REPORT

ON THE

AGRICULTURAL CAPABILITIES

OF THE

PROVINCE

OF

NEW BRUNSWICK,

BY J. F. W. JOHNSTON, F.R.S. S.L. & E.

HONORARY MEMBER OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, AND AUTHOR OF "LECTURES ON AGRICULTURAL CHEMISTRY AND GEOLOGY."

SECOND EDITION---TEN THOUSAND.

Extract from the Journals of the House of Assembly of New Brunswick, 1849.

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J. SIMPSON, PRINTER TO THE QUEEN'S MOST EXCELLENT MAJESTY.

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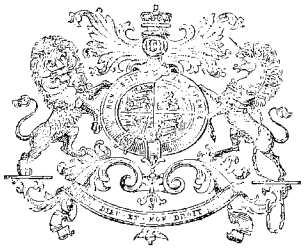

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MAY IT PLEASE YOUR EXCELLENCY,

In laying before Your Excellency the following Report on the Agricultural capabilities of the Province of New Brunswick, I wish to express my sense of its imperfect character, and to crave Your Excellency's indulgence towards the many deficiencies which on a perusal of it you cannot fail to discover.

The cause of these defects is to be ascribed in part to the extraordinary character of the past season, and in part to the extremely brief period of time which my other engagements in America have permitted me to devote to this object.

In the early part of my tour through the Province, the extreme drought had parched in an unusual degree the whole surface of the uplands, so as to give a brown and barren aspect to tracts of country said to be in ordinary Seasons green and smiling. This condition of their surface was exceedingly unfavourable to an accurate estimate of their true agricultural capability. The numerous fires again which at that time traversed the woods, had in many places loaded the atmosphere with smoke, and so limited the sphere of vision that it was impossible to see to any considerable distance from the line of road along which we passed. This prevented me from observing with my own eyes so extensively as I should otherwise have been able to do. Lastly, the very general nature of my Survey of the Province which the time at my disposal demanded, and the comparative slowness of travelling in most parts of this country, not only prevented me from dwelling upon localities which were worthy of farther investigation, and where much kindness and hospitality were shewn me, but made it impossible to dip into the interior at many points where promising land and thriving settlements existed.

These causes have necessarily limited in some degree the knowledge I have been able from my own observation to acquire as to the agricultural character of the Province. I have also to regret that the period of leisure I have since enjoyed has been too brief to allow me fully to mature my views in regard to the actual capabilities of the Province, to consider its wants, and to put upon paper the results and suggestions which are embodied in the following pages.

Under these circumstances, the opinions I have formed and expressed may upon many points be open to correction, and would probably have been somewhat different, had a longer residence in the Province placed larger means of information within my reach, and enabled me more maturely to digest them.

At the same time I am bound to express my sense of the ready frankness with which every existing source of information in regard to the agricultural condition of the Province has been laid open to me.

First in order, I place the personal conversations I have had with numerous gentlemen of all classes in every part of the province, which have made me acquainted with many facts and circumstances that could not have come under my own observation.

Second, the very instructive replies I have received from between sixty and seventy of these persons, to whom certain queries I had taken the liberty of drawing up regarding the soil and farming operations of New Brunswick were addressed and forwarded, have been of invaluable aid to me; and Your Excellency will find them often referred to in the body of the Report.

Third, I have also obtained much useful information from the published Reports of Dr. Gesner, late Provincial Geologist, and from his published Work on New Brunswick; from the Reports of Dr. Jackson on the Geology of the State of Maine, and from various Manuscript Essays with a perusal of which I have been kindly favoured.

Fourth, I have to confess my obligations to the Crown Land and other Officers, especially to Mr. Baillie and Mr. Inches, for individual information and for access to Surveys and Reports in regard to parts of the Province into which I was myself unable to penetrate.

Lastly, my own observations during a tour of nearly two thousand miles in company with Mr. Brown, M.P.P., and Dr Robb, of King's College, have formed the basis upon which I have endeavoured to arrange all the facts and illustrations of the State of the Province which have been derived from the other sources I have named above. The body of the Report will show how much I have been indebted to the valuable assistance and subsequent labours of my two fellow travellers.

It will afford me much gratification should the results of my inquiries and observations, though necessarily imperfect, be generally approved of by Your Excellency, and be found to contribute in any degree to the future agricultural prosperity of the Province.

I have the honor to be,

Your Excellency's most obedient servant,

Fredericton, 26th December, 1849. JAMES F. W. JOHNSTON

To His Excellency Sir Edmund Walker Head, Bart.,
Lieutenant Governor, &c. &c. &c.

REPORT ON THE AGRICULTURAL CAPABILITIES OF NEW BRUNSWICK.

Chapter I.

Preliminary Observations.

Two very different impressions in regard to the Province of New Brunswick will be produced on the mind of the stranger, according as he contents himself with visiting the towns and inspecting the lands which lie along the Seaboard, or ascends its rivers or penetrates by its numerous roads into the interior of its more central and northern Counties.

In the former case, he will feel like the traveller who enters Sweden by the harbours of Stockholm or Gottenburg, or who sails among the rocks on the western coast of Norway. The naked cliffs or shelving shores of granite or other hardened rocks, and the unvarying pine forests, awaken in his mind ideas of hopeless desolation, and poverty and barrenness appear necessarily to dwell within the iron-bound shores. I have myself a vivid recollection of the disheartening impression regarding the agricultural capabilities of Nova Scotia, which the first two days I spent in that Province around the neighbourhood of Halifax conveyed to my mind. Had I returned to Europe without seeing other parts of that Province, I could have compared it only with the more unproductive and inhospitable portions of Scandinavia.

