against decay.

Q. I may say that this information, which is quite new to me, is very interesting, as opening up a subject in connection with the North-West. The salicylee, which is really the salicylic acid, is a product of the tree of the willow family. We have the willow over a large district of the North-West; in fact, the Indians, I have observed, in practising medicine there, used to take the inner bark of the willow which grows on the banks of the Red River to administer it in

febrile complaints, blindness and fever and ague, so that it would be a curious matter to test whether a solution of this willow, which can be found everywhere in that country, might be used with advantage as a preservative for meat? A. That might be, as the name implies that the original source of salicylic acid is the willow. It is known to have a remarkable effect in arresting fermentation and is largely used in France in stopping the fermentation of wines and ciders. I have tried it myself in that way. For instance, I dissolved about a quarter of an ounce in hot water and put that into a keg of cider containing a little over about twenty gallons. The cider previously was a little muddy, arising from the fermentation—the animal or vegetable life in the cider. The admixture of this small quantity of salicylic acid with the cider caused a precipitation and the liquor became perfectly clear and there was no fermentation in it after that. The French use it largely in arresting the fermentation of wines, and it is known that there was a question with the Government of France some years ago as to whether or not this was healthful. The Government caused an investigation to be made, the result of which went to show that salicylic acid was perfectly innocuous, and there was no reason whatever in preventing its use.

Q. There is a memorandum attached to this list of questions which is important, and I have no doubt you will be able to give us a good deal of information upon it? A. These are points on which I have already spoken, and my information is very general. I think that Professor Saunders will give you the information as regards the trees and with respect to the minerals better, possibly, than I can, and you had better take the evidence of experts.

Q. Can you give us any information as to the growing of beets? A. As far as the growing of beets is concerned I think they are adapted to the soil of the North-West. As regards the growing of any kind of root crops the North-West soil is undoubtedly well adapted to it. The single question as regards the sugar beet as to the percentage of saccharine matter which you get from the large beets, for there would be large beets grown on the prairies, is a matter of demonstration. I think I heard it read in one of those letters (before this committee) that some experiments which had been tried as to the quantities of saccharine matter extracted from sugar beets grown there were favorable. That question is to my mind an important one.

Dr. BELLS' answer to the second question of the Committee.

The only native plant of much importance for food is the wild rice. It is found in situations suitable for its growth in many of the lakes and sluggish portions of rivers north of Lakes Huron and Superior up to about latitude 51°, and westward to Lake Winnipeg, just east of which it may attain a somewhat higher latitude.

The following are the more important mammals for food: Virginia deer, jumping deer, elk, moose, cariboo (woodland and barren ground), prong-horned antelope, buffalo, woodchuck, ground squirrel or yellow gopher, striped gopher, red squirrel, beaver, muskrat, porcupine, common or varying hare (*Lepus Americanus*), prairie hare (*L. Capestris*), Arctic hare (*L. Timidus variet Arcticus*), black bear, badger. All of these are more or less useful to the Indians as food. In the northern districts the cariboo and the hares probably contribute more food than any other animals. At one time the moose was a great resource in the Peace River country, but it has now been either almost exterminated or has migrated from that region. In the marshy country of the Lower Saskatchewan the muskrat furnishes a large part of the food for the Indians.

As to the birds, the various species of ducks supply considerable food to both the prairie and bush Indians during spring, summer and autumn. The Canada goose, the white wavier or snow goose, and other species are shot in large numbers along their routes of migration in the spring and autumn. The sharp-tailed grouse is killed in the prairie and half-wooded regions at all seasons, but it is scarce on the

naked plains of the west and south. This species and the ruffed and Canada grouse (popularly called "partridges") furnish the bush Indians with some food at all seasons. In the country just north of Lake Superior the passenger pigeon has been shot by the Indians in considerable numbers in former years, but is becoming scarce.

Of fishes the whitefish occupies first place as to the quantity and quality of food. Next in quantity would come in order the pike, pickerel (or "perch") suckers, grey trout, sturgeon, catfish, gold-eye, mari or methy (dog fish or ling), yellow perch, chubs. There are other species which are too rare or too sparingly diffused in this great region to be of much account as food fishes. Among these may be mentioned buffalo fish, sheep's-head, two kinds of grayling, &c.

THE SENATE, OTTAWA, Monday 18th June, 1887.

The following communication from Rev. Mr. Hugonnard, Superior of the Industrial School at Qu'Appelle, was read:—

"INDUSTRIAL SCHOOL,

QU'APPELLE, 4th June, 1887.

1. I have been travelling around Qu'Appelle and Wood Mountains.
 2. Among the native plants and fruits I know only the blackberries (saskatoon) gooseberries and strawberries suitable for preserve; no other plants and trees are of any use for food. Plenty of them can be found around the Qu'Appelle Lake and in the Qu'Appelle Valley. The whitefish and pikes are plentiful also in our lake, and they are the best fishes to be found here.
 3. Rabbits and ducks are a great help to the indigenous population. None of the plants or trees are worth transplanting. Pike fish can be transplanted with advantage into some lake where there is no fish.
 4. Maples have proved to be the best tree for transplanting.
 6. Ten cents for every maple growing would be sufficient.
 7. Bread and meat. Meat can be got at seven cents.
 8. Grape and cherries can be grafted with other cherries and likely saskatoon bushes.
 9. Barley, wheat, potatoes, turnips, carrots, Indian corn.
 10. Pike and whitefish.
 11. Buffalo meat dried or made into pemmican. Ration, three pounds a day.
 12. I do not see any food in such quantity to be preserved.
- (a). Maples, willows.
(b). Hops, sugar beets, would succeed well.

The above is what I can answer to the questions of the Select Committee of which you are the Chairman.

T. HUGONNARD,

Principal.

To Mr. JOHN SCHULTZ.

NICHOLAS FLOOD DAVIN, M. P., of Regina, N. W. T., called and examined.

By the Chairman:

Q. Over what portions of Canada, west of Lake Superior, have you travelled, and what other portions of that region are you familiar with from the reports of reliable persons? A. I have travelled over the north shore of Lake Superior. I have travelled over the country—that is to say in a line as the crow flies, stepping off here and there—between Lake Superior and Winnipeg. I have travelled thence as far as the Rocky Mountains. I am not familiar with the Saskatchewan country, but I am pretty familiar with the country south of the Saskatchewan. I think I

am familiar with the whole country—your question is not only how far I am familiar with it directly, but also indirectly?

Q. Yes; indirectly? A. Indirectly I am pretty familiar with the whole country, for I have talked with people from all parts of the North-West and have friends and correspondents everywhere, and for the last five years have had constant visitors, and I dare say I am as familiar as a person can be from indirect information with those regions over which I have not travelled.

Q. Will you give a list to the Committee of the plants, animals, birds and fishes suitable for food with which you are acquainted, and the districts in which they are chiefly found? A. I consider the saskatoon berry a very important plant and that it would be quite well worth while trying to see if it would grow in eastern Canada. If it would grow in eastern Canada it would be of great advantage to the people. It is a delicious fruit, and can be made into an excellent wine—made into a wine not at all unlike a new port wine. It makes an excellent beverage. It is most nutritious: there have been cases within my knowledge of people living on this berry for a long time—people having lost their bearings, and having lived on the saskatoon berry.

Q. On that alone? A. Yes, on that alone.

Q. The Committee would like to be informed whether you know of any attempt that has been made to improve it in size or quality by cultivation? A. No, I do not; and I think it is greatly to be regretted that it is not. As you go through the country beyond Regina towards Long Lake, there are groves of trees bearing the saskatoon berry, and it grows in great luxuriance—with as much luxuriance or more luxuriantly than haws on the haw bushes in the old country.

By the Honorable Mr. McInnes:

Q. How high do these trees grow? A. They grow, I should say, from six to ten feet high.

By the Honorable Mr. Reesor:

Q. How large is the fruit? A. About the size of the currant. It gives you the idea of having in it—I have not analyzed its properties—great nutritive properties. It has a rich flavor, and there is a great deal of substance in the flesh around the kernel.

By the Chairman:

Q. Is it sometimes called the buffalo berry? A. I do not know.

Q. Is it the kind of fruit that was formerly used in mixing with pemmican? A. I am not aware of that.

By the Honorable Mr. McInnes:

Q. Do you know of any attempt having been made to transplant those trees? A. I do not, and of course it is open to question whether the transplanting would be a success; but if it were a success, I can fancy nothing that would be a more agreeable addition to the eastern Canada fruits, and for that matter if it were transplanted to Europe, to the fruits there, and of course when it is so rich growing wild, it would probably become, when cultivated, larger and still more succulent.

By the Honorable Mr. Reesor:

Q. Does the tree grow in clusters? A. No, just tall green bushes, looking not unlike young ash in the old country, I would think.

By the Honorable Mr. McInnes:

Q. Does the fruit grow in clusters like grapes, or is it distributed all over the bush like the gooseberry? A. It is more like the gooseberry.

Q. The fruit is not in distinct clusters like, for instance, the mountain ash berry? A. My recollection now does not serve me, but my impression is that it grows in clusters, but I may be wrong about that—that is my impression from memory. There is a lady living in Moose Jaw who has wine made from this berry. You visit her house and she will produce saskatoon wine, and all I can say is that it makes delicious wine, if they know how to make it properly, but many persons have tried it without succeeding so well, they loaded it a little too much with sugar; but it makes a very nice wine, with good tonic properties.

By the Chairman :

Q. Is there any ready way among the Indians of drying the berry and preserving it for future use? A. I do not know; I am not up in that matter; I am not scientific enough to know whether it could be done or not.

By the Honorable Mr. Girard :

Q. Have you tested that wine? A. Oh yes.

Q. Is it as good as currant wine? A. Quite as good.

Q. Was the wine that you tasted prepared without a mixture of strong drinks? A. I think that there was some slight infusion of alcohol—a slight infusion of brandy. I inquired about that and the lady said that there was a small quantity of brandy put in just to preserve it.

Q. Could it be prepared as a temperance drink? A. I think it could. I do not see why it could not. I was trying to think of some of our eastern fruits that would give me an idea of the flavor. The flavor is very rich. Then there is the blackberry about which I do not know much. I have not culled the blackberry myself. What I say about the saskatoon berry I say with authority, because I have been amongst them. The blackberry I have not culled but I have eaten it. The berry is a smaller fruit than our English blackberry, and my impression is that it is not as wealthy in attractive qualities as the English blackberry, but it is a useful fruit.

By the Honorable Mr. Girard :

Q. Is that what you call the black currant? A. No, that is not it. They have the black currant too, and they have the strawberry, and I think I have seen wild raspberries. There is a gentleman in Moose Jaw who has taken the wild currant and the wild strawberry and transplanted them into this garden—Mr. John A. Whitmore. I think it would be well if the Committee would send him this list of questions; his address is Moose Jaw. I do not know of any man who could give information not merely as an ordinary witness, but also as a scientific man which would be more useful to the Committee than his. There is not a man in the North-West who could speak so authoritatively from the point of view of a witness, and who at the same time is so enlightened on these subjects.

By the Chairman :

Q. Are you familiar with the wild plum and the wild cherry? A. No, I am not. Mr. Whitmore has experimented with all our eastern fruits, and when I saw him last (of course there has not been much time yet to obtain results) he was sanguine of success. He had apple trees that had stood two winters.

Q. Which of the eastern fruits have you seen actually produced there? A. He had for instance the gooseberry—if I remember rightly he was successful in producing it—at least that was his impression.

Q. Had his apple trees been planted long enough to bear fruit? A. No; the only point was that they had stood two winters, but they had not been planted long enough to bear fruit.

Q. Which of the varieties you have mentioned are suitable for transplanting and transplanting in other portions of the North-West? State also the districts to which, in your opinion, they could be translated with advantage to the white and Indian populations? A. I have practically said as much as is necessary about that.

Q. Give the Committee your opinion as to the best means of restocking denuded districts with the plants, animals and fish which were once indigenous there? A. I can give the Committee no information, because I have not inquired into the subject. I do not know what plants are indigenous in any place at present denuded, but I should think in any of our lakes, which are not alkali, that the whitefish would succeed, and therefore if there are any lakes non-alkali, I think that with certainty the whitefish could be transplanted there and would succeed. As you are aware, there is a great similarity in all the waters of the North-West, showing that the conditions that scooped out the channels have been identical. Now in Long Lake we have splendid whitefish and excellent pike, very large; but the whitefish, when cooked immediately after being caught, is delicious. In the winter the whitefish of course is very easily preserved, and if properly thawed out, as a skilful cook will do it, the fish tastes just as it would immediately after being taken out of the water.

By the Honorable Mr. Kaulbach :

Q. How do they catch them? A. Every way. In winter the Indians make holes in the ice, and some fishermen put down a net into those holes; others of them have bait. The Indians themselves, however, spear them.

Q. Can the whitefish be caught with bait? A. Yes, they can be caught with the worm. We have no worms, but they get other bait for them. I think that the whitefish can be caught with bait, but I may be wrong about that—I have caught them in the Ottawa River with bait.

Q. The Committee will understand that you would advise the restocking of the lakes with the spawn of whitefish? A. Yes.

Q. Would you suggest any other variety of fish? A. It seems to me there is no necessity. If the conditions for producing pike exist in any place, the pike come as a matter of course.

By the Honorable Mr. Turner :

Q. They come naturally themselves? A. Yes, I never saw an instance where they did not, like other coarse products of nature, given the conditions they seem to come.

By the Chairman :

Q. They are the woods of fish life? A. Yes, and besides it is not a desirable fish. The whitefish is a desirable fish. That is one recommendation I could make.

Q. The fish question we shall not ask you, because we have not got the list to which it refers? A. I did not answer the second question fully. The rabbit is almost a staple food. The jack rabbit, as he is called, is really a white hare that has its seat on the snow, is as good as the English hare. The rabbit proper is not as good food as the jack hare. You can track them on the snow in the winter and shoot them down. In fact, that is one of our common sports in the North-West, killing rabbits or hares.

Q. Are they the same colors as the English hares? A. They are in every possible respect the same as the English hare, except that the coat is white. You know as you go north in Europe the provisions are the same. This is one of the provisions of nature to guard this animal from his enemies. One great enemy of the jack rabbit is the prairie wolf. As to water-fowl, ducks of every possible variety are to be found with us in great numbers.

By the Honorable Mr. Turner :

Q. That is in certain seasons? A. In certain seasons—of course the duck is a migratory bird.

Q. When do they commence to come back after the winter? A. They come in April, and go back to the south in September and later. I should not like to commit myself to that exactly, because the seasons vary. It is a very curious thing to note with regard to those ducks—it may be chance, or instinct, or whatever faculty corresponding to reason in duck's mind—but it is very extraordinary the rapidity with which they realize that there is danger. Up to the end of the close season you can go down to the artificial lake that we have south of Regina and see them in large numbers. Of course we have no natural sheet of water there, and we had to make an artificial lake of which the greatest depth is about 16 feet, on which people boat and amuse themselves.

By the Honorable Mr. McInnes :

Q. What stream supplies it? A. The Wascana. The name means pile of bones, but we have adopted the Indian name as being more euphonious. In most places it is shallow, but it is a fine sheet of water and is a great advantage to the town.

Q. How many acres does it cover—one hundred? A. I should say it would hardly cover 100 acres.

By the Honorable Mr. Reesor :

Q. Is it a quarter of a mile across? A. Yes, it is larger than that. The way it is made is this: There are immense banks there as though a big river had run through there. The Wascana itself is a little creek. In May, when the snow melts and the freshets come, the river which passes there is as bounding as the Rhine. Of

course it is only for a few brief days, and what has been done is we have constructed a dam across from bank to bank at a certain height, and that dam retains the water.

Q. Is this river a living stream? A. The river itself is a living stream but this is an artificial sheet of water made by this dam. The length of the dam would certainly be several acres.

Q. What is the object of making that dam? Was it for the purpose of supplying the town with water? A. For ornamental purposes—for boating, and also for supplying soft water for washing purposes.

Q. Is the town supplied with water from that lake for drinking purposes? A. No, the town is supplied from wells. We have good wells there. That sheet of water would be covered with ducks up to the last day of the close season, and it is a curious fact that you can row a boat amongst them and they will hardly take any notice of it, as if they knew you could not shoot them; but the day the morning dawns when the shooting season commences, one shot effectually advertises it, and the ducks are no longer seen. Then it requires stalking or stealth to get near them. In Long Lake there are any number of ducks, and in fact in all the lakes over the North-West there is an abundance of ducks and water-fowls of all kinds.

By the Honorable Mr. Turner:

Q. Black, grey and teal? A. Yes, every kind. We have wild geese also. We have also the wavier. The wavier is a bird very like a sea gull.

Hon. Mr. TURNER. It has a larger body than the gull.

By the Honorable Mr. Reesor:

Q. Is it fit for food? A. Yes, I should say it is fit for food. It looks very like a sea gull, and for a moment, when it hovers around you, you would ask "am I on the Atlantic?" It has the same sweep and poise as the sea gull.

By the Honorable Mr. Macdonald:

Q. Has the wavier a flat bill or a pointed one? A. I have not noticed. Some persons suppose it is a cross between the duck and the goose. It is a kind of dwarf goose I think. Wild geese are very plentiful.

By the Chairman:

Q. Apropos of the food of those animals, have any attempts been made to introduce wild rice into the streams and lakes of the North-West? A. No, no attempts of the kind have yet been made. A great mistake has been made by those who have hitherto advertised the country in making out that everything was so easy in the North-West. It has been productive of great harm. We have fine land in the North-West, but any farmer who comes in there and supposes that he can get out of that land what it should give him by tilling it in a perfunctory manner will find himself greatly mistaken. He will have to do his work well, or he will suffer for it. The notion has got abroad—and I noticed it in a book that was actually published this year, and I was very sorry to see it—that with very little labor or trouble great results are produced. That is emphatically a mistake. A farmer in the North-West must cultivate his soil thoroughly if he wishes to make money. It has been productive of no end of loss to farmers, and a reproach to the country and every man who has an interest in the country to have people taught to believe that all they have to do is to come in there and scratch the soil and have abundance of crops. Such false information has produced a state of things which is very undesirable. No man should come into the North-West thinking that he can there, any more than he can anywhere else, make a kind of idle living—that he can farm in a perfunctory way during the summer, and then go into the towns and loaf and dawdle the rest of the year and think that things will go all right. We have prairie hens some years in abundance; other years they are not so plentiful. What the cause is I am not scientific enough to say. I rather think it depends on whether the grass has been burned very low in the spring. If the grass has been burnt very low it exposes the eggs and the gophers, the natural enemy of the hen, get them. The fox and the hawk also destroy them. When the prairie grass gets burnt low it also exposes the young birds to the attacks of their enemies.

By the Honorable Mr. McInnes :

Q. Does not the fire itself destroy the young prairie chickens? A. It might destroy the very young ones. Then we have the plover, an excellent bird, which gives good sport, and we have the antelope.

By the Honorable Mr. Turner :

Q. Have you any snipe there? A. Yes, we have seen snipe there also.

Q. The golden plover? A. Yes, I have seen plover, but I cannot say with any confidence that they are in abundance.

By the Honorable Mr. Reesor :

Q. Have you seen woodcock there? A. I have never seen woodcock in the North-West. We have the antelope. They are very numerous. Some seasons you would see great herds of them at a time. The antelope is an animal full of curiosity—he has an investigating turn of mind, and I have seen large numbers of them come down and look at the passing trains.

By the Honorable Mr. McInnes :

Q. Do you know if your antelope is the same species that are found down as far south as Texas? A. I do not know that. Then we have the deer, but unless you go north they are not so plentiful. Still some are shut out in the Regina district.

By the Honorable Mr. Turner :

Q. Have you the moose? A. No, we are not near the moose country.

By the Honorable Mr. Reesor :

Q. I suppose you have the elk out there? A. Not in the part of the country in which I live. The remarks I am making now are confined to the belt of land stretching south of the Saskatchewan. When giving evidence I think it is only desirable to give evidence of what you know yourself, and that I have done.

By the Honorable Mr. McInnes :

Q. The resort of the elk and the cariboo is generally up in the wooded districts to the north? A. Yes.

By the Honorable Mr. Macdonald :

Q. Are there any Indian reserves in the part of the country you are talking about now? A. Yes, there are Indian reserves about 40 miles from Regina.

Q. Are there any reserves in which they cultivate the soil for themselves. Do the Indians farm for their own particular benefit? A. Yes, they are farming on their reserve; on the reserve for instance over which Col. Macdonald presides. When I heard those absurd statements that were made about the management of the Indians I naturally felt that if such a thing were going on it ought to be exposed; that it was in the interest of the public and in the interest of the Government that it should be exposed, and I went down myself and travelled over the reserves, and I may say *en passant* that the statements made about the food given to the Indians were not correct, in my opinion. However, I had an opportunity of observing the way things were managed, and I went over the farms of the Indians. Of course they are like children. In farming some of them show a good deal of care and industry, and have raised splendid crops. Each one has his own farm and oxen and carts and so on, and I saw four or five instances of thrift and industry and forecast, as it seemed to me, on the part of those Indians. Some of them seemed to be very industrious. Of course the greater number of them are not educated to toil. You must remember that nearly every Indian that you are trying to make a farmer of has been only a few years ago a hunter.

By the Honorable Mr. Turner :

Q. Do they get their farms measured out for themselves; each Indian his own farm? A. Yes.

By the Honorable Mr. Macdonald :

Q. Don't you think the band system or tribal system is injurious to the progress of the Indian? You say they are hunters. Do they not sit and talk over their former hunting expeditions and wars and events of the past instead of working? A. The tribal system does not prevent apparently scope being given to individual activity and ambition, and I know of instances, on Mus-cow-pe-tung's reserve, of

Indians having their own oxen individually, cutting their own hay, bringing it into town, selling it at Regina, and taking home the proceeds.

Q. But the old members of the tribes, who do not branch off in that way, but keep to the tribal system, they do not progress like those individuals you speak of?

A. These are members of the band on the reserve. These would still be members of the band, but they take the money themselves. The tribal system does not exist to the extent that they would have to give up their produce or money received for it to the chief.

Q. Then they live in the same wigwam or tent together? A. No; here is a reserve for instance, they have got the choicest portions of the North-West. You go into the reserve and one of the first things probably you will see is the house of the agency. You drive some distance and you see a house or may be a tent, but the chances are it is a house. You ask who lives there and you find it is an Indian living there with his squaw. You drive up to the farm, and if it is in the spring time you will see the squaw working very hard about the farm. You proceed some distance further and you find another lot of Indians huddled together. As I told you on this reserve of Col. Macdonald's, and also on Mos-cow-pe-tung's reserve, it is a singular thing that they manage to raise (but you must remember that theirs is the best part of the country) excellent crops—even last year, which was a bad one for other settlers.

By the Honorable Mr. Turner :

Q. The first one you came to: has he got many acres of land that he can call his own? A. He would have as many acres as would be allotted to him. I am not sure of the amount, but I think he would have 160 acres.

Q. That belongs to his family for all time to come, however, he would have no power to sell it? A. He has no power to sell it, but it belongs to himself. The whole reserve belongs to that tribe of Indians, and whenever they are fit to take up their liberty that reserve would be divided by the number of heads of families in the tribe, and would be given to them. That reserve has been set apart for that band, but at the present the sense of ownership is cultivated, and that sense of proprietorship is being developed in them. It is, however, a very slow process.

Q. It is pretty much on the same basis that we have out at Oneida or Tuscarora. The land is in the tribe, but each individual has got his own portion, which is his to all intent and purposes, only he cannot sell it. A. Yes. I am not sure that the bands there are, in a strict sense, tribes such as the Blackfeet. Pi-a-pot's band, for instance, is eclectic; he has collected it together. It has not grown there.

By the Honorable Mr. Macdonald :

Q. Are they progressing in farming? A. They are. If you consider that only five years ago they were hunters, it seems to me that they are getting on pretty well. They are very shrewd about a bargain. They drive a hard bargain, and they will come round with wood and sell. They know the value of it. They are not so savage that they will take anything that is offered to them. They know the value of the articles they sell.

Q. Within a reasonable time this band may be self-supporting and will not require this ration of beef? A. I think the bands in the reserve, in a reasonable time, ought to become self-supporting. Of course our party system throws a great deal of difficulty in the way of educating the Indian. I am not speaking as a politician or as a party man, but as a citizen of Canada, and the same thing would happen no matter what party is in power. Pi-a-pot has the paper read to him regularly. He cannot read it himself, but he has a person to read the newspapers to him, and when he hears of these ridiculous speeches, because ridiculous they are, that were made about the starving Indians, of course he pricks up his ears and says: "Hallo, we want more, and if we don't get it we will give some trouble." If you feed an Indian well, give him three good meals a day, you cannot get any work out of him. I have watched a young buck Indian with all the energy of twenty or twenty-two years of age, which you would think would make it impossible for him to remain idle, and he will sit, if he is dressed up, as he thinks, in good style, at the station utterly motion-

less, without moving any more than a statue, for five or six consecutive hours. As you have asked me this question, I say great difficulty has been thrown in the way of educating the Indian in consequence of this spurious philanthropy. The Indian should be fed well and should be cared for well. He is our ward. In my opinion the Indians are cared for well. If you were to give a white man the chances that the Indians have he would make a fortune.