A large proportion of the Europeans who visit New Brunswick, see only the rocky regions which encircle the more frequented harbours of the Province. They must therefore carry away and convey to others very unfavourable ideas especially of its adaptation to agricultural purposes.

But on the other hand, if the stranger penetrate beyond the Atlantic shores of the Province, and travel through the interior, he will be struck by the number and beauty of its Rivers, by the fertility of its River Islands and Intervales, and by the great extent and excellent condition of its roads, and (upon the whole) of its numerous bridges. He will see boundless forests still unreclaimed, but will remark at the same time an amount of general progress and prosperous advancement, which considering the recent settlement and small Revenue of the Province, is really surprising. If he possess an agricultural eye, he may discover great defects in the practical husbandry of the Provincial farmer, while he remarks at the same time the healthy looks of their large families, and the apparently easy and independent condition in which they live. If he have travelled much in other countries, one thing which will arrest his attention more than all, will be the frequent complaints which meet his ears, of the slowness with which the Province advances, of the condition of its Agriculture compared with that of Scotland or England, of the want of Capital among its land possessing farmers, and so on; complaints which would be made regarding New Brunswick with very much less urgency, were the rate of its own actual progress better known to its inhabitants, and its own rural and economical condition, in comparison with older countries, better understood and appreciated.

For my own part, in taking a general survey of the actual condition of the Province in connection with the period of its earliest settlement, and with the public Revenues it has possessed from time to time as means of improvement, I have been much impressed with the rapid progress it has really made, and with the large amount of social advancement which is every where to be seen. The Roads, the Bridges, the Churches, the Schools, the Colleges, besides the numerous other Public Institutions, excellent and liberal in themselves, assume a very large magnitude in the eyes of the impartial observer, when it is considered that they have been made, built or established and provided for by a population even at present amounting to little more than two hundred thousand souls, less in number than the inhabitants of one of our third rate English Cities, and in the short space of sixty or seventy years. When I have heard natives of New Brunswick complaining of the slowness with which this Province advanced, I have felt persuaded that the natural impatience of a young people to become great, like that of a young man to become rich, was blinding them to the actual rate at which their country was going forward, a rate so different from what is to be seen in any part of the old world, with the exception of the Island Home from which we all come.

In justice to New Brunswick, I must add another remark. In every part of the world it has been my fortune to visit, I have met with numerous individuals who were more or less interested in, and were anxious to promote, the agricultural improvement of their native country. But in New Brunswick a more general feeling appears to prevail upon this subject, among all educated persons, than I have ever before met with. Whatever other differences may exist among them, a universal desire is expressed to contribute some little help towards the general prosperity and agricultural advancement of the Province. It is the very intensity of this desire, in some degree, which causes them to undervalue the actual progression of the country.

The developement of the agricultural resources of a country, and the improvement of its practical Agriculture, are by no means synonymous terms, for though every improvement in practice must more fully develope the inherent fertility of the soil, that is, the agricultural capabilities of the country, yet these may be largely developed under a system of agricultural practice, which is not only rude at first, but which for generations remains almost entirely stationary. This latter form of developement was seen in this Province during those years which brought the largest number of Emigrants into its Ports, and it is now going on rapidly in those new Western Territories of the United States into which the tide of Emigration is now setting. Unskilled hands are clearing the forests and sowing grain, unguided by any knowledge of those principles by which the existing fertility of the new land is to be either husbanded or maintained.

In the Province of New Brunswick, whatever defects its Husbandry may exhibit, and they are many, it has been satisfactory to me to find that a developement of its agricultural resources by the improvement of its agricultural practice, and independent of Immigration, has begun distinctly to manifest itself. Improved implements, and breed of cattle and sheep, imported grain and grass seeds, skilful ploughing, the prepara-

tion of composts, with experiments in draining, in the use of lime and gypsum, in the growth of green crops and feeding of stock, these and other similar forms of improvement which have come under my notice in the Province, show that there are some at least who not only desire to advance the general condition of its husbandry, but who are aware also of the first steps which ought to be taken to promote this advancement.

It would be unfair to judge of the rate of agricultural progress in the Province by the amount of produce raised during any of the last four years, which have in nearly all Europe and America been more or less distinguished by remarkable failures in the root or grain crops. Before these failures commenced, however, I find in the Report of the Restigouche Agricultural Society for 1846, that whereas in the two years of 1839 and 1840, the quantity of bread stuffs and other provisions imported into the County of Restigouche was valued at £36,500, the quantity imported in 1844 and 1845 was valued at £13,600 only. In that brief period therefore, and supposing the consumption not to have at all increased, the production of food had been augmented to the value of about £12,000 a year in that County alone.

In the County of Gloucester again, in 1832, only about 700 bushels of grain of all kinds were raised, whereas in 1844 upwards of 50,000 bushels were grown, the estimated value of which, along with that of the potatoes, turnips and hay, was upwards of £40,000. Part of the increased produce in both these cases, especially in Gloucester County, may be ascribed to the increased population, but part of it also, as the Reports of their Agricultural Societies show, to a better appreciation of the capabilities of the soil and climate, and a better adjustment of practical processes to the circumstances of the several localities.

But though undoubtedly every where progressing, the pace is unequal, (as it is in other countries,) with which the Agriculture of the several Counties advances. Nothing is easier to discover than striking defects, while instances of apparent stagnation are unfortunately too frequent.

Thus my friend and fellow traveller, Mr. Brown, in reporting to me his observations made at the end of October upon the practical farming of the River border between Gagetown and the Oromocto, makes the following most just remark: "Through the whole of these Settlements, if we except Gagetown and its immediate vicinity, there has been comparatively little done in the way of farming in view of a crop for another year. Indeed there are no proper farming tools. Their ploughing is wretched, and so also are the ploughs. It is common to see the ploughman carrying his plough in his hand like a chain, or on his shoulder like a handspike, or holding by a pin stuck through a single upright handle. The fact appears to be that most of these farmers have a portion of island or intervale property, from which they annually obtain, with little trouble, a quantity of hay. This gives them a decided advantage over the farmers in the interior, and enables them to plod on without attempting to adopt any of the improvements now going forward in the northern part of the Province."

I could myself, from my own observations, draw many such pictures of ignorance, indolence, and apparent mental stagnation; and if such were to serve any useful purpose, might place the entire Agriculture of the Province in a sufficiently ridiculous light. But he who is best acquainted with the history of agricultural progress in the most skilfully cultivated countries, and with the actual state of practical agriculture in other parts of the world, will be prepared to make the largest allowances for what he sees amiss in a new country like this. He will look out for movement rather than stagnation. It will please him rather to praise and stimulate the skill and industry he may perceive, than to expose and reprehend the more frequent want of knowledge and of energy which may fall in his way.

As a consolation and a source of hope to those who unduly vex themselves regarding the condition of the Provincial Agriculture, as if it were something unnatural or before unheard of, or which precluded all reasonable hope of amendments, I take the liberty of adverting for a moment to the condition of Scotland about a hundred and twenty years ago. That country, in which agriculture is now so far advanced, was then almost entirely unenclosed, was considered poor, barren, and inhospitable in its climate. By a Scottish writer in 1729, it was represented as "already many ages behind the rest of mankind in its husbandry." Hertfordshire, in England, he says, "is famed for the best plowers of their ground. Some of their best day labouring plowmen would much reform ours who by ill and ugly worked lands spoil a deal of good ground." Of the mode of fatting cattle then in use, he says,—"Nor can it be otherwise in the supine ignorance our farmers are in, in the method of choosing the *right ages* of putting up to fatten their beasts, and the want of *every provender* fit to raise them. For they generally never stall any but such oxen as are no longer fit for the yoke: or cows, but such as the goodwoman tells her husband are no longer good to breed or milk. These for eight or ten weeks they blow up with scalded barley, chaff and malt grains; that lean rickle of bones is all the butcher can pick up in Fife and Lothian from Candlemas to June, even for our Metropolis, and no other town is so well served. And if our gentry have them fatter they cost them very dear, because to have them so they give them a great deal of corn, and I oblige that a gentleman shall cheaper eat two beeves fed abroad in his enclosures on fog, hay, and turnips, and much better beef than he can one of these stall fed." After recommending a better method of selecting and feeding, he adds,—"Our over-sea trading merchants who have occasion to send their ships far voyages will find in their own Mercats *beef that will bear salt*, which our own half fed beef heretofore would not do; and the ships were forced to call at some town in England or Ireland to have beef and pork to make a Mediterranean or American voyage, or endanger the loss of their crew with the thin, lean hard beef their own Mercats could afford." And of the general ignorance of agricultural principles and practice, and of the consideration in which farming was held, he speaks thus—"I have indeed met with gentlemen of but indifferent small estates very little known in the management of their ground, and if they were asked any question about husbandry, as if it was an affront to his rank to know, he would coldly answer, his servant John or Tom could tell, meaning his bailiff."*

These extracts present a very graphic picture of the condition of Scottish Agriculture in the early part of last century, and I have selected them, mainly because they very nearly represent the condition of New Brunswick now, in regard to the several points to which they

* *An Essay on ways and means for inclosing, fallowing and planting Scotland.*—By a lover of his Country. Edinburgh, 1729.

refer. At present, Scotland is regarded throughout Europe as the home of skilful agricultural practice. Its climate has been tamed and deprived of its terrors. Its most worthless portions in Caithness, and even the Orkney Islands, have been subdued into the culture of wheat. Its ploughmen are ranked among the best in the world; its turnip husbandry is universally praised; and the fat cattle and sheep from its northern Counties, are now regularly shipped for the London market. Instead of indifference and contempt, the art of culture is now treated with respect, and almost every proprietor is at once anxious to promote it, and ambitious to know something as to the best mode of cultivating and improving his own Estate. With the same blood, with equal pecuniary means, with the far readier access to knowledge which now exists, with the benefits of Scottish experience, and the fuller lights of modern science, the prospects of New Brunswick must be at least as cheering now as those of Scotland were at the period referred to, and its progress towards the present condition of Scottish Agriculture, ought to be far more rapid. What I see defective, therefore, in the knowledge and practice of New Brunswick farmers, awakens no feelings of despondency in my mind. The same lesson which the history of the past teaches, I read in the actual condition of the Agriculture, and of those who practise it in our time. When I consider how much slowness there exists at home in the introduction of easily effected agricultural improvements, when in all parts of Europe I find a more slow progress still, and very much still to be done before they can even arrive at the present condition of Agriculture in Great Britain, much less overtake her in the race of improvement, I can look with much forbearance on the backwardness in agricultural practice of a large proportion of the yeomen of this Province. The past circumstances of the country, the mode of settlement especially, and the character of the settlers, have almost necessarily produced the existing state of things; and from all I have been able to learn, it would appear that as much advance had been made towards a rational system of husbandry, as was made after its first settlement by any other part of North America in an equal period of time.