By the Honorable Mr. Macdonald :

Q. Do you think the policy of the country is to encourage above everything, individual industry and the breaking up of the tribal system? A. My opinion is that they should be encouraged in industry. Are you going to treat them in a different way from the white man? Supposing a white man has a son—put it in the strongest possible way—a son who, to his great chagrin, will not work, who will not do anything that is of use to himself or his family, but will insist on idling, on being fed and clothed, and what would any father say to such a son?

Q. Kick him out? A. He would say “son of mine though you are a hundred times, you shall not stop in my house and lead this idle life.” Surely if you take a young Indian of 26 or 27 years of age, full limbed and healthy, and you find that he will not do any work, and you are giving him good rations to make him fat and strong, surely the proper thing under those circumstances is to put the only penalty on him which will at all touch the Indian, and say: “Now, if you will not work we will not give you full rations.” Is there anything unjust, unreasonable or unrighteous about that? No, it is common sense. But if that is done, your philanthropic gentleman comes along and meets this young Indian and asks him: “What are your rations?” The Indian replies they are so and so. The philanthropic gentleman says that is not enough to support a man.

Q. I suppose you have heard of the Rev. Mr. Duncan at Metlakatlah, who is the greatest Indian teacher in the whole of North America? A. Yes, I have heard of him.

Q. He will not give an Indian anything unless he works for it, except in the case of a sick man or an old person who cannot work. His principle is to make the Indians work for everything they get. The consequence is that to-day they are self-supporting and get nothing from the Government, and last year they exported \$40,000 worth of salmon alone. A. What can you do when you find a man partly animated by love of God and partly by love of party, comes along and tells an Indian that he is not getting half enough to eat, and then rushes to his hotel and writes an article for the newspaper on the terrible state of the Indians without enquiring into the antecedent circumstances of the case. The newspaper publishes it, and every other party paper of the country takes it up and there is a tremendous outcry as to the wrongs done to the country's wards and all that sort of stuff. Those things come back and are known to the Indians, and this spurious philanthropy is striking a deadly blow at the moral progress and welfare of the Indians, and everything like progress towards that which my honorable friend would aim, namely, having those people self-supporting and ceasing to be a burden on the country. I may say, while on this subject, that not a man who ever made one of those exaggerated statements about the Indians being so badly treated, has come to Regina and spoken there on the subject. Even at public meetings one syllable in the place where everything is known, never fell from their lips. I may say to the Committee we are there in the midst of those things. We are people of the same heart and blood as yourselves. Do you suppose we would for one minute stand by and see anything like such disgusting wrongs dealt out to those poor helpless people as has been described? However, I must not go into that subject in this strain.

By the Chairman.

Q. Speaking of the Indians, I would like to have some information as to the progress by the industrial schools there. Have you visited any of the Indian schools? A. Yes; I have been at the schools at Qu'Appelle.

Q. What I want to ascertain is, has education had any effect on them in making them better and more prepared to take advantage of the natural products of

the country? A. I have visited the schools—and not only visited the school at Qu'Appelle, but I have visited, in 1879, the school at Prince's Reserve, in Manitoba. I visited the school in 1879, and the schools in the United States, and I made a report on the best way of dealing with the industrial education of the Indian. I made this report to the Government, and it is a thing that I have gone into, and all I can tell you is this: that the Indian child is, apparently, up to a certain age—whether after that it stops I do not know—but up to a certain age the Indian child at school, when kept away from the wigwam and subjected to the same training as one of your own boys, would be just as intelligent, just as quick, and just as apt as a white boy. To show that it does not stop short there, this year at the Manitoba University a pure Indian has taken a high position in his class. This shows that there is no period where the expansion of intellect stops. What destroys the good of the education is this: the mother hankers for her child, and the child being allowed to go back to the wigwam the home influences are altogether antagonistic to the influences of the school, and of course when he goes back to the wigwam too young all the impressions of the school are gradually wiped away. At the Qu'Appelle school, where Rev. Père Hugonnard presides—it is one of the best conducted establishments of the kind probably on the continent of America—the children are taught various kinds of industries. There is quite a number of them there; I cannot say the exact number. They are full of intelligence and apt to learn. You examine them in their lessons and you find them just as quick and just as clever as white children. They sing songs and hymns and read, and altogether it is one of the most pleasant and encouraging sights which one can see in connection with the Indian question.

Q. Is the school open to both sexes? A. Yes; I forget the number in attendance.

Q. Some 50 or 60? A. Yes, I should say at least that.

HON. MR. TURNER—If we are not taken away from the subject of our investigation I should like to say a few words with reference to St. Albert school on the same subject. I visited St. Albert in 1883, and the children there were entirely children that have been left without parents.

THE CHAIRMAN—That is a mixed population. They are Indians and half-breeds.

HON. MR. TURNER—Yes, Indians and half-breeds. Bishop Grandin told me that their plan of procedure was something like this. They educated the children up to a certain time of life, and they then let them go away to their families. As soon as they were through with their education they were given \$200 and were let go to do what they liked, and it was found that they invariably went back to their Indian modes of living. They adopted a new plan later on, and made it a rule that no Indian should leave the mission until he was married or until she was married. He said they were not obliged to marry in that particular school, but they must marry before leaving school, and since that it has been a wonderful success. The church then had a hold over them, and by that means they got on very much better than they did before; those people were settling down to farming and the church had some control over them.

By the Chairman:

Q. Have you visited Calgary and the industrial school there? A. I was at Calgary but I did not visit the school. Father Lacombe was away, and consequently I did not visit the school. I will pass over the fifth question, on which I cannot give any information. I really don't know anything about the sixth question. I may say probably that maple seems to stand transplanting very well.

Q. It succeeds everywhere? A. Yes; that is, the ash-leaved maple.

By the Honorable Mr. Turner:

Q. Are you planting many fruit trees up there? A. No, not yet. With reference to the 7th question, I do not exactly know what it aims at. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? You do not want information as to food in times of plenty?

By the Chairman:

Q. The Committee have been informed that in some of the treaties, whether it has been put there or not, it is incumbent upon the Government to feed the Indians

in times of scarcity, and the Committee are anxious to know what foods indigenous to the country will be best to supply to the Indians, to save the importation of foreign foods? A. I can scarcely fancy henceforth a time coming in the North-West when beef would be scarce, for there is no part of it that I am acquainted with where beef will not flourish. It has been the home of the buffalo in the past, and it is emphatically a great cattle country. Of course there may come a time when wheat would fail all over the country. Under those circumstances the Indian could live on meat alone. Fresh meat is what suits him best.

Q. I desire to say that perhaps I have failed to express myself properly. The Committee have been given to understand that up to the time the buffalo had decreased so as to be practically extinct, that they supplied abundance of food. Since that time they have had the native foods—berries, fruits, &c.? A. The best food for them is a ration of fresh meat or bacon and bread. I think that in all cases the agents should be urged, or made in fact, to teach the Indians how to make bread. If they do not make the bread properly—if they just mix the flour with water, as they frequently do, they make a kind of stuff that no mortal entrails could digest, in fact not even what Horace calls the “guts of reapers,” and so they ought to be taught to make the bread with those additions, which enable it to be dealt with by the gastric juice.

Q. They could be taught the use of the native hop? A. Yes. I have thought—it sounds like a joke, but I do not intend it as a joke—that really they might have a small reward offered them by agents for catching gophers, and these gophers white people have lived on them. The Indians themselves eat them. They string them up with their geese and ducks and what not, and they make pretty good food. I think a small reward might be given to them for killing as large a quantity of gophers as possible, and a sort of pemmican might be made of the gopher flesh. In regard to that, some sentimental philanthropist would get into a state of fury and dithyrambic madness from this, and the hand of the Government might be stayed; but in my opinion this would be a good thing to do, for in the scarce year the gopher would be plentiful.

Q. How do you account for that? A. Because he would be one of the causes of the scarcity. For instance, last year, one of the causes of the destruction, if the simoon had left it to come to anything, the gopher would have destroyed what the simoon had left, because with the gopher himself it was hard time, and although it is not usual, he actually went to the wheat stem and chewed the stalks and sucked out the juice for want of moisture.

By the Honorable Mr. Reesor :

Q. In confirmation of what Mr. Davin has stated, I may state that in southern Manitoba, about the Pembina Mountains, the farmers through their municipal authorities have offered rewards to the people for killing gophers, they are so destructive to the crops; and it certainly would have a good effect, as it would prevent the destruction of the Indian's crops also, so that there would be two advantages gained if the Indians could be induced to destroy the gopher? A. They would be swept out of the country, and those killed, their flesh could be made into pemmican.

By the Chairman :

Q. Gophers feed entirely on vegetable food? A. Yes.

By the Honorable Mr. Reesor :

Q. They ought to be as wholesome as the rabbit? A. The flesh is as delicate as that of the rabbit. In Paris during the siege a French cook has often given a man at the Café Anglais rat as a puree, and he has enjoyed it. Now as to the eighth question, Which of the indigenous plants can be materially improved in quality, quantity and size by cultivation, grafting or budding—I have practically answered that question already. I think it would be a very interesting experiment if the saskatoon berry were grafted on currant trees, and if the currant were grafted on the saskatoon trees, it might result in producing a new variety.

By the Honorable Mr. Turner :

Q. At all events you think it worth trying? A. Yes, it is worth trying. As to the ninth question, What grains, grasses, fruits, roots and vegetables will yield the

greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits, I would say, that the grains which would afford the most profitable results under such circumstances would be wheat, barley, oats and Indian corn. In regard to Indian corn I may say we can grow it there, but up to the present, with the exception of one or two favored efforts, it seems to be a dwarf, although a very delicate product.

By the Honorable Mr. Kaulbach:

Q. From the indifferent tillage which the Indians would give it, it is one of the very last things, I suppose, you would expect to get a crop from? A. Yes. I might qualify my answer in this way: of course corn could not do well with indifferent tillage; but as a fact the tillage of the Indians is not indifferent, because they have a farm instructor who makes them do their work pretty thoroughly. As to fruits, I think we could cultivate the saskatoon, currants and gooseberries.

Q. Do the saskatoon berries grow in clusters like the currant? A. I think so. Every kind of potatoes, squashes, and even melons can be grown easily.

By the Honorable Mr. Turner:

Q. And tomatoes? A. I do not know about tomatoes, but cabbages and cauliflowers are easily cultivated there. These latter of course the farm instructor can tell the Indians how to do it. They aim at something better than indifferent tillage. As to the 10th question, With which varieties of fish is it desirable to restock the denuded lakes and streams—the whitefish is the fish I would aim at.

As to the 11th question, at the time of the transfer of that country to Canada what was the food of the Indians, and what were the rations allowed by the Hudson Bay Company, &c., so far as my reading goes, the food of the Indian was the buffalo that he got in his hunting expeditions—the buffalo and the antelope, and the fish caught in the rivers; and I understand that pemmican was what the Hudson Bay Company supplied them with. This is, however, merely secondary evidence. As to the 12th question, what are the best means of preserving, by canning, drying, smoking, salting, freezing, pemmicanizing or other process, such of the natural food products of the North-West as I am familiar with—that is a scientific question about which I know nothing. As to the questions in the memorandum attached to your list, the maple seems to me to be the best adapted for treeless districts.

By the Chairman:

Q. What variety? A. The ash-leaved maple.

Q. Is sugar produced from that tree? A. I do not know.

Q. The Committee have looked upon this question, the trees best adapted to treeless districts as being very important, and if you can tell us of any experiments that have been made, and what trees you have actually seen transplanted, and with what result, we will be glad to hear of it? A. We have transplanted the maple with apparent success. Of course you cannot tell until we have had a few years trial. Where the maple is transplanted carefully so as to give it a chance it seems to succeed well, but we have not had sufficient experience yet to speak with any confidence. Of course if you transplant the maple to the shores of a river there is no difficulty about it; it will grow in the North-West as well as anywhere else—or any other native tree under such circumstances. But when you transplant it into the open prairie, which is the experiment we have been making, the great enemy of the tree is the wind that sweeps over the prairie. A wind comes up which at times you would think would shake down all before it. It has taken a start right over the Rockies and has increased in velocity as it came along.

Q. Have you known any experiments tried with any varieties of the poplar, say the cottonwood? A. I have, and an apparently successful experiment. There can be no doubt about the success if we get plenty of moisture. A tree, like almost every other plant, is composed mostly of hydrogen, and the great thing is to get water; if we get plenty of water the tree will flourish even in spite of the wind. I may say here with reference to that, the thing for farmers—I am not a practical farmer, but I have been now in communication with farmers for five years, hearing their sorrows, thinking over their affairs, and my judgment, so far as it is worth anything, and my judgment

on farming would be as good as on anything else—the one thing to solve in the North-West is the conservation of all the moisture possible and to break off the winds. I should like to see an experimental farm established on the plains for tree culture of every kind, on the principle of having fences as we have them in the Old Country, but if anything a little higher. The result of having those fences would be that the snow would lie, as you are aware with us the snow will not pack—it will not lie. You may have a bank of snow ten feet high to-day on a piece of country, and to-morrow it will be all gone, because it is as fine as sand and goes with the wind. You will see a piece of prairie perfectly denuded of snow in the midst of the winter. I have thought if our farmers would build fences or throw up what we call in Ireland ditches and throw up the sods four or five feet high, or two feet high, according to taste, it would be a protection. A bank of two or three feet would break the wind, and the snow would lie there until the thaw came, and we would get the moisture there was in it for every kind of agriculture, and for tree planting that would be a great advantage, and I would like very much to see Mr. Carling have an experimental farm of a cheap character established on the prairies to bring in new methods and amongst others this method of having fences made out of the soil in order to break the wind. Supposing you want to grow a tree, the young tree will grow for two or three years. It looks flourishing. It stands up all alone, naked to the blizzard, and the blizzard comes along with a force that you would actually think would take up an army in its arms and fling it aside. That little tree bends and crouches to the blast in the most pitiless manner and the chances are it is torn up by the roots.

Q. As a wind break you have mentioned two varieties, the ash-leaved maple and the cottonwood; have you seen the aspen tried? A. I have not.

Q. Have you seen the balsam poplar tried? A. I have.

Q. With what success? A. I think with success. Mind you when I say with success it is always qualified by the fact that we have not had time to know whether it is an actual success or not. We require to have six or seven years' experience to know whether it is to be a permanent success.

Q. Any of those trees would form an admirable windbreak in summer? A. Yes, if you plant them thick enough.

Q. Have you known of any variety of evergreen, grown for a winter break? A. No.

Q. Have you known of any kind of evergreen indigenous to the country, to have been tried on the prairie as a windbreak? A. No.

Q. Do you know of any foreign tree which you would suggest to the Committee as a windbreak to that country? A. I do not, but I suggested to Sir David Macpherson, some time ago that somebody should be sent to Russia to see what kind of trees have succeeded there under conditions similar to those we have in the North-West.

Q. That is on the steppes of Russia? A. Yes. There is no doubt whatever about the cultivation of the hop.

Q. Where have you seen it growing? A. I have seen it growing in the North-West with success.

Q. Can it be cultivated anywhere in the North-West? A. My impression is that it can.

Q. Would it be a kind of cultivation that you would recommend the settlers and Indians to undertake for purposes of shipment to the east? A. I do not know. I have seen it tried by our farmers. They grow it very successfully.

By the Honorable Mr. Reesor:

Q. It grows wild there? A. Yes, it grows wild there. I have also seen tobacco grown successfully in the North-West.

Q. What kind did it produce? A. I do not know. I saw that it had a luxuriant leaf, that is all. I did not smoke the cigar into which it was manufactured.

By the Chairman:

Q. What do you say as to the cultivation of hemp and beets? A. I do not know about the hemp. I think I have seen it grown there. As to the sugar beet I

do not know anything about it. As to the balance of the question, I believe that nearly all those things are to be found in great abundance in the western country. One thing I had intended to do if our session had not been so late, was to bring before Parliament the suggestion that one of the things which should be done at once by the Government is to send out a boring expedition—not an expensive expedition but an adequate staff to bore the country and see what is in its bowels. I venture to say that there is any amount of incoherent wealth that as yet we do not know anything about in the North-West.

Mr. JOHN TILTON, Deputy Minister of Fisheries, appeared and was examined by the Committee as follows :—

The CHAIRMAN—I think we should not confine Mr. Tilton precisely to the questions on our list owing to the shortness of the time at our disposal, but we should allow him to give us information on the subjects with which he is acquainted, and which he thinks will help the object of this enquiry.

Mr. TILTON.—In reply to your suggestion as to the latitude you have given me, I may say that the notice to appear before your Committee reached me at such a late date that I have confined myself entirely to these questions which relate to the fisheries, and as the answer to one largely comprises the answers to the others, I have thrown together some data which with your permission I will read, and will then answer any question which the Committee would like to ask me. The knowledge of the piscine wealth of Manitoba and the North-West Territories has in the past been largely derived from the works of Archbishop Taché thereon, and more recently the reports of Canadian fishery officers have been added thereto.

Owing to the large extent of the country it is almost impossible to give accurate statistics of the value of these fisheries, but the latest information estimates the annual yield and value of the fish caught in the above named Provinces at about \$200,000. If to this be added the quantity, which is large, consumed by settlers and Indians this amount may safely be increased to \$500,000, or thereabouts.

The principal kinds of fish taken are the whitefish, pike or jackfish, sturgeon, tullibee or lake herring, suckers and the various kinds of siluridæ.

The returns of the Winnipeg Custom house establish that the exports of fish for the year ending 31st December, 1886, were 1,509,149 lbs, valued at \$454,350. These are all exported to Chicago, Detroit, Buffalo, St. Paul and other cities in the United States. All the fish named above are suitable for planting. This can be done either by carrying them alive to suitable waters where they will thrive and breed, or by means of artificial fish culture such as is now successfully carried on in other parts of the Dominion. Among the species which I consider most suitable for the latter purpose, I may mention the salmon trout, the bass and the German carp. The latter is especially valuable as a food fish, being easily cultivated and will thrive in almost any water. Salmon trout are so well known that it is unnecessary to point out the advantages which could result from their being planted in Lake Winnipeg, Manitoba, and other large bodies of water in the North-West. Bass is a valuable game fish which could easily be introduced into a myriad of lakes adapted for that purpose. Similar experiments have been attended with success in the neighboring State of Minnesota and I see no reason why the same thing could not be done in Manitoba and the North-West Territories.

Q. It was stated to the Committee the other day that as a result of the efforts of the American Government to stock the upper waters of the Red River and Mississippi that some of the species, the horned perch for instance, had been caught down near Winnipeg; that the other varieties, brook trout, &c., had been caught as far down the river as the Ottortail, which is a source of the Red River, and which is fed by springs; but none were seen when it became muddy farther down. Have you any knowledge of what they have been doing in similar waters? A. I can only speak in general terms. Both in the United States and in the Dominion the results of

piscine culture are being very much more satisfactorily received than they have been in the past. There has been a good deal of scepticism about the proof as to where and under what circumstances those fish returned to the waters in which they were originally placed, but I might mention to the Committee that it is held distinctly with reference to salmon—and I am not at all sure why it should not apply to other fishes but the scientists have not yet been able to fix them—that ova taken from a particular fish from a particular tributary of the Restigouche River, the young fry from that ova, when they come back to the river, will find their way to the particular tributary of the river from which the parent salmon was taken. Last week I was informed by telegraph that for the first time in the history of the Department fifty-two young salmon, ranging from six to eight pounds each, were offered for sale in the St. John market, having been taken from the St. John River. In view of so exceptional a circumstance we can come to no other conclusion than they are the growing fish from the fry put in the St. John River during the last five or six years. They find their way back to the river where they are put in. The means at present adopted by the Fisheries Department with regard to the protection of fish in Manitoba and the North-West Territories consist in:—

1. Regulations for their protections during the breeding period.
2. The employment of fishery officers at places and at times where most needed.

The close seasons now in force are as follows:—

Whitefish—5th October to 10th November.

Sturgeon—1st May to 15th June.

Pickereel—1st April to 15th May.

Speckled trout—1st October to 1st January.

The mesh of nets is regulated so as to admit of young and immature fish escaping through the same. Mill dams must be provided with fish-ways, so as to enable fish to overcome these obstacles in their ascent of rivers. Before passing from that subject it seems somewhat absurd that the Government should be spending money to restock the rivers and lakes, while the terrible illegal destruction of fish that has been permitted in the past is going on. While my own observation has been in the direction that a great deal can be done in restocking depleted waters I am strongly of the opinion that very much more can be done if natural spawning grounds of fish are vigorously protected during the spawning season. We have met already in the two years that the Department has been pursuing its operations in Manitoba and the North-West with great difficulty in that respect. The first is that the Indian Department demanded of us and which demand the Minister, after conference with the Right Hon. Sir John Macdonald, acceded to, to allow the Indians to fish during the close season for food. We suggested the restriction that they should not be allowed to fish for purposes of sale or barter, and that their fishing should be limited to one net per family and for food purposes only. But even that is a great pity, because the female fish that they kill during the close season, every one of them is full of spawn, and the Indians are just destroying the supplies. The Indian Department urged upon us on the other hand that if the Indians were not allowed to fish for food during the close season the Government would have to provide food for them in another direction. My reply to that was that I am not at all sure it would not be cheaper for the Government to furnish them with the necessary food during the close season than to destroy the source of supply for future years. Now, in all those rivers in which we are operating in the direction to some extent of planting fry and maintaining an efficient guardianship, the result is all that we could ask. But the moment you permit the natural haunts of those fish to be netted and fished during the close season, honorable gentlemen will understand that it can have but one result. I have had an instance here on the 24th of May last, which will perhaps be interesting to the Committee. I had a delegation wait on me from the Fish and Game Club of Montreal who were very determined in their opinion that our close season for bass, the best sporting fish we have, was entirely wrong, and that we had gone too late in the season. I answered from the best information the Department had that our close season was right, and I was not disposed, unless they could produce some evidence stronger

than that which I had before me, to shorten the date. On thinking the matter over, however, I concluded to recommend to the Government to suspend the operation of the close season regulation for the 24th May, and allow the club and the public to fish on that day.

Q. And that got over the difficulty? A. No, it did not get over the difficulty, but it accomplished the end I had in view, to give the applicants a chance to fish on the 24th of May, this being jubilee year. They destroyed any quantity of fish. I have been since told by the president of the club that they would never again ask to be permitted to fish during the close season. I asked why. He said: "The sportsmen were rather ashamed of themselves; every female bass they took was full of spawn, and you will never be troubled in the future about permitting the Fish and Game Club of Montreal to fish before the Queen's birthday." That settled the question.

Q. Are the Committee to understand that while this was a jubilee day for the fishermen, it was not so for the fish? A. It certainly was not so for the fish.

By the Honorable Mr. Turner:

Q. We have learned that an immense quantity of fish is taken away from Manitoba every year and shipped to the United States? A. Yes, it is a fact, and this year we have prohibited the use of pound nets, which will limit the export. There is no clearer illustration that I can give you of the fact than the result of the mackerel fisheries on the Atlantic coast. The spring fisheries this year have been a total failure. The American fleet has now arrived back in Portland, and their average catch has not been forty barrels each. The same argument applies to the inland as well as the sea coast fisheries; that is, unless the parent fish are in some way protected it can have but one result—annihilation.

By the Chairman:

Q. Last winter it was found that at the rapids on Red River, the only piece of open water on the river in the winter season, parties had planted stakes all the way across, making a sort of wing dam, net or pound, and we were astonished in Winnipeg at getting all kinds of fish at that season of the year at prices that were almost given away. We quickly learned that the fishery officer had investigated the matter, and it resulted in the complete destruction of this enclosure, and a comparative scarcity of fish in the market. If this had gone on, every fish in the river would have been destroyed in a short time? A. We have one very wise protection in the law, that is that no net or seine, or any contrivance that will bar the entrance of the fish to the mouth of a river is permitted to be set within three miles of the mouth of a river on either side. That enables us to give the fish some little chance to get up to their spawning grounds. There, of course, the angler takes charge of them after they arrive.

Q. You have no such provision with regard to the lakes of the North-West? A. The little inlets to the lakes would scarcely come within that regulation, but we cannot, of course, control their fishing there, but we can prohibit them absolutely during the close season. No nets can be set so as to entirely bar channels or bays. The use of explosive materials to kill fish is prohibited. Pound net fishing is not allowed. In addition to the above restrictions a general weekly close time, from Saturday night until Monday morning is provided. The practice of throwing sawdust and other mill refuse into the water is prohibited as being injurious to fish. These provisions of the law are strictly enforced, and great benefits have already been derived therefrom. The Department has a general Inspector of Fisheries located at Winnipeg, with assistants at Qu'Appelle, Long Lake, &c., &c. A large staff of guardians is employed during the breeding season of whitefish on Lakes Winnipeg, Manitoba and their tributaries, and it is intended to station additional men at other places, whenever the protection of fish require it.