The agricultural condition of a large portion of the cultivated lands, however, is now such as to warrant the expectation that certain changes in the modes of culture and in the practices of the cultivators might be easily introduced, which could scarcely fail to increase the existing productiveness of the soil, and thus to add to the comforts of those who till it, as well as to the resources and general prosperity of the Province.

In considering the means by which such changes are to be brought about, it ought to be constantly borne in mind, that to thinking men it is not enough to prescribe the adoption of this or that practice, however high the authority may be by which it is recommended. The practice must also be shewn to be reasonable, to be more or less easy of adoption in existing circumstances, and above all to be economical, in the sense that it is likely to yield a fair return of profit on the increased expenditure of time or money it may involve. Of this common sense kind, I flatter myself Your Excellency will consider the greater part of the practical suggestions I have ventured to offer in the following pages.

Chapter II.

The Agricultural capabilities of the Province as indicated by its Geological structure.

The Agricultural capabilities of a country depend essentially upon its Geological structure. That of adjoing countries also, especially of such as lie in certain known directions, may modify in a great degree the character of its soils. In reference to this vital interest of a State therefore, the possession of a good Geological Map is of much importance, not only as an aid in determining the cultural value of its own surface of what it is capable, and how its capabilities are to be developed, but in throwing light also on the probable capabilities of adjoining districts.

It has long been considered in Europe as highly creditable to the wisdom and discernment of the Legislature of New Brunswick, and to their energy in developing the natural resources of the Province, that imitating the New York and other State Legislatures, they should have taken such early steps, by the appointment of a Provincial Geologist, and otherwise, to illustrate the physical and geological structure of this portion of North America, and to determine how far that structure indicated the possession of natural resources, Agricultural or Mineral, upon which reasonable expectations as to the future welfare and progress of the Colony, might be based.

On my arrival in the Province, I looked to the results of this inquiry as a means of facilitating my own labours, and of very much shortening the tour I should be obliged to make through the Province, with the view of personally inspecting the nature of its soils and culture. I regretted to find however that the Geological Survey had been abandoned, and that although Dr. Gesner had gone over and examined a large part of the Province, and had published a series of valuable reports, the results of his labours had not been embodied in a Geological Map from which I could have obtained all the information I required. I therefore requested Dr. Robb, to whom the Geology of the Province had long been a subject of interest, to put together in the form of a Map all the information contained in the Reports of Dr. Gesner, with such corrections and additions as his own knowledge of the Province enabled him to supply; he accompanied me also in my agricultaral tour, in the hope that by our joint observations, even during so hurried a journey, some facts might be gleaned which would render the Map more complete. In its present state it is confessedly imperfect, and it is very much to be regretted that a Map containing the entire results of the numerous journeys of Dr. Gesner during the five years of his engagement, and by which the present Map might have been materially improved, had not been obtained from him before his engagement came to an end, and been deposited among the public documents of the Province.*

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* I append Dr. Robb's observations, put together at my request, as to the sources from which the information in this Map has been derived, and his own opinion as to its value.

Fredericton, 15th December, 1849.

To Professor Johnston, &c. &c. &c.

Sir,—Our knowledge of the Geological structure of the Province of New Brunswick is far from being complete, the general outlines only are known, and consequently the accompanying coloured sketch of a Map is by no means to be regarded as final. It gives a general idea of the position but not of the extent and limits of the different formations. I have endeavoured to exhibit on it at your request, the views which up to this time, I have acquired from various sources, concerning the area occupied by the different groups of rocks in this country.

An inspection of this Map (No. 1,)* shews that according to our present knowledge, the Province of New Brunswick consists mainly of five different classes of rocks, represented by as many different colours. The gray, which is by far the most extensive, represents the region of the coal measures, the crimson that of the granites and mica slates, the brownish red that of the red sandstones, the pale blue that of the clay slates, the green that of the traps and porphyries, and the light purple that of the upper Silurian. The dark purple in the upper part of the map represents the lower Silurian rocks, which occupy the northen region toward the shores of the Saint Lawrence.

I do not here enter into any details in regard to the order of superposition of these rocks, because that general order is fully detailed in books of Geology, because in this Province there are certain districts in which the local order of superposition is far from being determined, and because a knowledge of the order is by no means essential to a clear understanding of the relations of these rocks to the agricultural character of the soil which covers them.

The sources from which the information contained in the Map is derived, are—

1. Dr. Gesner's Reports and two incomplete Maps of his construction, the one belonging to the Museum of the Mechanics' Institute in Saint John, and the other to the Crown Land Office in Fredericton.
2. Dr. Jackson's Reports on the Geology of Maine.
3. Mr. Logan's Reports on the Geology of Canada.
4. Sir C. Lyell's Travels in North America.
5. My own observations and personal inquiries.

There are, it will be observed, considerable differences between my outline and that of Dr. Gesner's large Map, but there are two broad distinctions in particular to which I desire to draw your attention:—

1. Dr. Gesner seems to have assumed that most of the red coloured sandstones with or without gypsum were above the great coal formation, and he has coloured great part of King's, Queen's, Albert and Westmorland Counties accordingly; the weight of evidence has, for some time, been in favour of Sir C. Lyell's view, which is, that the red rocks accompanied with gypsum are below the productive coal measures, that is, that they are of the age of the mountain limestone or perhaps of the Devonian strata.

It will probably be found therefore, that most of the rocks coloured red in Dr. Gesner's Map and my own, are lower than the proper coal measures. It is also well known that red sandstones may occur among the gray rocks of the coal-bearing strata of this country.

I have retained the red colour at present over a certain limited extent, rather to indicate the mineral nature, than the geological age of the rocks where it occurs; dark red sandstones however are found in many other places.

The study of these red and gray rocks requires and deserves much more investigation.

2. Great part of Saint John, Charlotte, King's and Queen's Counties, is spoken of by Dr. Gesner as a trap district; I regard it rather as a slate country, cut through in many places by dykes of igneous rocks, which have altered the nature and appearance of the strata; there is still great uncertainty regarding the exact position and relation of all these igneous masses, and much of the green and carmine covers spaces where rocks of that character are supposed rather than known to exist.

Great part of the Counties of Restigouche, Carleton and Saint John, is occupied by Silurian and Cambrian rocks, these are frequently cut by dykes of igneous origin, and so much *altered* and folded, that much time and labour must be devoted to them before their true succession can be unravelled. On account of this metamorphic character therefore, the extent and boundaries of these rocks have been somewhat arbitrarily defined upon the sketch.

I again beg to say that the Map is unsatisfactory to myself, and that I offer it with very great diffidence.

(Signed) J. R.

* The Maps referred to do not accompany this Edition.

It is of more importance to understand—

1. That rocks of all kinds are subject to be worn away, degraded, or made to crumble down, by various meteorological and mechanical agencies:

2. That the fragments of the rocks when thus crumbled, form the sands, gravels and clays that usually cover the surface of a country, and upon which its soils are formed and rest; and

3. That for the most part the materials of which the crumbled sands, gravels and soils consist, are derived from the rocks on which they rest, or from other rocks at no great distance. How they come to be derived occasionally from rocks at some distance, will be explained in the following chapter.

These facts shew that a close relation most generally exists between the rocks of a country and the kind of soils which cover it. It is this relation which gives Geology its main interest and importance in relation to Agriculture.

A. *The Coal Measures* which cover so large a breadth of New Brunswick, consist for the most part of gray sand stones, sometimes dark and greenish, and sometimes of a pale yellow colour. The siliceous matter of which they consist, is cemented together or mixed with only a small proportion of clay, (decayed felspar principally,) so that when those rocks crumble, which they do readily, they form light soils, pale in colour, easily worked, little retention of water, admitting of being easily ploughed in Spring and late in Autumn, but hungry, greedy of manure, liable to be burnt up in droughty Summers, and less favourable for the production of successive crops of hay.

Of course among the vast number of beds of varied thickness which come to the surface in different parts of this large area, there are many to which the above general description will not apply,—some which contain more clay and form stiffer soils—some which tho' green or gray internally, weather of a red colour, and form reddish soils, but lightness in texture and in colour forms the distinguishing characteristic of the soils of this formation. This single generalization therefore gives us already a clear idea of the prevailing physical characters of the soils over a large portion of the Province, and illustrates the nature of the broad views which makes the possession of Geological Maps so valuable to the student of general Agriculture.

This coal measure district is further distinguished by the general flatness of its surface, undulating here and there indeed, and intersected by rivers, and occasional lakes, but consisting for the most part of table lands more or less elevated, over which forests, chiefly of soft wood, extend in every direction. These flat tracts are not unfrequently stony, covered with blocks of gray sandstone of various sizes, among which the trees grow luxuriantly, and from among which the settler may reap a first crop of corn, but which almost defy the labour of man to bring the land into a fit condition for the plough. Such land abounds, for example, behind Fredericton on the way to the Hanwell Settlement, and is scattered at intervals over the whole of this gray sandstone country.

Another feature which results from this flatness is the occurrence of frequent bogs, swamps, carriboo plains and barrens. The waters which fall in rain, or accumulate from the melted snow, rest on the flat lands, fill the hollows, and from want of an outlet, stagnate, and cause the growth of mosses and plants of various other kinds, to the growth of which such places are propitious. Thus bogs and barrens, more or less ex-

tensive, are produced. A comparison of the Geological Map (No 1,) with the Agricultural Map, No. 3, appended to this Report, will shew that the greater number of the extensive barrens of this kind yet known in the Province, is situated upon this formation.

The Miramichi, the Saint John, the Richibucto, and numerous other Rivers, run in part or in whole through this district. Along their banks a fringe of soil is often found better than the uplands present; and hence along the Rivers the first settlers found comparatively fertile tracts of country on which to fix their families and commence their earliest farming operations. The Intervals and Islands of the River Saint John form some of the richest land in the Province; but this richness arises in a considerable degree from the circumstance that this River flows in the upper part of its course through geological formations of other kinds, and brings down from the rocks of which they consist, the finely divided materials of which alluvial soils of the Counties of Sunbury and York for the most part consist.

In other countries, as in England and Scotland, the coal measures contain a greater variety of rocks than is found over the carboniferous area of New Brunswick. They are distinguished from the latter by frequent beds of dark-coloured shale of great thickness, which form cold, stiff, dark-coloured poor clay, hard to work, and until thorough drained, scarcely remunerating the farmer's labour. Numerous sandstones which occur among them produce poor, sandy and rocky soils, so that large portions of the Counties of Durham and Northumberland, in the north of England, long celebrated for their richness in coal, still remain among the least advanced, and least agriculturally productive of the less elevated parts of the Island.