The best means of preserving fish are by freezing, smoking or salting them. There is at present a large trade in frozen fish carried on by firms in Manitoba who export them to the States. This business is susceptible of greater development, but it is not deemed necessary to make any suggestions on this head. Fish dealers as a rule, are sufficiently alive to the requirements of their trade to adopt for themselves

improved means of taking and transporting fish whenever it is found in their interest to do so. With judicious protection the natural supply of fish in Manitoba and the North-West Territories ought for many years to come, be equal to the demand upon it for home supply, besides admitting of the very considerable export.

By judicious protection, I mean a rigid enforcement of the regulations under which fish are caught and absolute observance of the close seasons. It has been urged upon the Department of Fisheries that it is a necessity that the Indians should at all times be allowed to take what fish they require, but to the advisability or necessity of this proposal, I cannot accede. The importance of protecting fish during the spawning season must at once be apparent, and the Indian population might soon be educated to this necessity, as well as to catch during the open season and dry a sufficient quantity of fish to last them during the close time.

I just have a report from Long Lake as well, where we have an officer exploring the lake at different points, and the question of the export of course, which limits the trade to just the extent that we limit the fishing. The Government may find it necessary to provide the Indians with food, and if indiscriminate fishing is permitted to go on either by the Indians or by other persons for traffic, why all the efforts of the Department must result in a want of that success that we hope will attend them.

By the Honorable Mr. Turner :

Q. But you would not do away with the exportation? A. Certainly not; but the pound net should not be used. It is almost impossible for any fish to escape the pound net.

Q. In broad lakes would it not be reasonable to use them? A. I have grave doubts about even the propriety of that. The fish in finding their way along the shore strike this lead and go into the pound net, and are taken out in thousands at a time.

By the Chairman :

Q. The Committee have been learning gradually from the evidence before us that we have in the North-West use for all the fish which the lakes of that country can produce. As you are aware the buffalo country proper is sparsely supplied with lakes and streams, and the immense quantity of food furnished by that district in buffalo meat, has passed away, and all the fish of the watered districts of the east and north might be, so far as we can learn from the evidence before us, used in supplying the Indians in the west. Apropos to that, we might ask you whether, in your opinion, whitefish caught at the proper season by Indians themselves in Lakes Manitoba, Winnipegosis and Winnipeg, could not be dried and preserved in their way long enough for transportation to the North-West and there used as food for those Indians? A. Before finishing I was going to take the liberty of intimating to the Committee that it would be very gratifying to the Department if the Committee would consent in any report that they may make to strengthen its hands in reference to the strict observance by all classes of the inhabitants of the close season. I see no reason why by a little forethought on the part of the Indians they could not take and dry a sufficient quantity of whitefish at the proper time to furnish them with food during the close season. If they were once given to understand that the regulations would be enforced and that they must provide themselves beforehand with a sufficient quantity of fish to carry them through the close season, it seems to me they would do it, and that done, and the close season enforced, I have no doubt that the waters of Manitoba and the North-West not only would amply supply the demands upon them, but give you a large quantity of fish for export.

By the Honorable Mr. Macdonald :

Q. How long does the close season last? A. From the 5th of October to the 10th of November—only a month and five days.

By the Honorable Mr. Kaulbach :

Q. Is that regulation confined to any particular district? A. It is different in the Province of Ontario; it is during all the month of November, from the 1st to the 30th.

By the Honorable Mr. Turner :

Q. Of course you have no control in Manitoba? A. Yes, we have all over the Dominion.

Q. I thought in Ontario this matter was controlled by the Ontario Government?

A. The Ontario Government can only exercise their rights subject to the rights of the Dominion Government.

Q. You have absolute control as to the close season? A. Yes. The Federal Government has authority over any waters in British Columbia, the North West Territories or Manitoba, and may set them aside by Order in Council for the purpose of propagating fish, and the riparian proprietor can only exercise his right subject to the regulation of the Federal Government.

By the Chairman :

Q. In what parts of the Hudson Bay country have you officers to report to you? A. The principal officer is at Winnipeg—perhaps you know him, Mr. McQueen, and the other officer is at Qu'Appelle, Mr. Gilchrist. The other officer is at Long Lake, and these overseers have authority to employ from time to time special guardians as they may find it necessary. Those are the only permanent officers we have.

Q. Have you none in the direction of Hudson Bay? A. No.

Q. Have you anyone looking after the lakes north of the Main Saskatchewan?

A. No, but I think Mr. McQueen has been there.

By the Honorable Mr. Turner :

Q. They say enormous quantities of fish come from Lac Labelle? A. So I believe

By the Honorable Mr. Reesor :

Q. Have not the Manitoba Government authority to prohibit the exportation of fish if they choose? I see they have prohibited the exportation of prairie chickens? A. Yes, they have the right to prevent exportation. They found it necessary two or three years ago in New Brunswick to prohibit the export of partridge, as they were rapidly becoming extinct; now they are increasing very quickly.

By the Chairman :

Q. Then the Manitoba Government would have the right to prevent the exportation of fish? A. Yes, the Manitoba Government would have the right to prevent the exportation of fish.

Q. You were going to read a letter from Long Lake; will you please do so now?

A. Yes; this letter is dated 13th May.

SUSSEX, N.W. T., CRAVEN P.O., 31st May, 1887.

JOHN TILTON, Esq.,
Deputy Minister of Fisheries,
Ottawa.

DEAR SIR,—I only a few days ago finished my inspection of Long Lake, and now beg to report as follows:—

Though the water is not as deep at the head of the lake as it is at the centre and foot, there appears to be the same quantity of whitefish.

We caught whitefish at the different points, commencing about half way up, and then at the stages, say from 10 to 15 miles around the head of the lake to about half way back on opposite side from starting,—and lastly on the grounds where all the fishing is chiefly done, *i.e.*, at the lower end.

The only tributary I found to supply the lake to any extent with water is the Little Arm, and from appearances it will become dry very soon, as it generally does during the summer.

In the Little Arm I found pickerel, pike and suckers in large quantities. I found a few small streams running into the lake near the head, but I should judge they would soon dry up. There are a great many sand bars and rocky shoals at the upper end, and I have reason to believe that whitefish breed largely in that district.

In this connection, since making careful enquiry and gathering all the information possible from the fishermen who have fished Long Lake, I beg to suggest a close season (especially for Long Lake) for whitefish, which will differ materially from the present existing regulations.

The present close season dates from 15th October to 10th November. I would suggest that the season should close on the 25th December, and date back 35 or 40 days from that time for the beginning.

By this means these fish will be well protected, for the double reason that nearly all the whitefish that are caught for the market are caught during the period I suggest, and that the fishermen admit that they can only then catch them on their breeding grounds, and not out in the deep water.

A few whitefish will be caught previous to the 15th November (if that date should be fixed for the beginning of the close season), but not liable to be caught on their breeding grounds, consequently not the slaughter that would take place later on.

A very few might be caught containing spawn between the 25th December and 1st January, but I may say really none after the 1st January.

I would strongly urge that your Department take this suggestion into consideration, and arrange for a change before the fishing season of this fall and winter.

I would further recommend that Long Lake be stocked with sturgeon and black bass. The lake has plenty of capacity, and I have no doubt these fish would prove a success should the experiment be tried.

I am told sturgeon are quite plentiful in the Assiniboine, near Fort-Ellice.

I am, Sir,

Yours very truly,

(Signed) O. T. STONE.

I may mention with reference to the close season, we are not quite certain that the Department is correct in the close season established. It was changed in deference to the wish of very strong representations made to the Minister of Marine and Fisheries last fall. I am sorry that Mr. Burrows is not here, because he was one of the leading spirits in that matter and I would like him to hear this letter. Under the Government regulations the Government have a right to change the close season from time to time as necessity may demand, and if it is found that these close seasons are not quite the correct dates, early steps will be taken to change them. Mr. Stone suggests with reference to Long Lake, "I would suggest that the season should close on the 25th December." From observation there, the close season as it stands today, the 10th November, is not long enough, and the close season as we originally had it was the first of December, and it was only through the representations made to the Minister at Winnipeg that he was induced to change the date. The observation of this officer would lead to the conclusion that the Department was nearer right in its original close season than it is now. Last year I had whitefish sent to me, taken from Long Lake on the 10th December and found full of spawn. That, coupled with the letter of Mr. Stone, which I have just read, led to the conclusion that the season should be extended to at least, as he says, the 25th of December, and this is a very important point.

Q. Might there not be an explanation of this in the fact that Long Lake is some distance west of Manitoba and the isothermal line runs rapidly north in that region, and the season at Long Lake might be later than at points further east? A. That is claimed in Ontario and Quebec and claimed for shellfish on the coast of Prince Edward Island, and as the honorable senators from Nova Scotia will know, it is claimed on the coast of that Province also. But the difficulty is this: the law provides that fish shall not be sold unless a legal excuse exists therefor. It would be impossible under those circumstances in the North-West Territories or Manitoba for the Department to have half-a-dozen close seasons. What we have done in Ontario was to take reports from our two hundred officers and then select what we considered was the fairest average date so as to get over the other difficulty, because, while say that one lake had one close season and another lake another, if a seizure was made for taking fish in the close season, said to be illegally in possession of the fishermen in this district, he might swear that he got them perhaps within two miles of where he was fishing and the law would hold that to be a legal excuse, so we have found it impossible to enforce a number of close seasons in waters closely adjoining. The angler

has no regard whatever for the interest of the poor fisherman, and the poor fisherman has no regard whatever for the interest of the angler. The lobster packer's chief interest is to take lobsters, and his views will be governed by his interest.

Q. Is it the intention of the Department to accede to the wish of this officer at Long Lake? A. I cannot say to what extent. We are now corresponding with the superintendent of fish culture with reference to the introduction of the German carp into those waters.

Q. From what waters do you take the supply of spawn for black bass? A. From the Ontario waters, wherever we can get it best. Bass thrive in almost any of those waters, and the spawn season is now almost up.

By the Honorable Mr. Turner :

Q. Do you take green bass as well as other kinds? A. I should prefer black bass; they are more gamey and a better fish altogether.

By the Chairman :

Q. Do any of your fish-breeding establishments furnish spawn of the sturgeon? A. Not yet.

By the Honorable Mr. Reesor :

Q. Can you furnish spawn for the German carp yet? A. We are making arrangements now by which we might probably be able to get it from the United States Government.

By the Chairman :

Q. The Committee would be interested in having a list of the fish furnished from the hatching establishments at present? A. They are principally whitefish and salmon trout with some pickerel, and on the Atlantic coast wholly salmon.

Q. We are more interested in the freshwater fish? A. Those are principally whitefish, salmon trout and pickerel, with some brook trout.

Q. Have you any black bass yet? A. There is no black bass yet. To have them we require to have a special pond in which to keep them, and we have not had the facilities up to now. We are making a move in the direction at Newcastle now for a pond in which to keep them.

By the Honorable Mr. Turner :

Q. Black bass require a rocky bottom, do they not? A. Yes, and clear water.

By the Honorable Mr. Reesor :

Q. Would they do as well in small lakes as large lakes? A. Yes. I do not think the area of the lake makes much difference.

Q. Do they not require other fish for food? A. Yes; they feed on the small minnows.

By the Chairman :

Q. Would not that be an objection in placing them in the North-West? For instance, what would they do with the small whitefish? A. Mr. Stone, who writes this letter, is not a scientist in this matter, and before deciding as to the waters in which these fish should be placed, it was the intention of the Department to send Mr. Wilmot, who is superintendent of fish culture, to make an examination of these waters and of the bottom of the lake.

Q. Would you ask Mr. Wilmot to look at other waters in the North-West also? A. I would be very glad indeed to do so.

Q. There are a number of lakes north of the North Saskatchewan, large in extent, and which are mentioned in a communication which has not been read yet? There is Round Lake, Moose Lake, Cross Lake, and others, all of which are large in extent, and if it should ever be the intention of the Department of Indian Affairs to place the Indians of the southern regions up near these lakes, it would be well worth while to take early action to look after the fish that is in them and to ascertain what can be supplied to them? A. Anticipating the points that I think you have just raised, the Department has asked the Interior Department that in all their grants hereafter bordering upon the lakes reservation should be made of the fisheries' right. The Government feel that it was a necessity that they should control it. The position in the Lower Provinces to-day with reference to salmon fishing is a very unfortunate

one. The Provincial Governments have the right to the fisheries on the rivers and they lease that right of the fluvial portion, while the moment you strike tide water the Dominion Government has the right to permit any number of nets they choose to be set in the estuary. If they choose to pursue a selfish policy in that matter you can see the result; the fluvial portions of the river would be useless for fishing purposes. Future conflicts of that character I think will be avoided, in fact grants that are to be made of lands in the North-West Territories, the fisheries' right will be reserved.

By the Honorable Mr. Turner :

Q. On the rivers as well as on the lakes? A. There will be an absolute reservation of all the fishing rights.

By the Chairman :

Q. Have you had a communication from the Department of the Interior which leads you to believe this will be done? A. I have.

By the Honorable Mr. Reesor :

Q. Then again it often occurs in our small ponds and lakes in some parts of Ontario that when the cat-fish get into a body of water of that kind, it is supposed that when the trout and bass swallow the young cat-fish they are destroyed, the young cat-fish having horns on them. Have the Department any knowledge in regard to that matter? A. No; except that we have to be very particular in selecting the waters in which to place the fry of different fish. Pike and pickerel—pike especially—are known to be very destructive fish, and there is no use putting the speckled trout or whitefish in waters where they exist to any extent. We have at the exhibition here some thousand or two thousand of young trout and about fifteen thousand salmon trout that are five or six weeks old, which were brought from the Newcastle fish breeding establishment.

The Committee adjourned until to-morrow.

OTTAWA, TUESDAY, 14th June, 1887.

The following communications were submitted to the Committee:—

ST. PETER'S INDIAN RESERVE, 6th June, 1887.

The Secretary of the Native Food Committee of the Senate.

SIR,—In reading over the newspapers I noticed a subject which you introduced in the House of Commons of the Dominion.

You are advocating for the most beneficial and indispensable requirements of the country. That of enquiring into the natural food products of Manitoba.

Before I answer the questions of the Committee, I will give you my opinion on the present method and action of our Government in providing for our race. We read of the vast sums of money expended on our behalf, in feeding or supplying us with means of living or bettering ourselves; but these vast sums of money fail to supply the wants of the Indians. These Indians located on the bare and barren plains, will never be self-supporting, but will die out with starvation, cold and disease; they were hunters from their infancy and they have not the prospect of helping themselves by hunting fish or game, because they live upon a plain, where there are no lakes and forests or full of game and fisheries, that part of the country lying north which abounds in numerous lakes, rivers and vast forests, and those lakes swarm with fish of every varieties. The rivers and forests abound in abundance of game, such as moose, deer, beavers, lynx, otters and every other species of animals; and rabbits and deer migrate over all parts of the north country. The numerous inland lakes are in summer time full of fowls of all kinds. The gulls and wild geese there could be raised for domestic purposes. The fowl exist in every description, which the natives kill and consume and sell the feathers. If the poor Indians of the plains were removed down to these parts, it would be the most advantageous method of furnishing them the means of becoming self-supporting; it would give him spirit and kindly that desire of bettering himself, with hunting game and furs to clothe himself and his

family; but to be left on a barren desolate plain, where a few groves of poplar and ponds of water exists. On their wretched reservations they will be ten times taught to be indolent and doze away their existence till they die out and after having incurred a vast expenditure on the Government, no good shall be reaped, but by only those persons whose interests it is to keep them on the spots on which they are located, as to enable them to keep their positions and salaries. It matters not much to themselves as long as they fatten on their salaries where and how the native Indian exists.

I have seen the country from the Saskatchewan down to Lake Superior and have sketched a good few reservations en route on the Dawson road, and never saw so poor and desolate places; and I know the reserves on the plain. Some of the Indian Reserves are deserted. We heard so from Charles Pratt, of Touchwood Hills, several chiefs wrote to my father on this subject. If the Indians of the plains were to be removed or were going to be removed to these fishery lakes and north country. The Indians living at present at these parts are few, and being of the same race could have no prejudice I am certain. Proper persons would be appointed to see that they desire such change. It is a known fact that all the swampy Cree tribe are a law-abiding race and are nearly all christianized. I will now answer the questions by my own experience on the capacity and capability of the country.

1. The wild rice is known to grow wild in that part of the country lying eastward of Lake Winnipeg; thirteen or more rivers whose streams run down the Lake Winnipeg are the rice-growing streams, as far as Poplar River, a little beyond this side Norway House, and all the country eastward of Lake Winnipeg to Rainy Lake district, is the rice-growing quarter. Many lakes and streams are full of it, the creek (commonly called Joe Cook's creek) running in one reserve of St. Peter's, is quite loaded with rice, but we never gather any of it.

2. The waters or lakes and streams down in the north parts of the country to the Hudson Bay to eastward is full of numerous fisheries: such fish as sturgeon, trout, catfish, pike, whitefish, perch, goldeye, and other species of fish. In the spring of the year you can see myriads of various fish go up the rivers and creeks to spawn in the inland lakes; they return in the fall to the large lakes again. All these various fish herein mentioned are good for food. Lake Winnipeg, Lake Manitoba and Winnepegosis, Cross Lake and other lakes northward and eastward all abound in good fisheries. It has been known that the wild geese and ducks, gulls of large kind, have been domesticated and brought up with hens in this settlement. The muskrat, if spared, would prove good food and as a fur-bearing animal for the Indians; they breed twice a year. The plant or root eatable and fit for food is the ground turnip which grows in the plain; there is some of it found on the plain out back of Winnipeg City, near the Stony Mountain; but it grows plentiful on the plains of Fort Ellice, Qu'Appelle Lake and Touchwood Hills and thence onward to the Saskatchewan. The Crees have it as one of the most principal foods; they beat it into powder like; it looks like flour, and makes delicious soup with meat or berries. The wild carrot grows on low swampy ground, but it is only good to eat in springtime. The wild potato grows in abundance in the black-looking soil in the various parts of this Province. Though eaten by some Indians, it is only fit for hogs.

3. I don't think any of these roots could be transplanted with success on account of the nature of the roots, being so entirely hard to cultivate. The seed of the wild turnip could be gathered and then sown on the plains on sandy soil.

4. I find from my own observation that all the denuded districts where formerly all kinds of fish and game abounded, should be spared from the destructive hunters, and that part of the district would soon increase in fish and animals: for instance, if the beaver was left alone on the east side of Lake Winnipeg, and the deer, they would soon increase in abundance; and if the rats were allowed to breed, they would soon furnish the natives with food and fur; and if the rabbits were allowed to roam, they would increase; the skunk and badger, if spared on the plains, would furnish food also to the Cree Indians.

5. The maple sugar tree, wild plum tree, stoneberry tree, and blueberry tree could be transplanted. These trees furnish food to the Indian, and they grow all throughout the Province, and they can be transplanted in any part of this Province, Swan River, Red River, Lake of the Woods, Lakes Manitoba and Winnipegosis; and other parts are plentiful of the sugar tree, and the natives make quite a quantity of sugar every spring. All the western shores of Lake Winnipeg could be successfully planted with these trees mentioned herein.

6. The transplanting and re-stocking and adding to the indigenous food supplies could be best effected to make experiments first of the various plants, &c., on the various places selected, and when once found out, that the ones planted came on all right, the cost of transplanting could be found out by the distance and labor which would have to be encountered.

7. The cheapest food in my opinion is the fish, wild rice and vegetables, such as potatoes and turnips, which the Indians cultivate themselves on the shores of Lake Winnipeg. If the Indian is supplied with twine for fishing, he can supply himself with food and Indian corn too. If the Indian was placed in the lower country where fish and game abound, there would be no need of furnishing him with beef and pork, but as long as they are kept on the plain, the Government will have to feed them with beef, flour, pork and tea, so as to keep them alive, and he will have to be fed three times a day, and not half fed either. All the north districts in Manitoba, Keewatin and the North-West Territory can supply fish in abundance, and it would not cost much to send some thousands of white by steamboats to the Saskatchewan District, or by train from Winnipeg to the various depots on the Canadian Pacific Railway to the Rocky Mountains.

8. The ground turnip if spared would increase in its growth, in the various places where it grows to perfection.

10. I think that the perch, pike, goldeye, and sunfish are about the best to re-stock denuded lakes and streams.

11. Before the transfer of this country to Canada, the food of the plain Cree Indian was buffalo meat, pemmican, the fruit kind stone berries and blue (Saskatoon), ground turnip also. This was the common food of all the plain tribes; the Indians had Indian corn also. The lower or north Indians and Saulteaux lived upon moose, deer and beaver, and upon other game, fish being the principal food. The Hudson's Bay Company gave out rations to their servants according to the produce of that part of the country. If situated on the plain, they gave each man so many pounds of pemmican or dried meat, so much flour, and if the post was situated down in the north, the servant received so much moose meat and the produce of the place, such as potatoes, and they allowed their men some flour, but the men had to pay for their flour, tea and sugar— $1\frac{1}{2}$ pounds of flour, $1\frac{1}{2}$ pounds dried meat and some potatoes for each man each day.

12. I think that the whitefish can be preserved by pemmicanizing them and putting it into light barrels, specimens of which I have seen out at Fairford and the Little Saskatchewan where the Indians dry the whitefish by the fire and then pound it to pieces and then put it into birch rogans, to keep for the winter use as food, they mix the cranberries with it which grow in abundance on the muskegs all over the country on each side of Lake Winnipeg and all over the north country and this fruit makes the best jam next to the low bush berries which also grow in abundance on the eastern shores of Lake Winnipeg, and all throughout that country lying towards east to Lake Superior.

The growth of the wild hops and specimens of hemp grow wild in various parts throughout this country. The tobacco, beet and wild pepper and grape grow in this Province.

As for the best means of developing the mineral resources of this country certain persons could be appointed who are familiar with the natives and on whom the native hunters can place dependance and confidence. There are many who who have deceived persons on pretended discoveries and many speculators have deceived persons with rewards who are known to know something of the country, this was a great

obstacle, a chief inspector should be appointed. There is sulphur, slate, limestone, sandstone, clay and ochre and other curiosities on the eastern and western shores of Lake Winnipeg. Iron and other precious metals are discovered on Rainy Lake and beyond to Savanne on eastward. Many other discoveries could be made in this country if they were thoroughly investigated.

I took this liberty of writing to you as I was always acquainted with, whilst you were in this country.

Yours respectfully,

JAMES SETTEE.

PHILLIP VEALE, of the Dominion Fishery Exhibition, Ottawa, produced specimens of young speckled and salmon trout fry, and being examined, deposed as follows:

MR. VEALE—All salmonidæ are spawned in the fall of the year—the latter end of October or the beginning of November. Then as the fish are running into spawn at the spawning beds the men go out and catch the fish and take the spawn from them. Then they are placed in the hatchery and left there all winter. About the latter end of April or beginning of May—it all depends upon the state of the weather—we take away the pans that those ova are placed in and leave them in troughs until the time they come up to a present size, about four or five weeks after they are hatched. Of course we have to keep them in running water.

By the Honorable Mr. Turner:

Q. When does impregnation take place? A. You take the male fish and take the milt and place it with the ova in a large vessel, and stir it round, that impregnates the ova.

By the Chairman:

Q. Suppose you had these appliances at the head of Lake Winnipeg, we will say, and you had the female sturgeon with matured ova, and the male sturgeon, and you had impregnated ova of other fish, what course would you put them through to obtain the result shown to the Committee to-day? A. The patent of those jars that you see on the table belongs to Mr. James Wilmot. There is a tube at the bottom of that jar with a little mouth to attach it to a tap and water runs to the bottom, and by striking the bottom keeps the ova on the move. That raises all the bad eggs to the top, because the bad eggs are lighter than the good ones; so after you set it going you have nothing more to do than to attach the pipe to the receiver and let the young fish run in.

Q. I suppose it is desirable to propagate the sturgeon; they are caught in large numbers at the Grand Rapids of the Saskatchewan, to which there is steamboat communication. Would you need only those appliances to affect this result? A. Just the same; what you need is glass jars and large troughs, the same as in dealing with salmon trout.

Q. What would be the probable result—suppose you were on the ground and only wanted to propagate fish for one season and re-stock the western waters with the spawn caught there? A. I could not say without going into figures, and figure up what the building would actually cost.

Q. You must have a building? A. Oh, yes. There is a building necessary to protect the ova from the weather, the winters being so very severe up there.