B. *The Upper Silurian Rocks*, coloured light purple, cover an extent of surface in New Brunswick only inferior to that formed by the coal measures. They form the northern portions of the Province, from the mouth of the Elutree River on the east, and Jacksontown on the west, as far as the Canadian border. In other Counties these upper Silurian strata consist of various series of beds lying over each other, each of which gives rise to soils possessed of different agricultural values. This is particularly observable in the western part of the State of New York, where some of the richest soils are formed from, and rest upon, rocks of this formation. It is a matter of regret that in this Province the large extent of northern country over which these rocks extend, has not been sufficiently explored to allow of such subdivisions being traced and indicated on the Map. That they exist, I have seen reason to believe, in my tour through the country; but the time at our disposal did not allow Dr. Robb and myself to go out of our way to explore their character or limits.

On this formation a large part of the richest upland soils of the Province are formed. The fertile, cultivated and equally promising wild lands of the Restigouche—and those on either side of the Upper Saint John, from Jacksontown to the Grand Falls, rest upon, and are chiefly formed from the debris of these rocks, and were it not for the granite, trap, and red sandstone which intervene, similar good land would probably be found to stretch across and cover the whole northern part of the Province, from the Restigouche River to the region of the Tobique Lakes.

From his published reports, Dr. Gesner had obviously collected much information regarding this region, which has hitherto been very difficult to explore; it would have cleared the way very much to an accurate estimate of its agricultural capabilities, had he been able by means of fossils or otherwise to establish the subdivisions among its several members which we believe to exist.

The soils of this formation are for the most part of a heavier or stronger character than those of the coal formation. The rocks from which they are formed are generally slaty clays, more or less hard, but usually crumbling down into soils of considerable strength—as agriculturists express it—and sometimes of great tenacity. Among them also are beds of valuable limestone, more or less rich in characteristic fossils, and, so far as I am at present informed, chiefly from the Reports of Dr. Gesner, the presence of lime in considerable quantity as an ingredient of the slaty rocks themselves—a chemical character of much importance—distinguishes the beds and soils of these upper Silurian rocks.

A comparison of the Geological with the coloured Agricultural Map will shew that the pale red and blue colours which in the latter mark the position of the first and second class upland soils, are spread over the same parts of the Province which in the former are coloured light purple—indicating the region of the Silurian deposits. Thus the geological indications and practical experience in these districts coincide. But the same comparison will show that this concordance is by no means uniform, but that soils marked by the Nos. 3, 4, and even 5, occur upon parts of the country coloured upper Silurian in the Geological Map. This arises from one or other of several circumstances.

1. From the defective state of our knowledge of the real geological structure of the interior part of the Province over which these rocks are supposed to extend. In the impassable state of the country there is a sufficient excuse for such knowledge being still incomplete. But the absence of such knowledge explains also why we cannot accurately describe and represent upon our Map the true relations of the geology of large portions of this interior country to its practical agricultural value; or

2. To the fact that this formation, like that of the gray coal-measure sandstone, has its level table lands on which water stagnates and produces extended barrens, and deep hollows in which swamps are formed, and burned lands, which the repeated passage of these devastating fires to which this Province has been occasionally subjected, has rendered apparently worthless; or

3. To the proximity of trap and granite districts—(coloured green and carmine)—from which numerous blocks of stone and drifted gravel have been transported and spread over the Silurian surface so as to render the soils that rest upon it inferior in quality to what, according to the geological indications, they ought naturally to be.

How much of the differences observable between the two Maps is due to each of these causes, can only be determined by future careful observations.

C. *The Lower Silurian Rocks* occur abundantly in Canada East, forming the nothern part of Gaspé, and skirting the right shores of the Saint Lawrence for a great distance. Like the upper Silurian strata they consist to a great extent of slaty rocks, more or less hard, and though not incapable of yielding rich soils, as is seen in the occasional productive valleys of Lower Canada, yet as they exist in New Brunswick they are covered for the most part with inferior soils.

In the annexed Geological Map they are coloured

dark purple, and are seen only along the southern limits of the Province, skirting the Bay of Fundy in the Counties of Charlotte and Saint John. The agricultural reputation of these Counties, and the colours and numbers on the Agricultural Maps, shew that there is much general accuracy in the geological indications.

D. *The Cambrian or Clay Slate Rocks*, coloured pale blue in the Geological Map, form two bands, of which the limits are not well defined, running in a north easterly direction across the middle of the Province, the more southerly of which bands doubles round the southwestern extremity of the coal measures, or coal basin as it has been called, and forms part of Charlotte, Saint John, and King's Counties. In nearly all countries these clay slate rocks are harder, less easily decomposed, and form more rocky and inhospitable regions than those of the Silurian formations generally. In this Province they do not change their general character, but they, nevertheless, as the Agricultural Map shews, are sometimes covered with soils of medium quality.

The clay slates are for the most part formed like the Silurian strata, of beds of clay which have been gradually consolidated, but they are distinguished from the Silurian generally by two characters.

First, by their greater hardness, which prevents their crumbling down and forming the close and often deep clay soils which the Silurian rocks occasionally yield. The clay slate soils, when freed from stones, are more of the character of what are called turnip and barley, than of wheat, oat and clover soils.

Second, by their containing less lime than the Silurian rocks do. This is a character of great agricultural importance. In nearly every part of the world these Cambrian rocks are poor in lime. In climates suited to the production of peat they are also, from their impervious character, favourable to the formation of bogs. Hence in those parts of Europe where these slate rocks occupy areas of considerable breadth, draining and the use of lime are the first two measures of improvement by which the naturally unproductive agricultural qualities of these soils can be amended. The same means would probably prove profitable also on the clay slate soils of New Brunswick.

E. *The Red Sandstones.* In Westmorland, King's, Charlotte and Carleton Counties, a considerable breadth is coloured of a reddish brown, designed to indicate the occurrence of these spots of red sandstone and red conglomerate more or less extensive. In regard to the exact position of these beds, whether they are all above or all below the gray coal measures, or partly the one or partly the other, a question of great economical importance to this Province has been raised. As it chiefly refers however to the greater or less probability of obtaining coal, a point to which I shall refer particularly hereafter, and has comparatively little agricultural importance, I do not enter into the question here. A knowledge of the geographical position and extent of these beds is nevertheless of much importance, and it would be very desirable to have these both more exactly ascertained and more correctly delineated on the Map.

The reason of this is, that the beds of which these red rocks consist, frequently crumble down into soils of great fertility. The richest lands and the best cultivated in Scotland rest on such red rocks. It will be seen by a comparison of the Agricultural with the Geological Maps, that soils of first rate quality are known in this Province also, in Sussex Vale, in Sackville, on the Shepody River, and elsewhere, to occur in the neighbourhood of rocks of a similar character.

The beds of these red sandstone formations consist—

1st. Of red conglomerates which often crumble down into hungry gravels, producing good crops of oats and of grain when well treated, but having a disposition to "eat up all the dung, and drink up all the water."

2nd. Of fine grained red sandstones, which crumble into red and sandy soils, light and easy to work, often fertile, and when well managed, capable of yielding good crops. They are such soils as the French inhabitants of this Province delight to possess, and of a large extent of such soils they are actual possessors.

3rd. Of their beds of red clay, often called red marl, interstratified with beds of red sandstone, and crumbling down into soils which vary from a fine red loam to a rich red clay. These are some of the most generally useful, and when thorough-drained, most valuable soils which occur among all our geological formations. In this Province these marls are usually associated with gypsum, as may be seen by the dots of brighter red which are here and there to be seen over the reddish brown portions of the Map. The soils may generally be calculated upon as likely to prove valuable for agricultural purposes wherever these beds of gypsum occur.

Some of the sandstones of this formation, especially in the neighbourhood of beds of limestone, are themselves rich in lime. Thus a red sandstone collected in such a locality, three miles from Steves', in the direction of the Buttermut Ridge, gave me upon analysis 17.31 per cent. of carbonate of lime, and 0.49 per cent. of gypsum. The crumbling of such rocks as this could hardly fail in aiding to fertilize the soil.

The imperfect Geological Map of Dr. Gesner, which is lodged among the Records of the Land Office, and a more detailed copy of which is in the possession of the Saint John Mechanics' Institute, represents the red rocks as much more extensive than they appear in the Map appended to this Report. One reason for this is, that he colours red the Parish of Botsford, and portions of the adjoining Parishes, where the red rocks do not appear, though the soils that cover the surface are red, and have evidently been derived from red rocks.* This we observed in our recent tour through that country. On the Grand Lake also, Dr. Gesner colours red a considerable extent of country, upon which according to Dr. Robb, no true red rocks occur.

Still these indications of Dr. Gesner, though not geologically correct in a certain sense, are so in another sense, in which they are scarcely less useful to the agriculturalist. They indicate the general character of the loose materials that overly the living rocks of the country and form its soils, and they tell more regarding those spots which is useful towards an estimate of its agricultural capabilities than a correct map of the rocks themselves would do. But the discordancies often observable between maps which exhibit only the characters of the rocks of a country, and those which exhibit its actual and experimental agricultural value, and the causes of such discordancies, will appear in the subsequent chapter.

F. *The Granite, Gneiss, and Mica Slate*, coloured carmine, from a broad riband extending across the Province between the two bands of clay slate rocks. To the north of the slates also, and in the centre of the ungranted country, it forms a large patch of generally high land, the outlines and extent of which are by no

* See the commencement of the next Chapter, (III.)

means defined, and in the map are put down very much by guess.

These regions are generally stony, often rocky and impossible to clear. When less stony, they sometimes give excellent soils after the less frequent rocky masses are removed, and in many places comparatively stone-less tracts of land occur on which clearances with less cost can readily be made.

This description shews that the carmine regions are by no means agriculturally encouraging on the whole, judging by their geological character; but that they possess capabilities superior to those of the gray sand-stone soils, is shewn by the experience of the farmers of these latter soils, that those fields generally turn out to be the best on which the granite boulders shew themselves most abundantly. The débris of the granite mixing with that of the sandstone rocks, improves its quality, gives it often more tenacity, and renders it more productive.

The Agricultural Map will shew that the soils along the carmine bands, and in the centre of the wild region between the Saint John River and the Restigouche, though often very inferior, are not uniformly so. Were we better acquainted with the limits of the geological formations comprehended under this colour, we should be able, by means of them alone, both to form more accurate opinions in regard to the agricultural value of the several localities, and to represent them more correctly on geological maps, and to prescribe by mere inspection, the kind of ameliorations, mechanical or chemical, by which their natural qualities were likely to be improved.

G. *The Trap Rocks*, coloured green, which occur so abundantly among the southern clay slate and lower Silurian rocks, and in the wild country which forms the northern part of the Province, are the only remaining rocky masses which cover an extensive portion of the surface of New Brunswick. They form in this Province a wild and generally a poor, rugged, rocky, inhospitable country. Lakes, swamps, and soft wood ridges, abound where they occur, and numerous blocks of stone try the patience and industry of the settler.