Q. Would you favor the Committee with a written communication relating to that subject within a day or two? A. Yes.

By the Honorable Mr. Reesor:

Q. Have you an establishment here such as Mr. Wilmot has at Newcastle? A. We have just a small section.

Q. For the different kinds of fish? A. Yes; for the whitefish, salmon trout and speckled trout. Whitefish ova are so very small that the labor is too great to run such an establishment here as he has at Newcastle.

THOMAS MCKAY, of Prince Albert, N. W. T., Farmer, examined.

By the Chairman :

Q. Over what portions of Canada west, of Lake Superior have you travelled, and what other portions of that region are you acquainted with, from the reports of reliable persons? A. I have been over the Lake Manitoba and Lake Winnipegosis country, and all that country west of those lakes as far as Wood Mountain, the Saskatchewan country, Edmonton, and north and south of the Main Saskatchewan.

Q. How far north have you been? A. To Green Lake.

Q. Will you give a list to the Committee of the plants, animals, birds and fishes suitable for food with which you are acquainted, and the districts in which they are chiefly to be found? A. Wild rice is found east of Lake Winnipeg. There is the wild turnip, the wild carrot and wild rhubarb, which grows in the northern part of the country, and the root of the wild bulrush. Of course there is a great variety of wild berries used largely in some seasons of the year. They are very abundant. There are two varieties of blueberries in the North-West, the high bush blueberry and the low bush blueberry, such as you have here in Ontario. Then there is the high bush cranberry and the cranberry that grows in low swampy ground, the moss berry that grows in large quantities in the northern districts. They are much superior to the cranberry you have here.

By the Honorable Mr. Reesor :

Q. The cranberry that grows in swampy places you say is different from the high bush cranberry? A. Yes, and very much superior to the cultivated cranberry that you have here.

Q. In size or in quality? A. They are somewhat smaller in size but very much superior in quality. The strawberry grows in large quantities; the raspberry, the eyeberry—it is somewhat similar to your blueberry here, but it is a bright red color.

Q. Is it like the thimble blackberry? A. No; the black raspberry. We call it the eye-berry. There are two varieties of cherry, the black and the red cherry.

Q. Is there any cherry in the North-West resembling the red cherry or the black cherry here? A. It is not as large as your cultivated cherry. It is much smaller. Then there is the wild plum. The black cherry is preserved by pounding it—breaking the stone and drying it in the sun. They dry it in large quantities, as also the blackberry. They make first-class preserves.

By the Honorable Mr. Kaulbach :

Q. Do we understand your remarks to be confined to any particular locality? A. No; these berries grow abundantly all through the Territories, pretty much in the southern parts as well as the northern parts of the Territory—all these berries except the cranberry. That is only to be found in wooded or mossy country. The cherry and blueberry grow abundantly in the south in the prairie country wherever there is any timber to be found in the ravines and it is generally to be found along the beds of rivers. As to the animals, of course at one time the chief one was the buffalo, but now the buffalo is exterminated.

By the Honorable Mr. Turner :

Q. Have you any nuts? A. Yes.

Q. What kinds? A. We have the hazel nut.

Q. Have you any other kinds? A. No.

Q. Have you not walnuts and butternuts? A. No; just the hazel nuts.

By the Honorable Mr. Reesor :

Q. Did you name the saskatoon? A. That is the high bush blueberry; saskatoon is the Indian name.

By the Honorable Mr. Carvell :

Q. How high does that bush grow? A. Eight or ten feet in some places—from five to ten feet. Then we have the blueberry in the northern part of the country.

By the Honorable Mr. Turner :

Q. Have you any poisonous berries there? A. Yes.

Q. What kinds? A. The snakeberry is poisonous.

Q. How can you distinguish it from the wholesome varieties of berries? A. It is different altogether; it is something like the cherry without a stone in it.

Q. Can it be used for any purpose? A. No; not that I am aware of. It is not poisonous.

Q. What color is it? A. It is a bright red. There are other berries which are not used for food—the red berry. Birds and pigeons live on it. Wherever a quantity of red berries can be found you can always see a large number of pigeons.

Q. Then these berries are not poisonous? A. No.

By the Honorable Mr. Reesor :

Q. Do you say that the high bush blueberry is of a better quality than the low bush? A. I believe it is. They are very easily cured, both the high and the low bush berry.

Q. Is it a larger berry? A. Yes.

Q. Does it ripen about the same time? A. Yes, in July. Of animals, the moose is found in the northern part of the Territory and the red-tailed deer, and the black-tailed deer and the cariboo—the cariboo reindeer. The antelope is to be found in small numbers in the southern parts of the Territory.

Q. The reindeer does not come down that far? A. No; the reindeer is very plentiful in the Mackenzie River country.

By the Honorable Mr. Kaulbach :

Q. Can you describe the black tailed deer? A. It is somewhat similar to the red deer, only smaller.

Q. It is the same shape? A. Yes, the same shape and points, only the size is smaller. It would weigh about 150 pounds or so.

By the Honorable Mr. Reesor :

Q. Does it live in the bush? A. Yes, in the bush. In the prairie country you find them along the streams where the streams are fringed with timber. They are never to be found in the open prairie country. The antelope frequents the prairie country.

By the Chairman :

Q. Do you mean by the antelope the cabri? Q. Yes, cabri is the French name for it.

By the Honorable Mr. Macdonald :

Q. I suppose the antelope is getting scarce? A. Yes.

Q. Do they go south? A. Yes, in the summer time they go south and go north in the winter. They were very plentiful at one time but they are getting scarce now. Rabbits are to be found more or less all through the North-West. Sometimes they are found in very large numbers but they die off very frequently.

By the Honorable Mr. Turner :

Q. What do they live upon? A. Grass and the bark of young trees. Some say that the rabbits die of disease, but I believe their death is brought about by famine. If the rabbits did not die out, as they do occasionally, I believe they would stop the growth of all our young timber.

By the Honorable Mr. Macdonald :

Q. Do they gnaw the bark of the trees? A. Yes; they gnaw the bark of the trees. They are so numerous that they eat all the bark of the young trees and willows. In the winter time as the snow increases they have nothing to eat but the wood of the young trees and that brings on a disease of the throat. The pith of the tree irritates the throat and causes it to fester and hence the wholesale destruction of rabbits. You will see when the rabbits are plentiful all the willows and young trees are entirely denuded of bark and naturally they die, but it does not take rabbits very long to breed up again because they breed three or four times a year.

By the Chairman :

Q. If they all die off how do they reproduce again? A. Of course they do not all die off; some are left, and in a few years they are as plentiful as ever. Then they eat all the bark when there is a general famine among them and they die off.

By the Honorable Mr. Reesor :

Q. During the past year they destroyed large number of trees and towards spring they died off in great numbers? A. Yes. When they eat the bark they have nothing else to, feed on because there is no grass.

By the Chairman :

Q. In season of great plenty is there any economic use that you can make of them? A. They are a source of food to the people wherever they are found. They are used largely by the Indians and the whites as well.

Q. Could they be preserved in any way? A. They kill them and dry the meat, but of course the flesh of the rabbit is very insipid.

By the Honorable Mr. Macdonald :

Q. Do they freeze them? A. They catch them all winter but they begin to die towards spring. They have nothing to eat; they simply die of starvation. They nibble away at the roots of the young trees, and as I have explained it causes an irritation of the throat and they die of a disease brought about in that way.

By the Honorable Mr. Turner :

Q. Have you any squirrels or chipmunks in that country? A. Yes; we have the grey squirrel and two or three varieties of chipmunks.

Q. Are they good for food? A. The Indians eat them, but they do not make good food.

By the Honorable Mr. Reesor :

Q. The gopher is a species of squirrel, is it not? A. Yes. The gopher is found in the prairie country. The gopher thrives best in short prairie grass where there is plenty of sunshine.

By the Chairman :

Q. You mentioned that the flesh of the rabbit can be preserved by drying? A. Yes.

Q. And the objection to it as an article of food is its dryness—the absence of fat? A. Yes.

Q. Do you think the Indians could preserve it if a certain proportion of fat were added to it? A. Yes. When rabbits are plentiful the Indians require very little assistance. You give them pork and bacon. The last few years the principal food supplied to the Indians has been bacon. It is very good and they have a large supply of rabbits.

By the Honorable Mr. Macdonald :

Q. Are the rations graded according to the condition of the country? A. Yes; lessened or increased as required. The southern Indians have to be fed pretty much all the year round, summer and winter. In fact the Blackfeet I believe get a daily ration, but with the northern Indians it is different.

Q. If the Indians were removed to the part of the country where there is hunting and fishing they could live better? A. The Indians should be moved to the northern part of the country where there are large sections or territories still vacant and they are in the neighborhood of the fishing lakes and hunting grounds.

Q. I suppose they do not like to be removed? A. No. As long as they are left to themselves they are indolent, and they are perfectly aware that as long as they remain where they are at present the Government must feed them. Take the Indians north of the Saskatchewan and around Lake Winnipeg; they require very little assistance in the way of food; in fact, in the summer time they get nothing at all only when they are getting their annuities, then for two or three days they are fed by the Department.

By the Honorable Mr. Macdonald :

Q. If the Hudson's Bay Company had the country now, as they had it before, would the Indians be better off than they are? A. No; they would be worse off than they are to-day, because I do not believe the Hudson's Bay Company or any private company would aid them to the extent that the Government assists them.

Q. Do you think the disappearance of the buffalo is the result of the settlement of the country? A. No; the scarcity of the buffalo began before the country passed out of the hands of the Hudson's Bay Company.

Q. To what is it to be attributed then? A. To the traffic in robes. The slaughter had been going on from year to year. I have seen people go out and kill hundreds of buffalo just for the fun of doing it. I have seen hundreds of buffalo slaugh-

tered just for the tongues and tallow in the summer time. It was the custom of the Indians to make bounds and enclosures for the buffalo in the winter months. Of course in those days the Indians had to keep in large parties. The different tribes were at war with one another, and of course, for self-protection, they had to live in large parties. They would make these bounds and enclosures and drive hundreds of buffalo at a time into them, and it was their policy to kill everything that came in, calves or anything else, because they reasoned—and very naturally too—that if these animals got out, and they had occasion to drive them in again, they would know what was up and lead the others astray, and they thought it better to kill everything that came in so that they would not profit by their experience.

By the Honorable Mr. Allan:

Q. Is not the disappearance of the buffalo largely due to the improved firearms?
A. Of course the improved firearms had something to do with it.

Q. Repeating rifles, for instance? A. Yes; but it was really the traffic in robes that lead to the extermination of the buffalo. Of course a man with a repeating rifle could do a great deal more execution than a man with the old-fashioned firearms. The robes were valuable, and the buffaloes were killed to obtain them.

Q. In fact, they killed the goose that laid the golden eggs? A. Yes.

By the Honorable Mr. Reesor:

Q. How early in the season do the robes become valuable? A. In October.
The most valuable robes were those obtained in November.

Q. After the weather was fully cold? A. Yes.

By the Chairman:

Q. Have you seen any crosses with the buffalo? A. Yes; I have seen some.

Q. What is the hybrid animal? A. The robe, of course, is very good, but as a beef producing animal I do not think it is any better than our domestic cattle.

Q. Is it as good? A. It is not as heavy and I do not think it is as good.

By the Honorable Mr. Kaulbach:

Q. Are not the hind quarters heavier? A. No. The animal is much lighter than the buffalo, but it is not as heavy as our domestic animals.

By the Honorable Mr. Allan:

Q. Even the fur of those I saw was straight; there was no curl in it? A. It just depends on how many crosses there are. Of course a robe deteriorates the oftener the animal is crossed.

Q. The nearer it gets to the domestic animal? A. Yes.

By the Honorable Mr. Reesor:

Q. The hybrids will breed again? A. Yes.

Q. Did you see any crosses with the Galloway cattle? A. I have never seen any.

By the Honorable Mr. Kaulbach:

Q. Is there any marked difference in the character and habits of the prairie Indian as compared with the Indian of the wooded districts? A. Yes.

Q. Can the prairie Indian thrive in the locality inhabited by the others? A. Yes; but the habits of the two are very different. The wood Indian is much more industrious than the prairie Indian, and is more careful of anything he gets. His habits are entirely different. Even in the old days when game was plentiful, the hunting of the wood Indian was not different from that of the prairie Indian. He had to get up before daylight as a rule and start out with his snowshoes and tramp around all day, which is hard work when the snow is two or three feet deep. Hunting the moose is very hard work and requires a great deal of patience and perseverance. It is the same with hunting beaver; it is hard work chopping at frozen earth, three or four feet deep, or cutting ice on a lake or river, so that they actually became more industrious, and they appreciated anything they got, because they had to work harder for it. Now, all the plain Indian had to do was to get his horse and mount him, and it was only pleasure hunting the buffalo. I have had some experience of it and know what it is—it is something like fox hunting. All that the Indian of the plain had to do was to get his horse out and kill as many buffalo as he required

and leave the rest of the work to the squaws. They did all the work of cutting up the meat and curing it, and all that the Indian did after hunting was to go to his tent and lounge in the most comfortable part and relate his exploits. The mode of life is quite different.

By the Honorable Mr. Reesor :

Q. Do they differ in stature or development? A. No, there is no difference in that way.

By the Honorable Mr. Allan :

Q. What can the plain Indian do now? His hunting was done on horseback, was it not? A. Yes, they used to run the buffalo on horseback. There is very little snow in winter, and they had three ways of killing the buffalo, hunting, pounding and stalking.

By the Honorable Mr. Reesor :

Q. They would stop the buffalo from going south? A. No, they would generally stop them from coming north. The buffalo would go south in summer and north in winter.

By the Honorable Mr. Turner :

Q. Is there any wood buffalo? A. There are a few in the Mackenzie River district.

Q. Are they the same class of animals as the prairie buffalo? A. Yes, only they grow larger.

By the Chairman :

Q. Are they also disappearing? A. Yes, they are disappearing very fast.

By the Honorable Mr. Carvell :

Q. I understood the witnesses to say that the extermination of the buffalo is not due to the building of the Canadian Pacific Railway? A. No; the extermination of the buffalo was going on for years while the country was in the possession of the Hudson's Bay Company.

By the Honorable Mr. Macdonald :

Q. Why do the buffalo go north in winter and south in summer? A. They go north in winter for shelter. Formerly when the buffalo were plentiful they were found in great numbers north of the Saskatchewan. There is a prairie there that is well sheltered by timber and the buffalo naturally take to shelter especially in severe weather.

By the Honorable Mr. Reesor :

Q. Have you seen any musk oxen? A. No; I have had no experience of the musk ox, but I am told that the meat is very objectionable—that it smells very strong. The robe, of course, is very valuable.

By the Honorable Mr. Carvell :

Q. How does it compare with the buffalo? A. The musk ox robe is much more valuable. It is not so large, but it is much nicer.

By the Chairman :

Q. You stated to the Committee the existence of some bands of wood buffalo; can you suggest to the Committee any means of preserving the race by protection in any way? A. The wood buffalo are only to be found in the Mackenzie River country now. The only way to preserve them is to enforce the game laws.

Q. Supposing some of these animals were driven south, could they be protected? A. You could not drive them at all. It is as much as you can do to get within gunshot of them. They are very wary. They are very much the same as the prairie buffalo only they have taken to the woods and have grown much larger. They are less disturbed there and get more to eat. The prairie buffalo was constantly disturbed. The fox, the wolf, and all the animals that frequent the north seem to grow larger and to have better fur than those that are found further south. Some say that the wood buffalo is a different animal from the prairie buffalo, but I think it is the same animal, only it has a better opportunity to live. The extermination of the buffalo is largely due to the fact that it was hunted all the year round. The herds had not an opportunity for breeding. For years and years before the total extermination took place

it was very rare to see a calf or a young animal among the herd. They had no rest—they were hunted in all directions.

By the Honorable Mr. Macdonald:

Q. Where were the hunters from generally that did this work? A. They were hunted by the half-breeds and Indians, as well as by the whites.

Q. And by the Americans? A. Yes; the Americans went into the buffalo robe trade very largely, and in fact in 1879-80 I think there were some 300,000 buffalo robes sent down to American territory. Two or three years afterwards there were only three or four thousand. We have a large variety of birds in the North-West; the largest of them is the swan.

By the Honorable Mr. Turner:

Q. Have you the wild turkey? A. No; we have the swan, the goose, the crane and a large variety of ducks there.

By the Honorable Mr. Reesor:

Q. The sand crane is an edible bird is it not? A. Yes.

Q. Something like the turkey? A. Yes.

By the Honorable Mr. Turner:

Q. Have you any snipe? A. Yes, different varieties of snipe, and a great many varieties of plover. We have the partridge, the prairie chicken and the duck. In fact the northern Indians live almost entirely at certain portions of the year on geese and other wild fowl.

By the Honorable Mr. Kaulbach:

Q. Have you the woodcock? A. No, but I believe the woodcock would flourish if it were taken to that country. There is a new prairie chicken that has made its appearance in Manitoba. It is a variety of the grouse and they are getting very plentiful I believe. They are from Minnesota.

By the Honorable Mr. Allan:

Q. Is that the pin-tailed grouse? A. Yes. One or two woodcocks have been killed in Manitoba. I believe Sheriff Inkster killed the first that was ever seen there. I believe the one he shot is the same as the woodcock down here.

By the Honorable Mr. Sutherland:

Q. They resemble the prairie chicken, only they are a somewhat larger and prettier bird? A. Yes.

By the Honorable Mr. Turner:

Q. Has the sparrow made its appearance there yet? A. No, but we have the sparrow hawk.

By the Honorable Mr. Girard:

Q. Is there much hunting of these different kinds of birds? A. Yes, they are very plentiful. In the fall they are to be had in thousands.

Q. Are all that are killed consumed there? A. Yes.

Q. Are any exported? A. No. They have no means of exporting them.

Q. Are they sold in the markets? A. Yes. They are put up in the fall in barrels and the Indians draw them in the winter time.

Q. What is the price for these different birds when sold for trade? A. You can get them for 10, 15, or 25 cents each.

Q. Are geese sold there? A. Yes, they are sold at 50 cents each—\$1 a brace.

Q. And the partridge and prairie chicken? A. When they are plentiful you can get them very cheap; you can get them for 20 cents a brace.

Q. And ducks? A. It is the same with the duck. It depends upon the supply very much. A year favorable to hatching they are very plentiful.

Q. Are there many swans killed there? A. Yes, in the southern part of the country.

Q. Are they killed for the flesh? A. Yes, for the flesh and the skin. They generally skin them and sell the feathers and skin. The flesh is the most inferior of our northern birds; it is very coarse.

By the Honorable Mr. Kaulbach:

Q. Do they grow very large? A. Yes, very large.

By the Honorable Mr. Reesor :

Q. You have the pelican there also, I believe? A. Yes, in large quantities. They are used for food and they make oil.

Q. Are they very destructive to fish life? A. Yes, very destructive.

Q. Do they eat the spawn? A. No, but they eat the fish. You generally find them in the shallow water in streams where they gobble up the fish as they pass.

By the Honorable Mr. Girard :

Q. Is the beaver to be found in any quantity? A. Yes, in the wood part of the country they are found in large numbers.

Q. Do the Indians use them for food? A. Yes, they eat the beaver. Of course the pelt is very valuable.

Q. With prudence and by taking care of the game they kill do you think the Indians could maintain themselves there? A. The northern Indians in fact get no assistance at all—the non-treaty Indians. They catch fish in the winter time and kill game and fowl in the summer.

Q. Do not a good many of those Indians receive every year from the Government rations over and above what they are entitled to receive from the Government? A. Of course the Department has been obliged to ignore the treaty entirely. If they merely stuck to the provisions of the treaty, the Indians would die out.

By the Chairman :

Q. In the case of which treaties has that been done? A. All the treaties. They have been obliged to ignore the treaty.

By the Honorable Mr. Macdonald :

Q. Do these non-treaty Indians claim a portion of the country? A. Yes.

Q. Do they allow whites to settle within their territory? A. Yes. There are very few white settlers going into that part of the North-West. Of course the Indians in the agricultural part of the country have been treated with.

Q. What have they to gain by holding out? A. Nothing. In fact they have never been asked to come in—they have never been asked to be put in the same position as the other Indians. The territorial districts have been increased in area and now extend beyond the ceded territory, and the Indians living in that district have asked the Government, now we have extended their territorial districts, to put them in the same position as the other Indians.

Q. I suppose they hold out from some ideas of freedom? A. They hold out because they were never asked to come in.

Q. Have any Indians been asked to come in and declined to do so? A. A few, perhaps, in all the different treaties have kept out. They think it is more advantageous to them to keep out of the treaty.

Q. Do they object to settlement in their country? A. They do not except in isolated cases. The more advanced Indians prefer to take the same chances as white men. When the first treaties were made, a large number of the half-breeds participated in the treaty. Since then they have participated in the treaty. Since then they have been discharged—they asked for their discharge and got it.

By the Honorable Mr. Girard :

Q. Are there many Indians to-day who can read and write? A. Yes, a great many all through the country. Some can read English and French, and others in syllabic characters.

By the Chairman :

Q. You have stated that the Indians of the wooded districts find provisions enough in the natural resources of the country: there would in some cases be an overplus, more fish than they could use? A. Of course during the fishing season they can get large quantities, but they are very careless and never look ahead.

Q. If they were offered a price for those which they have in excess, could these foods that are now used by the wood Indians be supplied to the prairie Indians? A. The transportation I am afraid would be so expensive that it would make it very costly food. There are no railways. Now you can get beef and pork pretty cheap all through the country wherever it is required.

Q. What is the price live weight? A. They generally buy it dressed for 7 or 8 cents to 12 cents per pound. It depends upon the locality.

Q. What is the price of, say a thousand whitefish, smoked, where they are in plenty? A. In some places you can get them for a mere trifle, you can get them for \$2 or \$3. In the northern parts of the country some people make it a business to bring them into the settlement, and get for them 10 to 15 cents a pound.

Q. Take for instance a place like the mouth of the Saskatchewan, where there is communication by steam up the Saskatchewan and down Lake Winnipeg, you say you might have dried fish there at \$2 or \$3 per thousand. What would be the freight on those fish from Winnipeg to, say, Calgary? A. I should say something like \$2 per 100.

Q. That would be 2 cents per pound? A. Yes.

Q. And they would be bought at about 1 cent per pound? A. Not dried fish, but fresh fish could be.

Q. Dried fish would be about double that price? A. Yes.

Q. Then presumably they might be delivered at points on the Canadian Pacific Railway at 4 cents per pound? A. Yes, about that.

Q. Under those circumstances, would it not be well to mix fish with the rations supplied to those western Indians? A. I am afraid that they would not care for it, because they are not accustomed to fish. The Indians of the south are more accustomed to meat.

Q. Do you think they would like wild rice? A. Wild rice would be a very desirable food, not only for Indians, but for whites as well. It makes a very good dish.

By the Honorable Mr. Reesor:

Q. Is there plenty of wild rice in the North-West? A. East of Lake Winnipeg it grows in very large quantities.

By the Honorable Mr. Turner:

Q. Do you grow wild rice around the lakes north of the Saskatchewan? A. No, there is none west of Winnipeg.

Q. Could it be grown there? A. I do not see why it should not grow there. It is similar to the district in which it grows, and if it were planted there, I do not see why it should not flourish as well there as where it does grow at present.

By the Chairman:

Q. Has any systematic attempt been made to plant it? A. No, not west of Winnipeg. I believe it has been transplanted in the parts of the country where it grows, and successfully too.

By the Honorable Mr. Turner:

Q. Is there any wild celery up there? A. No.

By the Honorable Mr. Girard:

Q. I wish to ascertain the condition of the Indians as to education; are those of them who are educated better Indians than those who are uneducated? Are they more provident? A. Yes, they are much better men in every way. They are more industrious, and they make better citizens in every way. They are law-abiding, industrious, and very much more provident than the uneducated Indian.

Q. You can observe a difference between those better educated and those who have not received an education? A. Yes; that is, the Indians placed in the same circumstances as the uneducated Indians. Of course our northern Indians are superior in every way to the southern Indians.

By the Honorable Mr. Turner:

Q. Have you many of the Sioux up there? A. Yes, a good many.

Q. They are first class Indians, are they not? A. They are much more industrious and better in many ways than our other Indians. They work well, make very good servants and are very intelligent and careful.

Q. And are trustworthy? A. No, we cannot trust them. Most of the Sioux that are over there are the refugees who participated in the massacre in Minnesota in 1863. They found their way to Portage la Prairie and Fort Ellice, and in 1877-78

made their first appearance in the Saskatchewan country. We always thought that we could trust them. They appeared to be very friendly and affectionate and thankful for the kindness shown them, but when we had this trouble in the Saskatchewan country in 1855, we found a great many of them left the settlements and joined the insurgents—White Cap and others.

By the Honorable Mr. Turner :

Q. They cannot be trusted when they smell blood? A. No, not when they smell blood.

Q. They are treacherous, but so long as you have the upper hand they make first class servants. The rabbit can be used largely for bed clothes. Rabbit robe is a very warm covering—in fact there is nothing so warm as the rabbit skin. It is cut in strips and matted and made blankets or robes of.

By the Chairman :

Q. Which of the varieties you have mentioned are suitable for transplanting and transplanting into other portions of the North-West? State also the districts to which, in your opinion, they could be translated with advantage to the white and Indian populations? A. I do not think it would be profitable to transplant any of these wild plants, because all the vegetable plants that you produce here can be produced in the North-West, and I think it would be much more profitable to introduce domestic vegetables than any of the wild plants of the country. Almost any of the berries, that is, the bush berry, can be transplanted. There is no trouble at all transplanting them; I have done it myself. Currants can be very easily transplanted, both black and red, and all the other berries with the exception of the cranberry, and the moss berry; it would be a very difficult thing to transplant them.

By the Honorable Mr. Turner :

Q. Have you done anything towards transplanting apple trees? A. There have been several attempts, but they have failed.

By the Chairman :

Q. Have you tried any experiments with the plum or the cherry tree? A. Yes.

Q. In the way of transplanting? A. Yes; the plum tree thrives on heavy clay soil. Wherever that is found, it will flourish.

Q. And the cherry? A. Yes, the cherry, both red and black, can be easily transplanted. The high bush cranberry—the Pembina berry as it is called—is very easily transplanted.

Q. Have you transplanted it with success? A. Yes, with success.

Q. What effect did the extra cultivation seem to have upon it? A. It was more productive—there was a greater yield.

By the Honorable Mr. Turner :

Q. Have you any wild grapes in the Saskatchewan country? A. No, there is what is called the plum white grape.

Q. The plum is a very delicious fruit is it not? A. Yes, very nice.

By the Honorable Mr. Reesor :

Q. Can you tell nearly the size to which the red cherries grow—the size of the large pea? A. There are of course different kinds of peas—about the size of the medium pea.

Q. Do the stems come together in clusters? A. Yes.

By the Honorable Mr. Turner :

Q. Have you much sugar maple up in the Saskatchewan? A. Yes, the sugar maple is found on the banks of streams and around the lakes in large quantities.

Q. Do you make sugar? A. Yes, it makes excellent sugar. It is very easily transplanted. It makes fine syrup—I think it is equally as good as the maple sugar you make here.

Q. Are there any salt beds in the North-West? A. Yes, there is salt in large quantities and there are salt springs.

Q. Where particularly? A. In Lake Winnipeg, Lake Manitoba, Lake Winnipegosis and the Riding Mountains there are springs.

Q. And is salt made from them? A. Yes, of course the freight is very expensive.

Q. Is there any salt as far north as the Saskatchewan? A. Yes, you get salt springs there, and at Lake Athabasca you get rock salt. All you have to do is to shovel it up without any other process at all. They go there annually with a boat and get all the salt they require for the supply of their different districts. They take it in its natural state.

Q. They just quarry it out? A. Yes, and it is the same with tar. They get all the tar they require for pitching their boats—pitch tar. They get it oozing out of the stream.

By the Honorable Mr. Reesor :

Q. Has it the same smell as ordinary pitch tar? A. Yes.

By the Honorable Mr. Carvell :

Q. I believe that petroleum is plentiful up there? A. Yes, but of course we require railways to develop it.

Q. Is there any petroleum in Alberta? A. Yes; you find it cropping up there.

Q. And tar? A. No, there is no tar in Alberta.

By the Chairman :

Q. Give the Committee your opinion as to the best means of restocking denuded districts with the plants, animals and fish which were once indigenous there? A. As I just said before with reference to plants, I think that instead of cultivating the wild plants, we should cultivate our domestic vegetable plants. They would be much more profitable, and they are so easily cultivated that there would be no object in cultivating wild plants excepting, of course, rice.

Q. Does that apply to the cherry and the plum tree? A. No, it does not apply to the fruit. The fruit trees are very easily cultivated. There is really no trouble in transplanting the different wild fruits.

Q. What fish should be used to restock districts where you either have not got them, or where you have had them and they have become very much diminished in quantity? A. Where they have been diminished in quantity, if the game laws were strictly enforced I think there would be no trouble at all in preserving them. There are a great many lakes in the northern part of the country to which fish could be transplanted. Of course you would require fish hatching concerns. At the Grand Rapids of the Saskatchewan would be a very central place. It is on the Saskatchewan, near Lake Winnipeg. The fish would be the whitefish, sturgeon, pike, perch—in fact all these that are found there.

Q. Is the pike a desirable fish to restock water with? A. Yes, some waters. There are a great many lakes in which the minnows are found in large quantities, and in such lakes I think the pike would be a good fish, because the minnows are practically of no use at all. They are very hardy and will flourish where other fish will not.

By the Honorable Mr. Reesor :

Q. The black bass would eat up the minnows and be a better fish than the pike? A. Then that would be the right fish.

By the Honorable Mr. Turner :

Q. Do you find that fish can live in any of those salt lakes? A. Yes.

Q. Could fish live in that lake about a day's journey from Prince Albert? A. No, I do not think that fish would live in any of those lakes. The water is tainted with alkali, of course in summer when there is an outlet the water is not so bad, and the fish can pass through, but in winter, when the lake is frozen over, this alkali water becomes very objectionable and kills all animal life. Nothing would live in it.

Q. In some of the alkali lakes, where the water is not so bad, do you think the fish would live? A. No, in the summer time they may pass through if there is an outlet, but they could not live in the lake.

By the Chairman :

Q. How is it in Devils' Lake near our boundary? A. It is not so bad I believe, but in the winter time all animal life must be destroyed in those waters. There are two kinds of water, the alkali water and the salt water. There are some salt water

lakes in which fish will flourish and thrive, but it is quite different with the alkali lakes; in the winter the fish would be killed.

By the Honorable Mr. Turner :

Q. Have you many real salt lakes in the North-West? A. There are some salt lakes.

Q. Is it just whitefish that you find in those lakes? A. Most kinds of fish are found in the fresh water lakes.

By the Honorable Mr. Reesor :

Q. The water in the alkali lakes is too strong for fish to live in them? A. Yes. There are some lakes slightly touched with salt, and the fish can live in those.

By the Chairman :

Q. Will you please state generally to the Committee how such transplanting, restocking and adding to the indigenous food supplies can best be effected, and at what probable cost? A. I cannot say anything as to the cost, of course, but the only practical way, in my opinion, to restock and transplant would be to have it done by the Government. The Government might establish a fish hatchery at Grand Rapids, and it would be very easy to restock a great many of those lakes. In my opinion the Grand Rapids would be a very central point. They could get plenty of spawn there, and there is boat communication both ways.

Q. It would be a central point from which to distribute spawn? A. Yes.

Q. And the lake would be a reservoir for saving fish life? A. Yes.

Q. What food, in your opinion, can most economically and healthfully be supplied to the Indians of the North-West in times of scarcity? From what districts and at what cost can such food be supplied? A. In some portions of the country of course fish can be supplied very economically, and it is a very wholesome food, and in other parts of the country, beef, pork and flour.

Q. Do you include wild rice? A. Yes, and wild rice.

By the Honorable Mr. Reesor :

Q. Can potatoes be produced nearly all over that country? A. Yes, everywhere.

Q. And do they ripen sufficiently so that they could be replanted? A. Yes.

By the Chairman :

Q. Which of the indigenous plants can, in your opinion, be materially improved in quality, quantity and size by cultivation, grafting or budding? A. As far as the plants go, I do not think you could improve them. In fact, I do not think it would be profitable to cultivate any of the wild plants that we have in the North-West, but the berries, if they were simply cultivated, I think would be greatly improved.

Q. What grafts would you suggest? A. Just cultivate them as they are. I think the wild berries that we have are very good as they are. I do not think they could be improved in flavor, but I think they could be improved in size by cultivation.

Q. What grains, grasses, fruits, roots and vegetables will, in your opinion, yield the greatest results from the indifferent tillage which is to be expected from such bands of Indians as are new to agricultural pursuits? A. The roots are potatoes, turnips and onions. They are largely cultivated among the Indians now.

By the Honorable Mr. Turner :

Q. Do the Indians care for onions? A. Yes, they are very fond of them.

Q. And beets? A. Yes, beets, carrots, parsnips, cauliflower, &c.

By the Honorable Mr. Reesor :

Q. Do the Indians know how to cultivate those vegetables? A. They go in for roots. They do not know much about cultivating vegetables. A few are commencing.

By the Chairman :

Q. It has been suggested by some witnesses that barley and Indian corn would be useful to cultivate, because the Indians use them for soup? A. Barley would do. Corn is a very delicate plant, and I do not think it could be grown by the Indians with advantage. Barley grows well and is a sure crop. If you allow it to ripen too much it shells and there is a second growth.

By the Honorable Mr. Reesor :

Q. Do you know if they can cultivate pease very well? A. The trouble with pease is, that it will grow too luxuriantly and the grain cannot ripen well.

By the Honorable Mr. Turner :

Q. Do they try beans at all? A. Yes.

Q. Did they succeed well? A. Yes.

By the Honorable Mr. Sutherland :

Q. Do you not think that when the land has been cultivated for some time and becomes poorer that pease will grow very well? A. Yes. I have tried pease myself. Another trouble with us is, that from the end of July we have very heavy dews at night, and they do not ripen very well—there is too much moisture.

By the Honorable Mr. Reesor :

Q. Do they get mildewed? A. Yes. Those portions exposed to the sun ripen very well but those that are shaded do not.

By the Honorable Mr. Turner :

Q. One would think that pease and beans would do very well: you have the wild pea and the vetch? A. Yes, in the southern part of the territory they might do very well.

By the Chairman :

Q. State your opinion as to the best means of preserving, by canning, drying, smoking, salting, freezing, pemmicanizing, or other process, such as of the natural food products of the North-West as you are familiar with? A. All meats are preserved there by being dried in the sun. It is a very simple and effective way of preserving meat. It will keep for years if it is simply cut in slices and dried in the sun. Fish are preserved in the same way.

By the Honorable Mr. Reesor :

Q. Without salt? A. Yes, without salt. Very often they pound the dried meat the same as in making pemmican and pack it away with pelican oil.

By the Honorable Mr. Carvell :

Q. Are we to understand that fish split and dried in the sun can be preserved without any other process? A. It is smoked also a little.

Q. Could it be preserved without the smoke? A. It will not keep so long, but the smoke will preserve it for a while. If you want to preserve it for any length of time, you must smoke it.

Q. And you do not use salt? A. We do not use salt at all.

By the Chairman :

Q. You have stated the ease with which fish and all flesh products may be dried and smoked and kept for years? In the case of fish or flesh that needs the addition of grease, could domestic tallow not be provided in such a way as to reproduce in a great measure the pemmican of old times? A. Yes, the domestic tallow is as good as we can get—equally as good as buffalo tallow.

By the Honorable Mr. Carvell :

Q. It was stated by one gentleman examined before us that on one occasion (I think it was on one of the reserves) he thought he had interested the natives and the chief in the growth of beans. He was induced to leave them some of the ordinary small white beans with object of having them planted. He afterwards learned that immediately after he left these beans were cooked and eat by the Indians. What I want to know is whether that is a characteristic of the Indians of the north or of the south? A. No, it is not.

Q. That would be an exceptional case? A. Yes. Perhaps the bean was supplied too late in the season.

By the Honorable Mr. Turner :

Q. Supposing you had charge of a location to plant trees, what exposure would you plant them to? A. If I could get a slope sloping towards the north or towards the east, I think it would be the most desirable aspect. I have noticed that in all the hills and ravines you will, always find one side is timbered and the other is not—that

is the south and west sides sloping towards the north and east. You will find these covered with timber and the others perfectly bare.

At this point Senator Girard supplied a dish prepared from cariboo pemmican mixed with flour and potatoes, and asked the members of the Committee to taste it and express their opinions upon it.

Hon. Mr. TURNER—I would say, in the highest praise of a Scotchman, "its no bad."

Hon. Mr. REESOR—I think it is very good indeed. Better than the hash we get sometimes at some of the hotels.

Hon. Mr. KAULBACH—I merely say, I do not know how it would suit an Indian, but for a white man it is very good—no better.

Hon. Mr. SUTHERLAND—It is very good food indeed. The greatest advantage from this sort of food is that it is more compact and easily transported, and consequently was of great value in travelling where long journeys had to be made, but I do not know that there is any advantage to be gained from it now, unless it has to be transported to distant parts. When we can raise beef and pork and use them as they are used in all civilized countries, I do not know that there would be any advantage in subjecting them to this process. Except for long journeys I cannot see that it is any great advantage over the ordinary products of the country, especially if we can get those railways for which charters have been granted of late years.

Hon. Mr. MERNER.—I think it is perfectly good food for any man to eat—especially German.

Hon. Mr. CARVELL.—I like it exceedingly, and if the quantity had not been limited, I should have made my lunch on it.

The Committee adjourned until to-morrow.

THE SENATE, OTTAWA,
Wednesday, 15th June, 1887.

Evidence of J. BEAUFORT HURLBERT, LL.D.

Before the Select Committee (Senate) appointed for the purpose of collecting information regarding natural food products of the North-West Territories, and the means of conserving and increasing them.

1st Question.—Ans. To the north of Lake Winnipeg and up the Saskatchewan and Assiniboine. I had read at an early period of the travels and accounts of Sir Alexander Mackenzie, Sir John Richardson, Franklin, Thompson and other early explorers.

2nd Ans. Wild rice, wild turnip or carrots, the blue berry (Saskatoon), plum, cranberry (high and low bush), currants, gooseberry, strawberry, raspberry, hop and grape.

Of animals: The cariboo, moose, deer (red), antelope, bear, rabbit, hare, swan, prairie hen, plover, partridge.

Of fish: The white fish, salmon, trout (speckled), pike, sturgeon through the western and southern parts, through which I travelled.

3rd Ans. The trees most suitable for transplanting are the balsam, balm of Gilead, poplars (p. *tremuloides*), spruce (white and black), ash-leaved maple—though not a maple, birch. The part of the North-West Territories to which these trees could be transplanted to most advantage, I have referred to in another place.

4th. Ans. The trees should be planted in groves, especially on the southern border of the North West Territories. The lakes and rivers are now well stocked with fish, but some of the varieties of the trout, bass, perch and whitefish of the lakes and rivers of Ontario and Quebec might be placed in the lakes and rivers of the North-West.

6th Ans. Further on.

8th Ans. The wild grape by hybridizing as has been done in Ontario. The plum is also improved by culture, also all the small fruit.

9th Ans. Wheat, rye, barley, potatoes, turnips (the Swede), and root crops generally; and the small fruits.

10th Ans. Whitefish in the larger lakes, with the salmon trout—the whitefish is the food of the salmon trout—but the whitefish does not feed on other fish. In the smaller streams and lakes the varieties of the trout which abound in similar waters in Ontario and Quebec would, no doubt, be placed with advantage.

11th Ans. The food of the Indians at that time was chiefly the buffalo (this animal is the bison and differs materially from the Asiatic buffalo—being much smaller and covered with longer hair), fowls and fish. I here refer to the Indians in their wild state. Those in the employment of the Hudson Bay Company were supplied with flour and pork as far as I observed.

MEMO (a). Balsams, poplars, ash-leaved maple, spruce (*an abies*), birch, elm, hard maple (*sugar, acer saccharinum*), soft maple (*a. dasycarpum*) in wet places; cedar (white) on rocky land, ash (the rim ash, black and swamp).

The deciduous trees are found mostly in the interior of the North-West where the summers have a high temperature and the conifers on the coasts; and when found in the deciduous forests are on the colder soils and on uplands. Along the eastern base of the Rocky Mountains and extending into the recesses of the Mountains, are found chiefly coniferous trees—the Douglas pine (this tree is not a pine but *an abies*), and white and black spruce. East of the Mountains, the water-sheds mostly covered with heavy forests of spruce; but the clay lands where there are trees, with poplars (*populus tremuloides*). In the damp forest lands near the Mountains this species of poplar grows to an enormous size, to seven and to ten feet in diameter, as far north as the Athabasca, Peace and Mackenzie rivers.

In the eastern parts of the North-West there are the Banksian pine, 12 inches in diameter, and on the south shores of Hudson Bay two feet in diameter and 100 feet high. The *pinus contorta* ranges from the head of the Athabasca through the Rocky Mountains and forms thick forests many miles in extent.

The comparative value of prairie and wood land has not been sufficiently considered. The absence of forests is undoubtedly caused mainly by climatic defects, and this defect is the deficiency of moisture. The areas of summer draughts in the old and new worlds are identical with the treeless regions. This climatic defect must operate permanently and with increased intensity upon plants. A climate destructive to trees could not be propitious to fruit trees nor indeed to the staple plants of the temperate zone.

The areas over which the cereals, coarser grains, root crops, the hardier fruits and grasses mature in the North-West Territories are enormous. Sir John Richardson found wheat grown with profit north of Great Slave Lake, north of latitude 60°, and Bishop Taché found it up to latitude 62°. On this continent it cannot be grown with profit south of latitude 39° in the interior and at 42° on the coasts, except at certain places as at high altitudes. Canada, therefore, passes the chief areas for wheat in North America. Rye and barley mature from four to five degrees farther north than wheat. The hardier roots and the grasses go still farther north. In round numbers there are probably 900,000 square miles where white wheat will ripen west of Lake Superior and east of the Rocky Mountains, and larger areas of barley, rye, root crops and the grasses. Here, as in all countries there are exceptional localities; but the North-West containing so many large rivers in the valleys of which are the chief grain-bearing lands, has a less percentage of poor soil than most countries.

In Europe the grape ripens up to latitude 51° and 52°. As the summer temperatures are higher inland in the North-West Territories than in parallel latitudes in Europe, the grape would mature even beyond that parallel. It has been found growing wild as high as latitude 51° in the North-West.

The apple, like the cereals, has its proper home north of the summer isothermal of 70°, in the cooler parts of the temperate zone, the areas of the summer rains. In warmer climates the fruit is inferior in quality if good in size. The Canadian apple is the standard of excellency even in the United States. In Europe it matures as high as latitude 64° and thrives well up to 60°. The area in the North-West over which the apple could be cultivated (the hardier varieties) would probably nearly equal that of wheat.

Question 3. The districts to which they could be transplanted.

Trees might be planted on the southern border of Manitoba and the Territories. The Government might at first, plant enough to give the data from which to form some opinion of the value of such trees and the cost.

Some species of the poplars, as the balm of gilead, should at first be set; and when these attain a height sufficient to protect tender saplings, more valuable trees should be planted amongst them—such as the ash-leaved maple, soft and hard maple, birch, oak (red), elm, ash (swamp, black and rim), plum, cherry (red), apple (the hardier kinds), vines (grape and other vines found in our woods).

In those parts of the earth where there are forests, there are also trees. In regions, where, during the summer months, there are no rains, neither are there forests (the local and exceptional places as by river courses and on high lands, I do not refer to.) These rainless areas are also treeless, as the deserts of Sahara, Egypt, Arabia, portions of Palestine, Independent and Manshire Tartary, extending for 9,000 miles from the western coast of Africa to the great Desert of Cobi north of China. These rainless regions lie in the direction of the prevailing winds from the south-west towards the north-east.

The same is true of the great American desert extending from the south-west coast of old California to the Mississippi on the east and to British America on the north. Through all those regions there is either no rain during the summer months or a deficiency. The same is true in similar positions in Australia.

These desert, rainless and mainly riverless and treeless regions extend from the south-west towards the north-east, in the direction of the prevailing winds, which on this continent blow almost invariably from some point in the south-west towards the north-east.

The southern parts of Manitoba and the territories to the west lie on the north and north-eastern borders of these rainless regions and receive, in summer, the burning arid winds from those highly heated plains. These south-west winds come from the Pacific laden with vapor, which is condensed into rain and snow when they reach the cooler regions in British America covered with trees.

If, therefore, forests were planted in the southern parts of the North-West, thus protecting the heated earth from the direct rays of the sun, the cool air rising from these forests would condense the vapor in those south-western winds and give rain in summer in southern Manitoba and the Territories as they now do snow in the colder months.

From the continued lessened fall of rain in central Europe, as the forests have disappeared, the Governments, by the advice of scientific commissioners, have ordered the resetting of forests with most favorable results; and in many parts of Germany, Austria, eastern France and western portions of Russia, as also, to a limited extent, in parts of Egypt the traveller finds many groves of young trees where formerly (Egypt excepted) were dense forests. These shade the ground, preventing the rapid evaporation which takes place in summer from all treeless regions. Lands shaded by forests retain the water for a longer period on the surface and in the streams, giving it time to penetrate the earth and feed the springs and the small streams and rivers in the hotter months, thus preventing, in a marked manner, the destructive spring floods, and the subsequent sluggish, and, in many cases, dried-up water courses.

HON. WILLIAM J. MACDONALD, Senator, of the city of Victoria, examined.

By the Chairman :

Q. Over what portions of Canada west of Lake Superior have you travelled and what other portions of that region are you familiar with from the reports of reliable persons? A. I am not much acquainted with the mountainous part of British Columbia. So far as anything is known about it, it is supposed to contain minerals such as gold, silver &c. My information is chiefly about the sea coast of British Columbia and Vancouver Island. With regard to plants if the second question means edible plants, the only wild plant we have is the camass. It is a root about the size of an average sized onion.

Q. In what parts of British Columbia does it grow? A. In different parts, and where the land is pretty clear and amongst the fern land.

Q. Is the edible part of it the root? A. Yes, the root. It has a pretty blue flower in summer time. It used to be the chief article of vegetable food before the introduction of the potato. It was made up in spring and kept in pots and sacks for winter use.

Q. How early in the spring; was it available before potatoes ripened? A. Yes, they got it before potatoes ripened, but as the country gets fenced and settled, the root is very little used. Lots of potatoes are grown and they find it easier to grow them and get better food. In regard to animals we have deer, elk, bear. Deer are in such abundance that they are destroyed for their skins.

Q. Have you the fur seal? A. Yes, we have the fur seal. They pass up and down between California and Alaska, and our hunters intercept them on the way going north and south. They have built a large fleet of schooners with steam power to hunt the seal.

Q. Can you give an idea of the value at the London sales of the fur exports of British Columbia? A. No, I cannot.

Q. Can you give it approximately? A. Some of those schooners go out and make \$20,000 or \$30,000 in a season of three months.

Q. Are there many such vessels? A. Yes, a good many of them—I suppose about twenty—and the Indians catch them as well on their own account with their canoes. Then there is the common hair seal; it is not caught in great numbers.

Q. Have any efforts been made to domesticate any of those animals? A. No, none at all. In California they have an aquarium in the gardens where they keep what they call the sea-lion a very large animal, and it abounds on the rocks along the coast of that State. These sea-lions are carefully preserved by the United States Government. Nobody is allowed to kill them, but they eat the fish and the consequence is that the fish are very scarce off San Francisco.

By the Honorable Mr. Carvell :

Q. What do they preserve them for? A. For amusement; they play like school boys and it is very amusing to watch their movements. They are enormous fellows—six or seven feet long. They have names for the older fellows, such as Ben Butler and General Grant.

Q. Are they long-lived animals? A. Yes they must be, because some of those old fellows are well known. With regard to the animals of our own country of course we have all the wild fur-bearing animals, the bear (grizzly, black and brown) wolf, different kinds—the black and grey wolf—lynx, beaver, martin, and all those animals—and the red and silver fox.

By the Chairman :

Q. You have all the varieties found in the east? A. Yes, more perhaps. We have the wolverine and the otter, but the most valuable of all is our sea otter. A good sized sea otter is worth about \$200. It has a beautiful fur and finds its chief market in China among the rich Chinese who line their winter coats with them.

Q. You mentioned the fact that deer exist in great abundance? A. Yes, especially the smaller deer.

Q. Have you the elk? A. Yes, we have the elk but it is not so numerous.

Q. Does it occur in many parts of British Columbia? A. Principally in Vancouver. There is a good market in California for the skins.

Q. Are there many of your indigenous food products, fish, flesh or fowl that could be used for the food of Indians in the Rocky Mountains? A. Yes, our salmon could be used. There is a large quantity of salmon dried every year.

Q. What is the cost of it? A. It is very cheap indeed; I could not say what the cost is. It is used chiefly for Indian food. However it is very insipid. The Indians soak it in oil, and use it with berries and oil, but the canned salmon would be very marketable, and I suppose a cheap food in the North-West.

Q. Is it your impression that this dried salmon could be furnished to the Indians as cheaply or more cheaply than the food that is now supplied to them? A. I should think so—cheaper.

Q. And canned salmon? A. At one village in British Columbia the Indians last year cured \$40,000 worth of canned salmon alone, and those Indians produced a great number of skins, probably \$20,000 worth—that is the civilized village that the Government is now crushing out of existence.

Q. You mean Metlakahtla village? A. Yes.

Q. Could you give the Committee the average price of canned salmon? A. Yes, about \$1 to \$1.25 per dozen one pound tins.

Q. What would be the cost of transportation say to Calgary. A. I do not know what the rates would be—special rates would probably be one cent per pound. The salmon is very abundant along the coast, and, of course, ought to be conserved. Unless the close season is enforced on our rivers they will very soon be depleted the same as the rivers in this part of the country. Of birds we have an abundance of wild fowls, ducks of all kinds, wild geese and cranes. Swans are not very numerous; occasionally they are to be seen. Then we have the willow grouse, partridge and the California quail, imported. It is thriving very well, and spreading over the country very fast indeed. We have the English pheasant, imported, and it is thriving very well, but I am afraid that it is too tame, and cannot defend itself from the gun of the sportsman. In my garden in Victoria I often see a dozen English pheasants on my lawn. They are so tame that I could easily kill them if I choose to do so. I think a law has been passed preserving them for two years from interference, but I am afraid that they will very soon be killed off when people begin to hunt them.

Q. Are the climatic conditions in the North-West the same as in British Columbia where you find the quail thriving? A. No, I think not; the quail are principally in Vancouver Island. I do not know whether they are on the northern part of the Island; I think they are principally on the southern part where the climate is like that of England—very little snow or frost and an early spring. They would probably thrive anywhere along that coast. There are numerous smaller birds of pretty plumage, only fit for the scientist, and admired because of the beauty of their plumage.

Q. Have you the English sparrow? A. No, fortunately, we have not.

Q. Can you give any idea of the methods used by the British Columbia Indians for the preservation of fish, flesh or game? A. The principal means is drying in the sun. They dry all their fish and meat in the sun.

Q. How long will that preserve them? A. For a long time. They cut halibut in very thin slices and put it on slakes and dry it in the sun. There is a wonderful fish that we have in British Columbia known as the oolachan, or candle fish. It will burn like a candle. This fish is caught and an oil is taken from it, and the Indians come and buy this oil, exchanging furs and fish for it. The natives themselves mix the oil with berries of different kinds, such as the blueberry, and make a palatable food.

By the Honorable Mr. McLInnes:

Q. Is not the oil of the oolachan also used for medicinal purposes, and found vastly superior to cod liver oil, inasmuch as it is not adulterated the same as the cod liver oil in use? A. Yes; the doctors prefer it to cod liver oil. The oolachan makes a fine sardine. It salts very well and is a very sweet fish when salted. Then we have the cod fish of different kinds. It is said that they have found the real Newfoundland cod, and there is a species of black cod and a sort of hybrid cod, a long, dark fish which is very good. There is plenty of halibut and herrings and smelts.

Q. Are the herring the same as we have on the Atlantic coast? A. They are not so good; they do not salt so well—at least they have not found a good way yet. But they make very good bloaters.

Q. Are they large? A. Not very large.

Q. Have you the mackerel? A. No mackerel—not one.

By the Honorable Mr. Carvell:

Q. Have you the sturgeon? A. Yes, the sturgeon is found in our rivers.

Q. Are the sturgeon very plentiful? A. No; they do not care much for them. You see a good many of them in the market in the spring. There is the whiting, but we have no haddock. We have no lobsters, but we have plenty of crabs and prawnst

By the Chairman :

Q. Have you oysters? A. Yes, we have oysters; small, but sweet and very nice.

Q. Are there any other kinds of shell fish? A. We have mussels, limpets, perriwinkles and clams. One of the chief staples of Indian food is the clam. They get clams and dry them in the sun on stocks, and pack them away for winter use.

By the Honorable Mr. Carvell :

Q. Speaking of their mode of drying halibut, is that their whole story—that they get fresh halibut, cut it in thin slices and dry it in the sun? A. Yes, that is the whole process.

Q. I should think it would rot? A. No, they cut it in very thin slices. They slice it off horizontally, not cut it across. It keeps a long time.

Q. Will it keep the year out? A. Yes, it will keep a year.

By the Chairman :

Q. Have you any fish of prey—sharks? A. There are sharks and whales along the coast, but they are not often taken.

Q. They are further north, I suppose? A. Yes, towards Behring's Sea. There used to be a very large whaling trade on the coast previous to the discovery of other oils and coal oil for lighting purposes. The Sandwich Islands used to be a great rendezvous for the American and English whaling fleets. Now that is all changed. Occasionally whalers go out there.

Q. Is your better variety of codfish as good as the Newfoundland codfish? A. I think not. It is not salted in any quantity; it is used fresh.

Q. When fresh, is it as good? A. No, I think not. I might mention that the Indians of British Columbia are never very badly off for food. They have abundance of food of all kinds, especially fish and shell fish. They trade and get sugar, flour and biscuit. They are very fond of what the Americans call crackers.

Q. Have you gone over the fresh water fish at all? A. Of course there is the trout, and we have all the varieties of fish you find in rivers and lakes.

Q. Have you the whitefish? A. There is whitefish in lakes on the mainland, but it is not very plentiful. The salmon go up the coast for hundreds of miles, and the Indians catch them and put up supplies for winter use.

By the Honorable Mr. Carvell :

Q. They are more provident than the eastern Indians? A. Yes; although the winter is not severe there, they lay up a good stock for the winter supply. About transplanting trees, I think we have had information enough on that subject. Probably there are a few trees in British Columbia that would survive the winters in the North-West. Ours is a moist and mild climate.

Q. Have you the maple there? A. Yes, we have the maple.

Q. Have you our two kinds of maple? A. No, we have no sugar maple. We have the great leaved maple—the sycamore, it is really.

Q. You have chestnuts and Norway spruce, I suppose? A. They grow very well—both the Norway spruce and other trees.

Q. Have you the chestnut tree there? A. Yes; it grows very well. There are no nuts there, I think, but the hazel nut that I have seen growing wild. We have no butternut.

Q. Have you beech nuts? A. Beech is very scarce there. The chief timber there is pine—the Douglas fir. It is the most marketable fir and grows to a great size. We have very fine timber called the yellow cedar of the northern part of the coast. It has a fine grain, a strong odor, and takes a beautiful polish. It is valuable for furniture, ship-building, or anything of that kind.

By the Honorable Mr. Almon :

Q. What does the tree look like? A. It is rather scrubby in appearance, but very good. The grain is close and hard.

Q. There is a sandal wood which grows in the Sandwich Islands does that grow in Vancouver? A. It has never been tried there.

By the Chairman :

Q. How are you off for fruit trees? A. Very well. Apples, pears, cherries and peaches ripen in sheltered spots. You have to grow peaches on a southern exposure

where they do not feel the winds. There is almost a continual south-west wind which blows all the summer on the coast of British Columbia, and that prevents the climate ever being too hot or very cold. We do not get heat enough to ripen grapes and peaches unless they are sheltered from those winds, but with that shelter they grow very well.

Q. The climate, I suppose, is moist? A. Yes, up to the month of March, when it gets very bright. There is very little rain in the summer time. We have four or five months of weather like this, but not so hot. There is a great variety of wild flowers, such as larkspur, lupin, columbine, wild rose, &c., but the cultivated flowers, English and American, grow there very well indeed.

Q. I suppose you have nothing in the shape of the cactus, such as we have in the North-West? A. No.

Q. Have you wild rice? A. I do not know of any wild rice in British Columbia. I have never seen any.

By the Honorable Mr. Almon :

Q. Does Scotch heather grow there? A. No; there is a sort of heath like heather, but no real heather.

By the Chairman :

Q. What is the largest size tree you have seen there? A. I have seen the trees there commonly twelve feet in diameter four or five feet from the root—36 feet round.

Q. What kind of trees are those? A. Cedars. Pines do not grow quite so large as the cedar.

Q. How do you saw these large logs? A. They are hardly used at all. They are cut down and burnt up. They use them for shingles.

Q. Do these trees grow high? A. Yes, about 200 feet high.

Q. How high do they grow before the branches are met? A. You often see a beautiful cedar three or four feet in diameter, growing 150 feet high, with a clear stem of 50 or 60 feet. These are cut down and make beautiful fence poles and shingles. They are perfectly straight.

Q. The largest cedars you have seen are about 12 feet in diameter? A. That is about the largest.

Q. Does the pine grow as tall? A. It grows as tall, but not so large.

Q. Have you a dry season and a wet season? A. The season on our coast and 200 miles up from the coast is very different.

Q. When does your wet season commence on the coast? A. It commences, as a rule, in November.

Q. And lasts how long? A. It is just like the weather in England; sometimes we get three or four wet days and three or four weeks of fine weather.

Q. Have you much fog? A. Very little fog. Our winter months are December, January and February. This last winter we had a good deal of rain in January, but no frost or snow. When February came we had a sharp frost, and the thermometer went down to four above zero, and we had snow on the coast. Then the weather broke up, and we had lovely weather in March and early in April.

Q. When do you commence to sow seed? A. In March and April.

Q. Earlier than we do in Ontario? A. Yes.

Q. When is your harvest? A. The hay harvest is on now, in June in some places. It is later in low ground. In California the haying is over now.

Q. You have a delightful climate from March to November, I believe? A. Yes, up at Kamloops it is very dry and requires irrigation to grow crops in that neighborhood. Then when the winter comes in, instead of getting rain, they get snow, and the mercury falls very low—ten to twenty below zero.

Q. Have you much thunder and lightning? A. Very little.

Q. But they are fierce when you have them? A. No, we have a little thunder and lightning sometimes, but very seldom, that comes chiefly about the month of September.

Q. What is about your highest for summer and your lowest temperature for winter? A. It sometimes goes below 35 or 40 in winter, and seldom above 60 or 70 in summer; that is accounted for by the breeze blowing off the ocean.

Q. What is the prevailing winds? A. South-west. The south-east wind brings rain. It comes directly off the American mountains.

Q. Have you sometimes very stormy weather? A. Yes, very stormy. Not such heavy gales as they have on the coast of Europe.

Q. Is the coast treacherous on account of those storms? A. The west coast of Vancouver Island and the coast down to San Francisco is rocky and there are many rocky promontories off the coast which make it dangerous. Between Vancouver Island and the mainland there is a beautiful strait. You come into this strait from the ocean and have smooth water for about sixty miles.

Q. Once you get in there you feel safe? A. There is no anchorage in it, but the wind is always either up or down.

Q. Have you any coal except in Vancouver? A. Yes, there is coal in other parts of the country but not developed. There is anthracite coal in Queen Charlotte Island further north. It is bituminous coal on Vancouver Island so far as is known; there is no anthracite. On Queen Charlotte Island, so far as is known, the coal is all anthracite.

Q. Have you iron? A. There is an island called Texada, which is all iron.

Q. How far is that from coal? A. Twenty or thirty miles. It is a little north of the coal mine at Nainaimo.

Q. In Vancouver Island, I suppose you have a lot of little lakes and rivers? A. Yes.

Q. Are they well stocked in fish? A. Yes, there is good trout fishing in the streams and lakes.

Q. Have you our lake salmon trout? A. I do not know. We have a salt water salmon trout.

Q. Do you catch the salmon trout as we do here at the mouth of a river as well as up the river? A. We commence to catch them out in the sea with nets. The Indians troll for them with spoons and catch them more or less all the year round. We get beautiful salmon in the winter, weighing about thirty pounds. I have from my door seen the Indians trolling for them. I have seen an Indian catch four or five in the morning trolling. They go on catching them all along until the salmon get three or four hundred miles up the river. When they get that far, they are completely spent, their noses are worn off, and their flesh is soft and flabby.

Q. Are they unfit for food? A. No, they are the best the people can get there. The Indians dry them and use them.

Q. The salmon in those waters will not take the fly I am told? A. I suppose it is on account of the muddy rivers. At the time the salmon comes in the torrents are rushing down from the melting snow. The waters of the Fraser are the color of milk, and I suppose the salmon could not see the fly. They will take the spoon bait very readily in the sea where the water is clear. I have known a person to catch as many as sixty salmon in a day with a spoon bait—one man.

Q. Is it the warm waters in the rivers that makes the salmon soft when it gets some distance from the coast? A. No, I think it is that the fish are just worn out. They press on and on as far up the rivers as they can to spawn. There is a theory that the salmon that go up to spawn never return. Others say that when they have spawned they back down the stream tail first to the ocean again, but that point has not been settled clearly yet; but it is also said that they must return to the ocean, because if they did not you would not find large salmon among the small ones.

Q. I suppose on the Pacific coast, as on the Atlantic coast the salmon return to their own rivers. On this coast I know each river has its own distinct salmon? A. Yes, there is a fish there the shape of a salmon, which is called the white salmon.

Q. You look upon them as poor fish? A. No, they are very fat and a very fine fish, but they are not used for canning on account of the color. They are a beautiful shape with broad shoulders and square tails. They look like the ordinary salmon until you cut into them when you find the flesh is white. Until you cut into them you cannot tell the difference. Early in the season a very fine salmon that weighs about 20 pounds comes in. About June and July the regular salmon comes in

weighing about 10 pounds. That is the most numerous kind and the marketable salmon is about that size. The flesh is very red.

Q. Have you large salmon? A. Yes, as large as 70 pounds, but that is not the marketable salmon. Early in the spring I was up along our coast 500 miles above Victoria at the Skeena River, and there in the month of June they caught salmon weighing 50 pounds, and sometimes would catch one weighing 70 pounds. When the regular season comes on in July the salmon are very abundant and cheap.

Q. Have different rivers different colored salmon? A. No, but different seasons have different colored fish. The richest colored salmon come in July, some come among those of an inferior kind, with a crooked back and a crooked nose and very poor flesh. It is not fit for food; even the Indians will not eat it.

Q. Have you any other varieties than these three you have mentioned? A. No, I do not think so.

Q. The three are the white, the crooked backed, and the marketable? A. Yes.

Q. Is 10 or 12 pounds the weight of the marketable salmon at its full growth? I cannot tell, but every year about that time they come in about that size. Probably they grow larger. The white people catch them with nets in the rivers. They dritt nets down the river and catch them that way.

Q. Are not your rivers becoming depleted by the immense fishing going on? A. Not yet. The Indians catch them with grass nets and scoop nets. Sometimes they get between two narrow rocks on the sea and as the salmon pass through they catch them with scoop nets. On the Fraser River they have a platform on poles, and on this platform they stand and scoop out the salmon as they pass up the river. The Committee adjourned until to-morrow.

Friday, 17th June, 1887.

Dr. HURLBURT appeared and was examined as to the extent of arable land in the North-West Territories as follows:—

By the Chairman:

Q. I find on the draft report submitted by the sub-Committee that a typographical error appears which states the number of square miles of land in the North-West suitable for agricultural purposes is 300,000 square miles. What is your opinion on that subject? A. From my study and observation of the subject, the territory over which wheat could be grown, is 600,000 square miles. I have no doubt you are within the limit of 300,000 square miles as the area over which cereals would grow.

Q. And you are prepared to state to the Committee that in your opinion we have 900,000 square miles of territory fit for wheat growing north of the boundary line? A. The Committee will understand that there, as in all countries, there are exceptional cases—areas of cold lands and rock exist; but when you take into consideration that there are large rivers in the North-West in most of the valleys of which this land lies I think there is a smaller percentage of untillable land in that part of the country than in any other country in the world of the same extent. When I say 900,000 square miles I take the limits north and south, and I think I am not over stating it for I have measured it frequently, when I said in my report that the area over which cereals can be grown is 900,000 square miles.

Q. You have reported that to the Government? A. Yes.

Q. Do you include in that the grazing land? A. I include in that the northern limit and the southern limit. As far north as 60° Sir John Richardson said wheat was grown with profit, and Bishop Taché had seen it growing as far north as latitude 62°. South of latitude 60° there would be an immensely greater area than 900,000 square miles, but as you go east towards the Hudson Bay the climate is colder. With regards to plants we must consider climate more than soil, because where the climate is good there will always be soil sufficient to produce those plants. So that the kind

of soil is not the chief thing; the question of climate comes in and the summer temperature in the interior of the North-West is higher than in the interior of Europe.

By the Honorable Mr. Turner:

Q. Have you been up in the North-West? A. I have not been as far north as I spoke of. I have been up the Saskatchewan and I took note of the climate and temperature.

The Chairman announced to the Committee that the package of Labrador tea had been forwarded to the Committee by Mr. _____ of _____. It was gathered on the west shore of the Hudson Bay, and the plant was found in abundance as far west as the Great Slave Lake.

DYNEVOR, MANITOBA, 7th June, 1887.

DEAR SIR,—I examined the subject that James, my son, explained to some questions made in your Honorable House about the natural production of food in the country. My attention has been drawn to this matter more especially since the buffaloes died out in the country, and I see the importance of doing something toward this object to save the poor Indians from dying away from the face of the earth.

There are large lakes on the north side of Saskatchewan River, that abound with fish, namely: Isle a la Croix, Lake Serpent, Lac La Rouge, Cumberland, Moose Lake. It is within reach from all quarters from the great plains. There are chase and game at the same time. With regard to this part of the country such as Lake Winnipeg and through all the Nelson River to Hudson Bay, there is none like it, I mean like Lake Winnipeg which is the best fishery in the country, being a vast inland sea. The wild rice that grows on the east side of the lake too, is ample to support a large population, if it was harvested by proper hands. Root crops can be raised and barley as far as Oxford House and Trout Lake east of Oxford House.

I am very anxious a step ought to be taken by the Government to try and save the Indians. I would suggest, as I have before, to allow the Indians some of the fisheries in Lake Winnipeg at certain points and to preserve some rivers where they breed. The Dominion Government must not think that the fish deposit their eggs at every pond; they are very careful at the streams where they spawn and the fish resort to these rivers annually to deposit their eggs. If a fishing company establish themselves into these rivers, the fish will die, unless they use short nets from four inches to six inches mesh; smaller than that is injurious.

None of the Indians that are settled in those lakes I have mentioned have ever troubled the Government for food—one Indian here never asks for food except seed wheat and potatoes. St. Peter's Reserve is, I believe, the largest reserve in all the Dominion, but the expense is comparatively small because our Indians never ask for food. Our people support themselves.

Excuse me taking such liberty. My apology is I wish the welfare of my countrymen. I hope to go and build a church for them this summer at Jack Head.

Dear Sir, I have the honor to be,
Your obedient humble servant,

J. S. HEE,
Missionary.

DR. SCHULTZ, M. P.,
Chairman of Committee.

HARWOOD, ONT., 13th June, 1887.

SIR,—I will have, in the month of September, about 500 bushels of rice seed and about six or seven hundred weight of food rice. Indians clean it for food by parch-

ing it. I buy the cleaned rice from them by the pound; I sell it at 10 cents per pound. The other I buy by the bushel measure, and sell it the same, only I cure it for sowing. I have a drying house here 55 feet in length and 40 feet in width, with two sets of floors. I spread it about six inches thick and turn it four times a day for three weeks; then I pack in large sugar barrels, five bushels in a barrel. They then hold 300 pounds of sugar. I have 150 to ship to Banff Hot Springs, N.W.T. I can supply you with first class seed at \$2 a bushel, and no charge for barrels. I will deliver it at the Grand Trunk station, Port Hope, for \$2 per bushel.

Respectfully yours,

CHARLES GILCHRIST.

Hon. Mr. SCHULTZ,
Chairman of Committee on the Natural Food Products of
the North-West.

WINNIPEG, 15th June, 1887.

DEAR SIR,—I have the honor to submit to the Committee on Natural Food Products the following replies to certain questions that were sent to me to answer:—

1. In reply to the first question, I beg to say that I have travelled through the Province of Manitoba, and over that portion of country in the district of Keewatin which lies between Lake Winnipeg and James Bay; I have had also occasion to become acquainted with the region north of Manitoba and west of Hudson Bay, from the reports of friends living in these places.

2. In reply to the second question I beg to say that the wild plants suitable for food, with which I am acquainted, are hops, rice, saskatoon, plums, strawberries, raspberries, blueberries, pembina berries, gooseberries, cranberries (high and low bush), currants (black and red), grapes, red cherries, choke cherries, hazel nuts and filberts. Besides the plants mentioned, there is the Labrador tea, or country tea, which deserves special notice among our natural products.

The Labrador tea, saskatoon, strawberries, raspberries, blueberries, gooseberries, cranberries, currants and cherries grow in great abundance in Manitoba and all through the country reaching to Hudson Bay. The other plants mentioned, with the exception of the rice, grow in Manitoba. The rice grows in the country lying between Rainy Lake and Lake Seul. I have heard that some has been growing near Totogon, at the south end of Lake Manitoba. In September of 1888, our family travelled through the rice country south of Lake Seul. Rice, at that time, was our chief article of diet, our other provisions having run short. Here and there in the rice fields we noticed a birch bark canoe in which the Indians were busily engaged collecting rice for their winter's supply. I wrote to a friend last year for samples of rice in the stock, but up to the present time have not received them. The Labrador or country tea is a product of great importance. It was used very extensively in this country before our entrance into Confederation. In the hay and harvest fields it was considered by many of the old settlers of the Red River colony to be superior to any other beverage in allaying thirst. It is by no means an unpleasant drink, and is also said to contain some very good medicinal properties. Persons affected with gravel have been very much assisted by using it. I know homes in this country where this tea is still used. I have sent by express to you samples in the blossom and on the stock, which I collected from the east side of the Red River, in the parish of St. Andrews, last summer. I would respectfully recommend this product to your considerations.

Animals.—The animals suitable for food are the rabbit, moose, elk, deer and bear; several of the other kinds are used but those mentioned are the most suitable.

Birds.—The birds suitable for food are the goose, of which I know three varieties, the wavy (two kinds white and blue), the duck of which there are many varieties—the plover, snipe, crane, swan, pigeon, prairie chicken and partridge.

Fishes.—The fishes suitable for food are the white fish, sturgeon, pike, catfish, perch, sunfish, trout, gold eye, and carp. The sturgeon found in the rivers emptying into Lake Winnipeg are larger and better flavored than those caught in the rivers emptying into Hudson Bay. There is also a marked difference between the white fish caught in Lake Winnipeg and those in Lake Manitoba; the former being much the better fish.

3. The varieties I consider suitable for transplacing and transplanting into other portions of the North-West are—in plants, hops, and rice—so far as I can learn most of the plants I have mentioned are growing in many parts of the North-West.

In Animals.—Rabbits, moose, elk and deer.

In Fish.—Whitefish, pike, perch, gold eye, carp and catfish.

As to the districts to which these varieties could be translated with advantage to the white and Indian populations, I would say that we have two great districts—the one a prairie, the other wooded. The former is east of the Rocky Mountains and extends to the Red River, comprising the Provinces of Alberta, Saskatchewan, Assiniboia, and a portion of Manitoba. The latter occupies the remaining section of the country east of the Red River to the Ontario boundary thence to the shores of James' Bay and Hudson's Bay, reaching onward to the valley of the Mackenzie River including also the Province of Athabasca. I am decidedly of the opinion that the natural products mentioned could be translated and grown with greater advantage to the white and Indian populations in that portion of the North-West just described as the wooded district. I am also of the opinion that the few buffalo that still remain should be protected and allowed to breed in our prairie district. If proper care were taken of them they would soon increase in numbers. I feel confident that any of the animals found chiefly in the wooded district if translated to the prairie district would not thrive with advantage.

4. As to re-stocking denuded districts with plants, animals and fishes, I would say that the plants, such as hops, saskatoons, plums, Pembina berries, gooseberries, high bush cranberries, currants, grapes, cherries and nuts could be dug up and transplanted successfully. The plum tree also grows well from the seed. In the prairie of St. Andrew's I have seen in my garden seven trees that were raised from seed and they bear fruit every year (when favorable) in as large quantities as those growing wild in the forests, the plum being of a superior quality.

As to re-stocking districts with animals, I would say that such animals as the rabbit, moose, elk, deer and buffalo would thrive by being kept within enclosure which would have to be large enough to allow them sufficient freedom. In order to make the experiment a success I would advise following the courses of the rivers and lakes as much as possible with these wild stock farms, especially when providing for such animals as the moose, elk and deer.

As to re-stocking denuded districts with fish, this, I consider would be the most difficult of the three. I would suggest the damming up of certain rivers not used for navigable purposes for a few years. Here, if the fish were allowed to spawn they would multiply very quickly. The manner of transporting them to these new districts might be simple. For instance, one of our York boats would convey a large number of live fish by having it about one-third full of water which could be changed every day while the fish were in transit. The fish could be easily obtained by means of a drag net.

5. As I have not seen the list of trees, shrubs, grains, grasses, fruits, and vegetables that has been furnished from the Government Central Experimental Farm Station, I have no knowledge of the varieties it contains. It is a most difficult matter to raise trees on a prairie, and in this country the only tree I know of that will grow with any degree of success when transplanted is our maple tree. In the matter of grain, particularly wheat, a great mistake is being made by our new farmers in sowing varieties that take a long time to ripen. In the earlier days of this country before we entered the Confederation, the wheat raised on the banks of the Red River and also along the Saskatchewan River matured in ninety days. The

kinds grown at that period were the Black Sea wheat, the white fife and the prairie *du chien*. I would respectfully suggest that these varieties of wheat be added (if obtainable) to the indigenous products of any district where an experiment in the growing of grain and natural products is to be made.

6. In the matter of planting maple trees upon our prairies, I would suggest that they be raised from the seed, and after two years' growth transplanted together—wild forest style. They could be easily thinned out as forests grew. The cost of obtaining maple seeds would be very trifling.

7. Food for the Indians should be good wholesome flour and beef (both of which can be supplied here in Manitoba and the North-West), and very little pork and bacon. There need never be a scarcity of flour in this land, and now that cattle ranches are being kept beef should be easily procured. The cost for these supplies would be at all times less than if purchased outside of the country.

8. The plants I have seen improved in quality by cultivation are: hops, saskatoons, plums, strawberries, raspberries, gooseberries, red cherries and choke cherries.

9. Barley is always a sure crop in this country. It does not need as much attention as other kinds of grain, and it would be well to have the Indians grow it along with other things, as it can be used for soup, and also makes a good flour when ground. Indian corn, such as was formerly grown here, can be raised with very little trouble, so can potatoes, turnips and cabbage.

10. All the fishes mentioned in answer to question three. I consider, however, that the pike will thrive where no other fish will. They are sometimes met with in our hay swamps.

11. This is a comprehensive question, and it would be very difficult to give a correct account of the rations given to the employees of the Hudson's Bay Company in the various districts before the transfer of this country to Canada. It is stated on good authority that the Hudson's Bay Company have 160 posts and trading posts. 65 of these are in the territory known as Rupert's Land, the country supposed at one time to be covered by the charter of Charles II, and 36 are in the North-West Territory.

At *Lower Fort Garry*, here in Manitoba, the rations allowed to each man per day were: flour, pork or beef, with tea and sugar.

At *Moose Factory*, on Hudson's Bay, the rations allowed were: 1 goose or 2 rabbits, pork or beef, flour, tea and sugar. Cattle, horses, pigs, sheep, tame geese, hens and pigeons are kept at this place, and barley, oats, potatoes and many of the vegetables are grown here.

At *Albany Factory*, on Hudson's Bay: 1 goose and 2½ beef alternating with flour, tea and sugar. The beef is procured at this post, a large number of cattle being constantly kept here; and about 100 barrels of geese and waxies are salted down annually—each barrel containing 100 geese or waxies.

At *Rupert's House*, on Hudson's Bay: salt geese or rabbits in winter, flour, with tea and sugar.

At *Fort George*: geese, flour, tea and sugar, codfish, salmon and trout. These fish are said to be very plentiful in Whale River.

12. Fish can be well preserved by being either cut into thin slices and dried before the sun, or cut open (the cut must be made from the back) and smoked. These are the easiest methods of preserving and curing fish. They can also be salted down. Geese, when cut into thin slices, dried and smoked, make excellent food. At the several forts on Hudson's Bay the Hudson's Bay Company salt down geese, waxies, plover, and fish, which they serve out to their employees in the winter months. Deer's meat can be pemicanized and is excellent, and I can see no reason why the flesh of our own cattle (now in the absence of buffalo) should not be treated in the same way. History informs us that before Sir John Richardson started out upon his Arctic exploration he had pemican prepared in England from the meat of tame cattle. In a portion of this pemican he used currants after the same manner that the people of our own western plains used to make berry-pemican from buffalo meat and saskatoon berries.

In conclusion I may perhaps be allowed to add that on the Indian reserves of this country where there are yet no railways near and to which the cost of transport of flour and beef is expensive, wheat, barley, Indian corn and cattle should be raised, and I am of the opinion that there would be wisdom in building wind-mills upon the reserves similar to those once used in the Red River Colony. One mill would grind all the grain required for a reserve, and as these mills are made principally of wood, their cost would not be very much. I think I can furnish dimensions of the kind of mill I mention.

As a native of this country you have my warmest gratitude for bringing to the notice of the Senate this most important enquiry. May God give you all health and strength to enable you to carry out with success the grand objects you have in view.

I have the honor to be,

Your humble servant,

JAMES TAYLOR.

Answers to questions eliciting information re Senator Schultz's resolution regarding the natural food products of Manitoba and the North-West Territories, &c., &c.

1st. Between Rat Portage and Lake Qu'Appelle.

2nd. They are very numerous; the principal of the plants would be wild rice, wild turnip or buffalo root, Saskatoon or service berry, and the choke cherry, strawberry, raspberry, wild plum, three varieties of cranberry, gooseberry and wild currants. There are other varieties of less importance. Of animals, the chief are the moose, the black and white tail deer, the wood cariboo, and the hare or common rabbit. Of birds, there are over a dozen varieties of wild duck, four varieties of wild geese, two kinds of crane, five varieties of grouse, two of swan, beside different kinds of plover and snipe. All these are to be found in the limits of the Province of Manitoba. The most important fish we have are the whitefish, sturgeon, pike, pickerel, catfish, carp or suckers, perch and gold eyes.

3rd. Could not answer this question.

4th. The most important article of food Manitoba and the North-West produces is the whitefish, none of the lakes I know of in which they are indigenous are so far entirely denuded, and to obviate the trouble of restocking, the better plan would be to check the wholesale slaughter and export of this fish. The Government should immediately take steps to have the catch limited to a certain number yearly, and thereby preserve them for all time to come; this might apply to all kinds of fish excepting predatory varieties. Rabbits require no protection; our Legislature passed an Act protecting them; they became so numerous that it had to be repealed. Last winter they were so numerous that the market price was twenty-five for a dollar. I consider this last mentioned animal ranks second in importance as an economic food product. As to the larger animals, such as moose and deer, the Game and Fish Protection Society of Manitoba have great difficulty in carrying out the law on account of not being able to prevent the Indians from killing them during the close season in their reserves. If the Dominion Government do not speedily intervene and prevent their wards from killing at all seasons of the year, these stately and valuable animals will be very soon things of the past.

5th. Haven't seen list; cannot make any suggestion.

6th. Cannot answer.

7th. First beef and potatoes; beef from the North-West, potatoes from Manitoba. The cost would depend altogether on general market value.

8th. Could not say.

9th. Barley, native Indian corn, potatoes and turnips, carrots and onions.

10th. My answer to the fourth question will in my opinion cover this. If fish in lakes and streams are protected immediately and effectively, lakes and streams will not require re-stocking.

11th. Buffalo meat, venison and fish; and do not know the quantity of rations allowed by the Hudson's Bay Company to their employes but it consisted of dried buffalo meat and pemmican. Fish in some parts and also salted geese at Hudson's Bay and the posts along that coast, and flour and tea.

(a.) Ash leaved maple, poplar and elm to be grown from seed, the land to be previously well tilled.

(b.) I have seen hops, hemp and tobacco grow well; never saw sugar beet growing. I see no reason why it should not. The common beet grows to perfection. E. L. Drewry, M.L.C., who is brewer on a large scale, says that our native is equal to any imported article. I believe there is a good opening for anybody starting in raising the hop as an industry, and also in preserving wild fruit.

(c.) Can't give an opinion.

I was surprised to see that there was no mention made by the parties examined by your Committee of the root known by us as the wild turnip or buffalo root. I don't know the scientific name of it; I have consulted Macoun's work, and he does not mention it among his native products. In the palmy buffalo days when meat was plentiful, the Indians were in the habit of collecting this root; as well as being eaten fresh, they used to pound it up and dry it, when it resembled arrow-root; it was then used in thickening their bouillon. When a boy I have dug and eaten it; it is quite palatable and nutritious.

Respectfully submitted by,

COLIN INKSTER.

To the Hon. Senator SCHULTZ,
Chairman of Committee.

COMMITTEE ROOM No. 8,
SENATE, 21st June, 1887.

DONALD CHISHOLM, Esq., M.P.,
Ottawa.

SIR,—The Committee having been informed that you are familiar with the indigenous edible plant called "camass" in British Columbia, the adjacent United States Territories and States and on the eastern slope of the Rocky Mountains will be obliged by your answer to the following questions, and by any other information in the line of the enquiry relegated to this Committee.

I am, Sir,

Yours very truly,

JOHN SCHULTZ.

Q. What parts of Canada and the United States produce this plant? A. The kamass plant is found in British Columbia about twelve miles from Lyton between the Thompson River and Hat Creek, and in the United States in Eastern Washington Territory between the Spokane and Columbia Rivers in large quantities, and in many parts of Oregon. It grows on low land often on the border of lakes; it somewhat resembles an onion, and is buried in the ground about six inches deep. It has a long slender stem about eighteen inches with a bluish flower.

Q. Give a description of it, and state in what quantities it is found; how used, and what quantity of it is a ration for an adult? A. It grows in large quantities in some places and has been formerly one of the principal sources of food for the native Indians. It contains about the same amount of nutriment as the potato.

Q. Have any efforts been made to transplant it to improve by cultivation or other means? A. There have been no efforts made to cultivate it, as far as I know.

Q. Give any other information regarding it? A. The prairies on which it formerly grew in large quantities are now cultivated and no attention has been paid to it by the white settlers.

Q. At what price can dried salmon and inferior varieties of salmon canned, be delivered along the line of railway in Alberta and West Assinaboia? A. I cannot give you the price of dried salmon as it is not used as an article of commerce, not even among the Indians. There are vast quantities of inferior salmon on the Fraser and other rivers, which is very wholesome food, but has found no sale as yet; but, no doubt, will be largely used in the near future as it can be put up very cheaply.

Q. Are there any varieties of the indigenous plants, animals and fish of British Columbia that can be with advantage transplanted and transplaced in the North-West Territories, if so name them? A. There are many indigenous plants, animals and fish in British Columbia. Professor Selwyn has written about those, who gives a more intelligent account than I can give on the subject on such a short notice.

DONALD CHISHOLM.

Q. Give the Committee any other information that you can which bears upon any of the subjects of their enquiry.

Answers to questions of the Select Committee of the Senate of Canada; Session 1887; touching the natural food products of the North-West Territories, given by Molyneux St. John, formerly Assistant Indian Commissioner, Manitoba.

1. I have travelled through the Lake of the Woods district and Rainy River country between Pembina and Lake Winnipegosis, and westward through the valley of the Assiniboine to the Qu'Appelle country, and the Swan River north of Fort Pelly. In British Columbia, from Victoria along the coast of Vancouver Island and the mainland to Fort Sampson, near the junction with Alaska, and in the interior as far as Kamloops. Such information as I have derived, otherwise than by personal observation, has been obtained from officials of the Hudson's Bay Company, missionaries and half-breed winterers and hunters.

2. The only wild plant I know of suitable for food, that is as a life-sustaining food, is the wild rice, though there are one or two roots that are eaten by the Indians, besides the wild fruit. The animals I know of in the North-West adapted for food are the moose, elk (Wapiti), cariboo, Virginia deer, antelope, mountain sheep and mountain goat, mountain hare and the smaller animal found in the woods of Manitoba and the prairies, which is there called a rabbit, but which some maintain is a hare.

The fish I know of are the whitefish, pickerel (sometimes called John Dory there), catfish, sturgeon, goldeyes and pike. In British Columbia salmon and trout are to be added, and trout in the clear streams rising in the Rocky Mountains and in those flowing into Lake Superior. Of course, in British Columbia the products of sea fishing is to be added, particularly as it supplies a great number of Indians with the bulk of their food.

Of birds, the most plentiful are wild ducks of numerous kinds, geese, swan, grouse, snipe and plover. Of the ducks, the most numerous species are the common stock duck, the blue wing and the green winged teal, widgeon, fall duck, canvas back, red head, pin tail and shoveller. These are to be found in all the waters of the prairies, at least as far west as the head waters of the Assiniboine, and there are others such as the ordinary and the crested shell drake, the buffell head and others less numerous. In British Columbia other kinds peculiar to the salt water are found, but nearly all that I have shot there, including the stock duck and the canvas back, have been quite unpalatable owing to the fish taste they had acquired, probably from eating kelp. This remark applies also to the Canadian goose. This, however, is not the case, I am told, with the ducks a day's journey from the coast.

I have only seen one kind of swan—the ordinary white swan—either in British Columbia or in Manitoba. I have killed geese of three kinds in Manitoba, the Cana-

dian goose, the Arctic goose and a small dark colored bird which I have not been able to identify.

So far as I can learn, the duck mentioned are found everywhere between Lake Superior and the sea, and generally speaking the Canadian goose also, but the Arctic goose, though in great numbers in Manitoba and also in the far North-West, are not so common east of the Red River or in the Saskatchewan valley. They seem to follow certain lines in their flights north and south. Snipe are common in the large marshes of the prairies of Manitoba in September, but do not remain long, and there are several kinds of plover in numbers, including the golden plover. I have been told by two gentlemen that they have shot woodcock in Manitoba. I have never seen one there dead or alive, and believe that if there at all they must be rare visitors. Of the grouse, the most numerous kind, from the Lake of the Woods westward to the mountains, is the bird usually called prairie chicken. It is the pinnated grouse, and varies from the prairie chicken of the Western States, being slightly larger and higher in color. The next is the ruffed grouse, locally called the willow partridge, and found in smaller numbers in the woods throughout the whole country. There is also to be found among the pine woods the spruce partridge, but to the west of Lake Superior they are few in comparison with the others. In the northern parts of Manitoba possibly, or at any rate in Keewatin, the ptarmigan is killed, but I have never heard of its being seen south of Lake Winnipeg.

In and on the other side of the mountains, there is another species of grouse called the blue grouse, larger than any of those before mentioned, and these are all of which I have any personal knowledge. It may be said, however, that there is a variety of birds not usually eaten by white men, not enumerated, but which in the aggregate supply a good deal of food to the Indian, for I have found that an Indian will eat a hawk or a gull as readily as a chicken.

The animals of the country between Lake Superior and the mountains or even to the Pacific, are not a reliable source of food. The moose is scarce and difficult to hunt. So also is the cariboo. The antelope are few and shy, and the common deer are getting scarce. The moose and cariboo are mostly in the Keewatin district and the wilder parts of northern Manitoba; the elk in the west beyond the Province, and the antelope in the plains. They should be dismissed from any calculations in relation to food supplies. The hare or rabbit is subject to some peculiar law which prevents reliance being placed upon it. For a few years in the North-West I could find none; then a few; the following year they appeared to be more numerous, and the last year they were plentiful. I was told that in all probability there would be few or none the next years, but did not remain to verify this; and that this kind of rotation goes on.

3. The only thing I have mentioned which can be transplanted is the wild rice. This will grow in very many lakes where it is not now found, though peculiar conditions are required for its success, and I believe that although it would only be one element in a general plan of providing food for the Indians, it could be tried with little expense by the Indians themselves, under the superintendence of the several Indian agents. If the matter were explained to the Indians they might be trusted to protect the young plants during seed period as might be necessary, and to regulate its gathering in future years. They should not be encouraged to rely on this crop, though in some parts it has served them well in the past, but until they change very materially in their habits, they will always prefer to gather where they have not sown rather than trust entirely to the food they can raise themselves. Growing wild rice may be useful to supplement their home efforts, and might be made an encouragement to work in other directions. I might suggest that it would be an interesting experiment to try whether the wild celery of the south would grow in our northern waters. In regard to the rabbits it would be well to try the effect of introducing others from the east. Those to which I have alluded do not burrow, while there are parts of the country in which the common rabbit would find congenial soil, if it could stand the climate. The danger of over-production such as occurred in Australia would not be very likely to happen in the North-West.

4. The lakes could be re-stocked with whitefish in most cases by protecting the fish, that is by forbidding their being taken in the spawning season and particularly forbidding their export. If necessary a year or more entire rest might be given to particular lakes. Where a lake has been fished out, it might be re-stocked by importing impregnated whitefish eggs from one or other of the nurseries. Care, however, would be necessary to prevent the young fish being turned loose into the lakes until they had attained a certain size. Otherwise they would be destroyed. The sturgeon are killed in great numbers while running up the rapids to their spawning places, and it is unnecessary to say that as this is next to the use of explosives, the best way of exterminating them, a cessation of the practice would probably have a contrary effect. Answering the 10th question in this I should say that the whitefish and sturgeon are the fish most likely to repay the efforts that may be made for their preservation.

6. I am unable to estimate the cost of transplanting and re-stocking in any portions of the North-West. It should be done at slight expense, as the Government already have the requisite machinery, but it can only be successfully done if the person charged with the duty takes an interest in it. One Indian agent, approaching his work in one spirit, could in a few years achieve great results, while another in a different spirit might carry out the instructions of the Department, and yet do nothing.

7. The answer to this depends on markets and freight rates. In times of scarcity we have hitherto supplied the Indians with flour and beef or bacon. Now that through communication has been established with China, rice ought to be available and cheap. It is wholesome and is the principal food of the coolies in China who work hard. In conjunction with a small amount of animal food, it would probably be found to be a useful article with which at times to supply Indians. That, however, is a question of price.

9. Potatoes and Indian corn, cabbages and onions, particularly the first two. In some places they can with advantage sow grain; but I believe it would be of no use attempting to persuade them to cultivate grass. They have the prairie near them, or in the wooded districts they do not want grass.

As to trees, the aspen, the maple and the white willow grow quickly. These are all easily grown on the prairies, and the maple is in more ways than one a useful tree. All that is required is protection from fire, and in their early stages from domestic animals. As the soil varies much, probably valuable trees would grow in one part while failing in another. The elm grows well in some places; the English beech and lime and others might do as well.

11. At the time of the transfer the Indians of the plains lived on the buffalo; the Salteaux principally on fish, wild rice and such birds and animals as they could shoot. They ate many of the carnivorous animals whose skins they sold, and, of course, ate the muskrat. I am not aware of the ration served out by the Hudson's Bay Company to their men. It must have varied according to time and place, in some places being pemican and buffalo meat, in others fish, and at York Factory I understood it was for some period of the year salted geese.

I do not think any general rule can be laid down as to the use of a revival of the natural food supply of the Indians. A great deal might be done to increase it, and to make it a valuable adjunct to such supplies as the Government may distribute. If the Indians were made entirely dependent on it, he would become, for some seasons of the year a wandering beggar, and if he is entirely supplied by the Government, he will do nothing for himself. It is unlikely that in the present generation he will raise sufficient for his own sustenance from the land, but he may be induced to raise so much that with the assistance of what may be called wild food, he can exist in comfort. The occasional change from work at home, which will be necessary to procure that which nature provides without his assistance, will be to his taste, and the fostering of such wild products as may be preserved will not in any way interfere with the progress of the country in civilization. The matter, however, requires to be intelligently handled.

MOLYNEUX ST. JOHN,
Montreal.

FORT QU'APPELLE, 20th June, 1887.

To J. G. ALWYN CREIGHTON, Esq.

SIR,—I beg to forward to you answers to the questions asked by the Committee. On account of being absent I could not give the matter that time which I would otherwise have done, but trust that the answers may be of some benefit to the Committee.

I beg to remain,

Yours respectfully,

DONALD GUNN.

1. I have travelled over the Province of Manitoba and a portion of the North-West Territories, as far north as Prince Albert, and north-east to Fort Pelly.

2. The plants suitable for food are wheat, barley, oats, peas, potatoes, Indian corn, beans, beets, carrots, onions, turnips, radishes, lettuce, cabbage, cauliflower, pumpkins, water melons, cucumbers, &c., &c.

Animals.—Moose, red deer, or elk, black tailed deer, jumping deer, antelope, bear, beaver, lynx, rabbit, &c.

Birds.—Geese, grey and white, the latter numerous in Manitoba, but have not seen any in this portion of the North-West; ducks, we have the mallard, teal, pintail, spoonbill, smoking duck, three kinds of fall ducks, swans, cranes, plover and snipe, curlew, pigeon, pheasant, &c.

Fishes.—Sturgeon, catfish, large whitefish, small whitefish (or ottonabe) pike, pickerel, suckers, gold-eye, sunfish, English perch, trout and salmon, these latter two kinds are up near the mountains, though trout are numerous in the lakes between Carleton and Green Lake, and also in the Cumberland district, but are not to be found in the Red River, the Assiniboine or the North Saskatchewan; sturgeon, catfish, sunfish and gold-eye are not to be found in the Qu'Appelle lakes, though numerous in the North and South Saskatchewan, and all through Manitoba.

3. Of the varieties of fishes mentioned, pike pickerel, whitefish, salmon and trout I consider the best for transplanting into our lakes. The planting of wild rice in our lakes, taken from the Lake of the Woods district, I consider would be a benefit to the white and Indian population on account of food, and would harbor wild fowl of every description.

4.

5. Have not seen the list which was issued from the Government Central Experimental Farm Station, therefore cannot make any suggestions that would be satisfactory to the Committee.

6. With regard to transplanting, restocking, and adding to the indigenous food supplies, I may say that a variety of trees could be transplanted into this portion of the North-West at a very reasonable cost, viz., poplar of different kinds, maple, elm and cottonwood, or silver poplar from Ontario, if any. Re-stocking with polled angus or Highland black cattle would be a great benefit to the food supply; we have some of the former in this locality at the present time, they are thrifty, hardy stock, and their hides, when dressed, make the best of robes.

7. The most economical food for the Indians in times of scarcity is fresh meat which could be had on the ranches up west, bought in fall for winter use. It should not cost more than seven or eight cents per pound. Fresh pork might also be had at the same rate in this portion of the North-West or in Manitoba. Flour, peas, corn and barley for soup, they should be taught to hull the latter (*i. e.*) barley.

9. Wheat, barley, oats, Indian corn, peas and beans. If the Indians were taught the method of hulling the barley by pounding in a mortar it would be a great economy, as it makes a splendid soup. I am not in a position to speak on fruits and grasses, Potatoes, turnips and carrots yield largely with indifferent tillage. Cabbages, onions, radishes and pumpkins yield fairly with ordinary tillage.

10. Pike, pickerel, whitefish, salmon and trout are the most desirable to re-stock denuded lakes and streams.

11. The food of the Indians at the time of the transfer of this country to Canada, consisted of fish and small game in summer; in winter it consisted of large game such as moose, red deer or elk, black-tailed deer, jumping deer, bear, beaver, lynx, muskrats, rabbits, etc., with a fair proportion of fish taken by line through the ice. I am now speaking of the Indians in the neighborhood of Lakes Dauphin, Winnipegosis, Manitoba and Winnipeg. In this portion of the North-West at that time the food of the Indians was chiefly buffalo, moose, elk, blacktail antelope, etc., the flesh of which they dried, then pounded, and by adding a portion of melted tallow and putting both into a sack made of raw buffalo hide the process of curing was completed, and sufficient laid up for winter months. The rations of men employed by the Hudson's Bay Company previous to transfer, was three pounds pemmican per diem or one pound of flour and two of pemmican, this was the allowance from Hudson's Bay to the Pacific.

12. The means adopted in this country for preserving fish caught in summer is to dry, then smoke and salt; salting has also been tried and found to do well not only with fish, but with beef, pork and mutton. The canning process I consider the best.

From Professor Saunders, Central Experimental Farm, Ottawa. Furnished 20th June, 1887.

Cereals.

120 different varieties of wheat obtained from almost all parts of the world where wheat is cultivated, including most of the countries in Europe, also from Australia, New Zealand, India, California, and other parts of the United States, also from all the Provinces and Territories in the Dominion.

40 varieties of barley from similar distant sources.

50 varieties of oats.

Roots.

246 varieties of potatoes, including almost every sort in cultivation.

Other roots, such as carrots, mangolds, &c., have been planted for general farm use; potatoes only have been planted for experimental work.

Fruits.

Of the larger fruits, including apples, pears, plums, cherries, &c., 1,800 trees have been obtained, consisting of from 500 to 600 varieties. Of these more than 200 are Russian sorts, chiefly apple trees, which have originated in Northern Russia, where the climate is very severe. It is hoped that many of these trees will be found hardy enough to endure the winters in the most northerly settlements in the Dominion. This selection of Russian fruit trees has been made more especially with the view of supplying Manitoba and the North-West with hardy fruits. The most promising sorts will be propagated for that purpose.

SMALL FRUITS.

Grapes.

127 varieties of hardy outdoor grapes have been planted on a portion of the Central Farm, having a southern exposure, where it is believed a large proportion of them will succeed well.

Currants.

20 varieties of the standard named sorts have been obtained, most of them in quantities of from 50 to 100 of each. A large number of seedlings have also been planted, among which are some very promising sorts.

Gooseberries.

In the collection of gooseberries there are thirty named sorts, and about fifty varieties of seedlings unnamed, some of which promise to be very valuable.

Raspberries.

This fruit is represented by 38 named varieties and about 200 seedlings, among which latter there are many interesting hybrids, which give promise of abundant crops.

Blackberries.

21 varieties of this useful fruit have been planted, some of which, it is hoped, will prove hardy in this district.

Strawberries.

92 named sorts of strawberries have been planted, and about 50 unnamed seedlings. These form in all a most interesting collection of about 20,000 plants of much promise.

Forest Trees, Shrubs, &c.

88,000 young forest and ornamental trees and shrubs have been planted, comprising both evergreen and deciduous sorts. The number of varieties exceed 500 in all, among which are many things never before introduced into Canada. Such sorts as prove hardy will be propagated for testing in other parts of the Dominion.

Seeds.

A very large collection of seeds has been secured, consisting of more than 1,000 varieties, including almost every sort of seed of tree, shrub and plant, which it is desirable to test in Canada. Some of these have been obtained by purchase in Europe and America, the others by donations from other institutions. From the Royal Gardens at Kew, England, 355 packages have been received. From the Imperial Botanic Gardens at St. Petersburg, Russia, about 300 packages, and 110 sorts from the Imperial Agricultural Institution at Tokio, Japan. A large number of these have germinated, and already form a most interesting group.

WM. SAUNDERS,
Director.

GONOV, MANITOBA, 17th June, 1887.

To the Secretary of the Select Committee
on Natural Food Products of the North-West.

SIR,—In reply to the questions indicating some of the enquiries being made by the Select Committee appointed for the purpose of collecting information regarding the existing natural food products of the North-West Territories, and the best means of conserving and increasing them, I beg to say as follows:—

1. That I have lived in the Province of Manitoba for over sixty years, and have only travelled from the boundary of Emerson to Rabbit Point in Lake Winnipeg, and from the eastern part of the Province to Portage la Prairie, but am familiar with the natural history of the whole Province, and much of the country commonly called the North-West Territories, from the reports of reliable persons.

2. The natural food producing plants, with which I am acquainted, are the Saskatoon or June berry, chokecherry, red and black cherry, plums, cranberries (both high and low bush), blackberries, blueberries (two kinds), raspberries, grapes, wild potatoes, strawberries, eyeberrids, gooseberries, several kinds of currants, turnips, onions, hazel nuts, philberts, hops, rice, country tea, maple trees, and many others too numerous to mention. Nearly all of the above plants grow in Manitoba,

but the area in which the rice grows may be limited to the country between Kainy Lake and Lake Seul in the east, and westward to the Red River and the eastern shore of Lake Winnipeg; I cannot say whether it is found west of that dividing line, or how far north, but there has been, and is now small patches of it growing in Cook's Creek which runs through my cattle farm in Section 36, Township 12, Range 5, east of the first principal meridian. I am told that an Indian planted some rice in the Netley Creek, west of the Red River, and that it thrived well, but being near the marsh on the lower part of the said river, the usually high waters of the adjacent lake exterminated it.

Animals.—The moose, buffalo, deer (several kinds), beaver, rabbits, wild cat, skunk, badger, bears, muskrats, gophers, and several others. Those mentioned are most palatable

Birds.—Two or three kinds of geese, many varieties of ducks, swans, cranes, pigeons, bitterns, prairie chicken, partridges, grouse, white ptarmigan, various kinds of plover, snipe, sand piper, curlews and numerous other kinds of birds, which, though not large, are very delicious.

Fishes.—Sturgeon, whitefish, trout, catfish, pike or jack fish, goldeye, two or three kinds of suckers or carp, sunfish, pickerel perch, tullabees.

Believing that all or nearly all of the plants, animals, birds and fishes mentioned above, are pretty well disseminated over the North-West, I think if they were protected by law at certain seasons, and if experiments were made by the officers of the experimental farms about to be established in Manitoba and the North-West Territories, more reliable and useful information may be obtained than I can give. I think, however, that the cultivation of the sugar maple should be encouraged in all parts of Manitoba and the North-West, where it is not at present, as it would afford shelter to man and beast, supply sugar for, and be an ornament around prairie homes. Hop growing might be encouraged in all the southern portions of this western part of the Dominion, and I have no doubt its growth would supply an industry, the profits from which would prove of great value as well to the Indian population who might be as largely employed in its cultivation and preparation for market as others. The article of rice being one of such great importance as an article of food supply as well to the Indian as all others, I would strongly recommend an immediate effort be made to secure a supply of seed, and have men who are familiar with the kind of streams and bottoms on which nature has successfully produced it in the past, engaged as soon as possible to have it planted wherever there appears to be the necessary indications for its successful growth. I look upon this crop as one that might so materially aid the Government in furnishing a strong, nutritive, healthy, and at the same time inexpensive article of food for the Indians, that I think some money might well be expended in testing the matter of its production in more westerly parts of the Dominion.

Fishes.—Having enumerated the kinds of fish which I look upon as most valuable as a source from which a cheap, nutritious and very palatable food supply for Indians and others might be obtained and conserved, I am decidedly of the opinion that such of the fishing laws and regulations as would attain those objects should be put in force in this Province and the southern and western parts of the North-West Territories at as early a date as possible, and especially those portions relating to the protection of all kinds of fish during the spawning season, and that their rigid enforcement should be attended to in all cases excepting those affecting the daily supplies of fishing Indians.

4. My opinion as to the best means of re-storing denuded districts with the plants, animals and fish which were once indigenous there, is that a supply of such plants as may be found upon careful enquiry to be adapted to any localities, should be secured at the proper season, at as cheap a rate as possible, and planted and cared for until they arrived at maturity or nature could care for them. The same suggestion will apply to the case of animals and fish, excepting in the case of sturgeon, whitefish, tullabees, goldeyes and a few other kinds of fish, I am of the opinion that the establishment of a local hatchery is urgently required at or near some lake or stream from which the young fish could be easily distributed.

5. I have not seen the list referred to, therefore cannot say anything in reply to it, but beg to state that there is a certain grass that grows here, commonly called "seedy grass," it has a round stalk or stem and bears a large quantity of fine seed, and grows very luxuriantly in many parts of St. Clements and in other parts of the Province, more especially on the east side of the railway, and furnishes a fine, heavy and very nutritious hay; it grows well on any high land whenever there is a fair average rainfall, and in ordinary years on the borders of swamps and in such depressions as form the natural drainage between swamps, and likewise between swamps or higher land and creeks, one peculiarity of the said grass is that whenever any fields in these parts are left uncultivated for a year or two it is sure to take possession without being sown, and if a road is made through standing timber it is found there to in a very short time, and from my long acquaintance with it am strongly of the opinion that it could be transplanted with great advantage into those parts of the North-West Territories in which it may not be indigenous.

6. In reply to this question I may say that I have answered it to a certain extent in the foregoing as to the cost of transplanting and re-stocking I may say that I cannot say, as that will depend upon many things, such as the cost of labor, the abundance or otherwise of the articles required in each different locality and the facilities for transportation, taken in connection with the distance, and the price of labor at the time, and place.

7. Beef, pork, flour, barley for soup, and potatoes, all of which could be bought in the Province at a very low rate—and some of the said articles should be available in the Territorial districts of Assiniboia, Alberta and Saskatchewan, at a reasonable price.

8. The plants which are most likely to be improved in quantity, quality, &c., &c., are the plum, strawberry, raspberry, hop, grape, current, cherry, saskatoon, turnip and onion, and the artichoke.

9. Barley, white and black, early variety, oats, Indian corn, Red River country timothy, clover, any natural grasses that are hardy enough to grow without much care, which would have to be selected so as to suit the soil in which it was sown, the same may be said of fruits, as to roots and vegetables, I would say the soil and climate being suitable, that the potato, cabbage, beet, carrot, artichoke or wild potato, which does not require much care or re-seeding, turnips, the indigenous variety, which ripens early and the ordinary kinds of turnips as well.

10. In answer to this question I may say that it appears to me it would be best to re-stock denuded lakes and streams with such fish as originally occupied them, in the absence of such information, they might be restocked with such kinds of fish as experts might, after careful investigation, consider most likely to thrive well and prove most remunerative, the pike, perch and carp might be tried in all salt water lakes.

11. In the Red River settlement the usual rations allowed by the Hudson's Bay Company and other traders to their employes was one and one-half pounds of beef or pork or pemican, one pound of flour and some potatoes, say one-half pound per day. At the outlying posts in the Province I believe the rations were the same; in the North-West Territories the rations allowed were variable according to their success in fishing and hunting, and consisted chiefly of fruit, fish and fowl with some potatoes, and a very small quantity of flour. In that portion of the Province east of Lake Winnipeg the rations consisted of rice, tallow, fish potatoes and flour. In answer to this question I beg to state that the food of the Indians varied according to the locality they lived in, in the west they lived chiefly on buffalo meat, fish and the flesh of smaller game such as wolves, foxes, rabbits, badgers, gophers, skunk or any animal they might be fortunate enough to kill, also all such fowl as they could get, and berries. In the north-western part they live on the moose, deer, bears, wolves, foxes, beavers, and such other animals as live in that part, as well as fish and fowl. In the eastern part the chief food was fish and rice, with bear, beaver, muskrat, lynx, fisher, badger, skunk and gophers, and plums, berries, turnips and wild potatoes or artichokes, and anything else they could get.

12. In my opinion all the berries and fruit mentioned above can be preserved by canning. All kinds of fish can be preserved by drying, smoking and salting, and by freezing in winter, and might be made into pemmican. All the larger animals could be preserved by drying, smoking, and by being made into pemmican, provided there is grease enough at hand for the purpose. I may mention that the Indians never experienced any difficulty in preserving all the food they could get their hands on, the only trouble with the poor people has been, and I am afraid still is, the getting enough food.

13. I have not said anything about the buffalo because I look upon that once very numerous, very valuable and self-sustaining animal as being all but exterminated, and I feel that in the event of this western country becoming settled up, as we think God intended it should, and as every patriotic Canadian hopes it may, with a hard working, thrifty population, who will utilize the boundless grazing stretches of this country in raising improved herds of cattle, sheep and other domestic animals, that it might be as well that they would be allowed to come to an end. I am the more inclined to that belief from the fact that farmers and buffalo were not intended to live together. At the same time it is possible if a suitable locality could be found somewhat remote from any farming settlements, their propagation and preservation might be desirable and possibly profitable; and the experiment of crossing them with domestic animals may have interesting and beneficial results.

(a.) With regard to the varieties of indigenous and other trees best adapted for treeless districts, I beg to say that I am of the opinion that the common white poplar could be grown in many such parts of the country, and that it would be found of great economic value if used for fuel, rails and housebuilding, as well as shelter from storms. The ash-leaved poplar, the rough barked poplar, or balm of Gilead, the jack pine, the spruce, the fir tree, and the maple, and some other varieties which grow in the northern and eastern parts of the fertile belt, would also, in my opinion, be found to grow rapidly, and to furnish both fuel and shelter.

(b.) As to the cultivation of hops, hemp, sugar beets, tobacco, and other economic plants, I may say that I have seen all these plants grown very successfully in this part for many years back, and from observation and reports, have no doubt they could be grown to advantage in very many parts of the southern portions of the North-West Territories.

(c.) With regard to the question as to the best means of developing, transporting and economising such deposits of coal, iron, gold, silver, copper, petroleum, salt, sulphur, slate, &c., as are found in that part of Canada west of Lake Superior, I regret to have to state that while I am aware of the existence of all the varieties mentioned in your question, yet not having had any experience in such matters, I cannot give any answer to it.

I regret that these questions did not reach me at an earlier date. If they had, I should have been able to give more time and attention to this very important subject. As it is, I have done what I could in the very limited time at my disposal, and hope that my answers may be of some little service in helping the Committee to arrive at such a decision as may go far in the direction of accomplishing the very desirable objects aimed at by its patriotic chairman.

I am, Sir,

Yours truly,

JOHN GUNN.

1. Manitoba, Assiniboia, Northern and Southern Alberta, British Columbia, Peace River, Athabasca, and McKenzie River.

2. Moose, cariboo, antelope, red deer, mountain sheep and goats, bears, beavers, lynx, rabbits, musquash, geese, swans, waxies, ducks, prairie chickens, partridges, ptarivigan, Jack fish trout, carp, perch, white fish, salmon, seroice-berries, blueberries, cranberries.

3. The varieties above mentioned are found in most of the country with which I am familiar.

7. Beef, flour, bacon or pork, potatoes, which are worth here at Edmonton: Beef, 14 cents; flour, 3 cents; bacon, 15 cents; pork, 9 cents per pound; potatoes, 50 cents per bushel.

9. Barley, potatoes, turnips, carrots, onions.

10. Whitefish.

11. The animals, fishes and birds mentioned in question. (2.) Also the buffalo, now extinct or nearly so. Rations: eight pounds fresh meat (buffalo), or two pounds pemmican and one pound flour, or three whitefish, or 1 pound bacon and two pounds flour.

12. Fish are successfully preserved by drying and salting, and for winter use by freezing; meat of all kinds by drying and smoking, and when buffalo meat plentiful pemmican was made in large quantities and kept for a long time without spoiling. Domestic cattle make just as good pemmican as buffalo.

(a.) Smooth and rough back poplar, willow and maple.

(b.) Hops grow wild. Tobacco has been successfully grown by Bishop Tarrant of Lac la Biche for some years.

(c.) Deposits of some of the minerals mentioned are well known to exist at many places in the Territories, and only need cheap transportation, as afforded by railroads, to become valuable.

R. HARDISTY.

EVIDENCE OF H. J. MOBERLY, C. T. HUDSON'S BAY COMPANY, RAPID RIVER, CUMBERLAND DISTRICT.

1st. I know the Saskatchewan (North) River and Valley from the mouth of the Saskatchewan on Lake Winnipeg up to its source in the Rocky Mountains. I also know the Athabasca River and Valley from its source down to its mouth in Athabasca Lake, and am well acquainted with all the country between those two rivers from the Rocky Mountains down to Carlton, and from there taking a line *via* Green Lake, Beaver River, Isle à Lacrosse Lake, Deep River, Buffalo Lake, River and Lake La Loche, Methy Portage and down the Clearwater to its junction with the Athabasca River as an eastern line and the Rocky Mountains as a western. I know well all the country between the Athabasca and Peace Rivers from their mouth to their sources. I have been all through the Rocky Mountains from the Saskatchewan (North) to the Peace River, both on the east and west slopes. I know the Fraser River from its source down to Soda Creek, which is some 120 miles below the Quesnelle mouth, and from Quesnelle mouth to the Carriboo mines and up the Stewart's Lake River and Fraser's Lake River, and the country between Fraser's Lake, Babine Lake, Bear Lake, Lake Tatler and McLeod's Lake, and from there down the Paranip River (south branch of Peace River, west of Rocky Mountains) and up the Findlays Branch (north Peace River, west of Rocky Mountains) as far as the Ominica mines. I have been twice down to York Factory, on the Hudson Bay, *via* the boat route from Lake Winnipeg, and I have passed from Lake Superior by the canoe route to Lake Winnipeg. I came up in the Hudson Bay Company's service in 1854 to the Saskatchewan and was in charge of the Rock Mountain House, Jasper House, Lac La Biche, Fort Assiniboine and was employed a great deal in travelling about the country in charge of various parties till 1861. From 1861 to 1864 I was in charge of Fraser Lake on the west side of the Rocky Mountains, and also travelled a good deal through that country. From 1864 to 1870 I was travelling on my own account through the country on the upper Fraser and through to the Ominica mines, also through the Rocky Mountains from Peace River to the Athabasca and all over the upper Peace River east of the Rocky Mountains as far down as Vermillion. From 1870 to 1878 I was again in the Hudson Bay Company's service in charge of Methy Portage and Fort McMurray on the Athabasca River. From 1878 to 1885 I was in charge of the lower Peace River from Vermillion to Athabasca Lake. I have been up from Lake Winnipeg *via* Pine Lake (Cumberland River) to Rapid River (Lac La Rouge) where I am now in charge.

2ND.—BIRDS.

Ducks.—All over the country.

Geese.—Saskatchewan, Athabasca, Peace River, west slope of Rocky Mountains, McKenzie River, shores of Hudson Bay.

Swans.—Wherever the geese are the swans go also.

Cranes.—Saskatchewan, Athabasca, Peace River, McKenzie River.

Prairie Chickens.—Saskatchewan, Athabasca, Peace River.

Ruffed Grouse.—All over the North-West Territories.

Spruce Partridge.—All over the North-West Territories.

Blue Grouse.—Rocky Mountains.

Ptarmigan.—Rocky Mountains, Athabasca, Peace River, McKenzie River, Hudson Bay.

Plover, Snipe.—All over North-West Territories.

FISH.

Lake Trout.—(Salmon trout) in almost all the large lakes all over the country.

River Trout.—(Salmon trout) Saskatchewan River, Athabasca, Peace River, close to the Rocky Mountains.

Silver Trout.—Rocky Mountains and western slope.

Speckled Trout.—Rocky Mountains, east and west slope.

Mountain Trout.—Rocky Mountains, east and west slope.

Brook Trout.—Rocky Mountains, west slope.

Whitefish.—All over the country from Saskatchewan north in both lakes and most rivers.

Pickeral.—In most lakes over the North-West Territories.

Jackfish (Pike).—In most lakes over the North-West Territories.

Suckers.—All over the country.

Sturgeon.—Lake Winnipeg and the rivers running from that lake as far up as they can go. Also on the Fraser River as far up as Stewart's Lake which they do not cross. Salt water sturgeon only come up in summer.

Salmon.—Fraser River and all its branches as far as they can go. A peculiar kind of salmon comes up the McKenzie River as far as the Salt River Rapids above Great Slave Lake.

Bass, Sunfish, Catfish.—Lake Winnipeg.

Herring.—(Fresh water.) I only know one small lake on the top of the Cariboo Mountains, north of Peace River, where they are found west of Lake Superior.

Totebee.—A small kind of whitefish found in most lakes where whitefish abound.

Goldeyes.—Saskatchewan River, Athabasca River, Peace River and their tributaries, and in some lakes through the North-West Territories.

ANIMALS.

Buffalo.—Saskatchewan prairies.

Buffalo (Wood).—At present a band is still alive between the Saskatchewan and Athabasca Rivers, they keep on the mountains between Lac La Biche and Fort McMurray. Probably about 200 are still alive. Another band are between the Athabasca and Peace Rivers; they keep on the Thickwood and Birch Mountains and are about 300 strong. Another band are on the mountains between the Peace River and the Laird River and are scattered through the mountains from the Salt River to the foot of the Rocky Mountains and number probably 700 strong.

Moose.—All over the wooded country north of the prairies and east of the Rocky Mountains.

Rein Deer, large.—Rocky Mountains, west of Rocky Mountains, and all over the wood countries from Saskatchewan to the barren grounds of the north.

Rein Deer, small.—All over the barren grounds in the north and come south in winter as far as Lac de Brochet, Athabasca Lake and the Laird River. None in Rocky Mountains. Come down the coast of the Hudson Bay to York Factory and Churchill.

Antelope.—Saskatchewan prairies.

Black Tail Deer.—Saskatchewan River, Athabasca River and Peace River close to the Rocky Mountains.

Jumping Deer.—Same country as the black tail deer.

Chevreux.—Same country as the black tail deer.

Bears, Black and Brown.—All over the wooded country and Rocky Mountains, also west side.

Bears, Grizzly.—Saskatchewan Plains, Rocky Mountains, Peace River, Athabasca River, Laird River, Fraser River. They seldom come more than 250 miles from the foot of the Rockies.

Beaver.—Saskatchewan, Athabasca, Peace River, British Columbia, Rocky Mountains and in fact are all over the woody country.

Marmots.—Rocky Mountains.

Goats.—Rocky Mountains.

Sheep, Big Horn.—Rocky Mountains.

Red Deer.—Saskatchewan, Athabasca and Peace River Valleys.

3rd. I think that the whitefish, which is one of the best fish for food, could be transplanted with advantage into almost any lake in the country where they do not at present exist. The speckled trout, brook trout, river trout and silver trout could also be transplanted to advantage in any streams where the water is clear. The Lake

Winnipeg sturgeon, I am sure, would also succeed if placed in any of the large lakes through the country, and from there would naturally find their way up the various rivers at the proper seasons. Lake Athabasca, for instance, as well as Lac la Rouge and Isle à la Crosse. Jackfish live anywhere, but are destructive to other kinds, and are not so good for food. Salmon can only be placed on rivers running into the salt water.

4th. Districts denuded of animals can only be restocked by the same animals by finding some other method of feeding the Indians and enforcing stringent laws about killing during the breeding season. If such measures were carried out, in a very few years the whole of this country would be again full of moose, deer, buffalo, beaver and other game. Without that, in a few years most of those animals will become extinct, as they are diminishing very fast since the country has been taken out of the hands of the Hudson Bay Company. The Indians are now encouraged by the free traders to kill all they can both in and out of season.

5th. As I do not know what has been furnished from the Government Experimental Farm Station, having never seen anything furnished where I have resided, I can give no opinion on the subject.

6th. Transplacing the various kinds of fish that I have above mentioned could in most cases be done by carrying over live fish from one lake to another, as the distances in most cases would be short. It would be almost impossible to give a correct idea of the expense, as it would be so much varied in different parts of the country, and men well acquainted with the work would have to be secured to overlook it. Men also who know the country well would have to be with the parties so employed. Where the distances are too great or the obstacles too many, breeding the fish from the spawn would have to be had recourse to.

7th. In years of scarcity in the Saskatchewan valley where fish are not numerous, I think flour and bacon would be the best and cheapest food that could be sent in to them. Into any of the further districts, flour bought in the Saskatchewan and bacon would be the best and cheapest to bring in from the outside. In Peace River, flour bought in Saskatchewan would cost 16 cents per lb. to freight it in. Bacon the same. To the Athabasca Valley, in the upper parts, it would cost 6, 8, or 10 cents per lb., according to the place taken. I think, as a general rule, a great mistake has been made with regard to the feeding of Indians in the ceded parts of the country, and where game has failed. Too much stress has been laid on the teaching of farming as a commencement, and the Indians cannot settle down at once from a roaming life and become farmers in a few years. But they can become fishermen, and if more care was taken to settle them at fish lakes and supply them with the means of fishing, it would be done much cheaper and much more satisfactorily. Let an examination be made all through the country and it will be found that where Indians are settled at a good fish lake and have means to use (nets, &c.), that very seldom starvation is heard of, and as they are kept employed in a work they like and understand, they are, as a rule, peaceable and well satisfied. Where they are only farmers they are dissatisfied, have to be fed at an enormous cost and always starve. In making the reservation for Indians good farming land and a game country seem to be the great objects to combine. My opinion is that fish should be the first thing considered, and once they become accustomed to live in one place about a lake, then a little farming, such as they are capable of doing, would naturally follow, as it has already done all through the country wherever it has been tried. In some places where it has failed it has been caused by a few settling down at a lake that would have kept them well; afterwards other bands that were roaming about seeing them so well off, came in, and, as a natural consequence, eat out the first settlers. Had they been settled at other fish lakes, of which there are plenty, starvation in this country would seldom be heard of.

8th. Ans. to Ques. 11.—At the time of the transfer of the country to Canada the food of the Indians varied according to the part of the country they lived in. In the Saskatchewan it was buffalo meat entirely, on the plains; in the woods it was buffalo meat, moose meat and in some places fish at times; in the Rocky Mountains

and along the eastern slope from the Saskatchewan to Peace River it was moose, deer, bear and, in a few places, fish; in the Cumberland, Isle à la Crosse and English River districts it was principally fish, with meat at times. The rations allowed by the Hudson Bay Company to their employés was:

6 lbs. fresh meat	per man;	3 lbs. per woman;	2 lbs. per child.
3 lbs. dried do	do	1½ lbs. do	¾ lbs. do
2½ lbs. pemmican	do	1½ lbs. do	¾ lbs. do
3 or 4 whitefish,	according to size,	per man;	2 per woman; 1 per child.
2 or 3 trout	do	do	2 do 1 do
4 suckers	do	do	2 do 1 do
2 lbs. flour, ½ lb. bacon	do	1 f., ½ b. do	1 f. do

And where potatoes were raised, from ½ to 1 bushel were given weekly with the above rations. Where provision was plentiful 8 lbs. of fresh meat were given per man and woman, and children in proportion.

9th. Ans. to Ques. 12.—The best method of preserving meat for use in the country is by drying and pemmicanizing; they both go together. The best parts, such as ribs, bos and buckfat, are dried and eaten that way; the rest is dried and then beat up and mixed with the inside tallow, and all the marrow taken out of the bones, which are broken up small and boiled. During summer the fish are best smoked and dried, and in fall and winter are hung on a stage and kept frozen. Salting could be done to advantage in many places by white men; but the Indians would never succeed with it. Canning would be the most expensive way and the least use.

10th. Under paragraph 5 I have named the fish I think best for restocking denuded lakes or of supplying other places where they did not exist before.

11th. Ans. to Ques. 8.—I know of no plants that, in my opinion, would be improved by cultivation, grafting or otherwise.

12th. Ans. to Ques. 9.—Potatoes, turnips and barley are the only things that an Indian is in any way capable of raising to advantage.

H. J. MOBERLY,

C. T. Hudson Bay Company.

RAPID RIVER, CUMBERLAND DISTRICT, 28th July 1887.

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