Trap Rocks do not necessarily indicate the presence of unfertile soils. On the contrary, some of the most fertile spots in Scotland and England, are situate upon, and possess soils formed from these rocks. But such soils are formed only where the rocks are of a less hard and flinty nature, or at least are more subject to the degrading influence of atmospheric causes, and crumble to a soil more readily. In such cases they generally form reddish soils of great richness, and when the soils are deep, it is found profitable to convey to some distance, and apply them as a covering to less valuable fields.

One cause of this fertility of trap soils is the large per centage of lime which these trap rocks frequently contain. This chemical character, for the most part, eminently distinguishes them from the granitic rocks, and indicate a very different mode of treatment for the soils formed from these two classes of rocks respectively.

In New Brunswick, so far as my own observation goes, the trap rocks do not readily crumble, but remain hard and impenetrable by the weather to a great extent. They do not usually, therefore, give rise to the rich soils which in many other places are formed from them. Hence Saint John and Charlotte, partly owing to the less favourable clay slate and lower Silurian rocks which abound in them, partly to the obdurate trap, and partly to the numberless rocky masses which cover their surface, are justly considered among the least agriculturally promising Counties of the Province. I have witnessed, however, in both these Counties, that energy and determination can do much to overcome nature in New Brunswick, as well as in other parts of the world. Pleasing farms, and good crops, and comfortable circumstances, reward diligence and industry here in as wonderful a manner as in any other County of the Province.

I do not dwell longer on this part of my subject. The general conclusions as to the agricultural capabilities of this Province which are to be drawn from the imperfect information as to its geological structure, which our Geological Map presents, are, on the whole, somewhat discouraging.

The coal measures, the clay slates, the lower Silurian rocks, the granites, and the traps, are not, generally speaking, of a kind to give rise to soils of a fertile character, and these formations cover a large portion of the Province. The upper Silurian and red sandstone formations, on the other hand, promise much agricultural capability, and soils prolific in corn; and they also extend over a very considerable area. Were the geological exploration more complete, our deductions from this source of information would be more precise, more to be depended on, and possibly also more favourable, for reasons which will in some measure appear from what has been already stated. It is to be hoped that Your Excellency, and the Houses of the Legislature, will see the propriety, at an early period, of resuming this important exploration.

More detailed and positive conclusions as to the absolute and comparative values of the soils in the different parts of the Province, on the different geological formations, and on the different parts of the same formation, the subdivisions of which, as I have said, have not been made out, will be arrived at by means of the practical survey which forms the subject of the next Chapter.

Chapter III.

The Agricultural capabilities of the Province, as indicated by a practical Survey and examination of its Soils.

Although the geological structure of a country throws much general light on the geographical position, on the physical and chemical characters, and on the agricultural capabilities of the soil of a country, it does not indicate—

1st. The absolute worth or productiveness of the soils in terms of any given crop—as that the red sandstone soil would produce so many bushels of wheat, or the clay slate soil so many of oats; nor—

2d. Their relative productive powers when compared with each other—as that if the coal measure soils produce twenty bushels of any grain, the upper Silurian soil would produce thirty bushels.

Such absolute and relative values can only be ascertained by an actual trial and experience of absolute fertility of the soils in some spots at least, and by a personal inspection and comparison of the apparent qualities, with what is known of the origin, the composition, and the absolute productiveness of each.

Again, the geographical *limits* of the several formations, as represented in the Geological Map, do not precisely indicate the limits of the several qualities of the soil which are naturally produced from them. The

débris of one class of rocks frequently overlap the edges, and sometimes cover a considerable portion of the surface of another class of rocks adjoining them, in a particular direction, and thus cause the soils which rest upon the latter to be very different from what the colors of the Geological Map would lead us to expect.

In this country it is observed that the fragments of the different formations have very generally been drifted from the north or north east to the south or south west, probably by some ancient current similar to that which now brings icebergs from the polar regions, and which took its direction across this part of North America when it was still beneath the level of the sea. Hence the surface of one rock, or the débris derived from it, is very apt to be covered by a layer of a different kind, derived from rocks which lay at a greater or less distance towards the north or north east.

This is most easily seen in the case of the red sandstone rocks, the debris of which, when drifted over the adjoining formations, imparts a different colour to the soils which rest upon them. Thus on ascending the Tobique two or three miles above the Narrows, on the right bank of the River, a layer of red drift, a few feet in thickness, derived most probably from the red rocks above the rapids, is seen to rest on a thick bed of slate drift, and to form the available surface. Similar red drift extends itself in a similar direction from the red rocks of Sussex Vale; and Dr. Gesner, in his interesting reports, describes similar drift as visible along the shores of Grand Lake,* and in many other localities.

Sometimes, also, the upper rocks, which formerly overspread the surface of a country, have been worn down, washed away, and entirely drifted off, leaving us only the power of inferring that they once existed by the layers of fine mud, sand or gravel derived from them, which we observed upon the lower rocks which still remain.

This is seen in New Bandon Parish, where the red soils appear to be chiefly derived from red rocks, which formerly existed in the direction of the Bay de Chaleur; and in the Parish of Botsford, in Westmorland County, the fine red soils of which have been drifted from Prince Edward Island, or from rocks in that direction, which have now disappeared.

Further, it not unfrequently happens that the drifted materials which cover the surface of a country, and which form its soils, consist of the debris of two or more entirely different kinds of rock mixed together, as we readily understand that such different materials might be mixed together, if the same current were to pass, as the River Saint John does, in succession over a series of different geological formations, and to mingle together in the same sea bottom, and in different proportions, the fragments of all. The nature of the soil thus formed would not be indicated either by that of the rock on which it rests, or by that of any one of the ten or more rocks from which it had been partially derived. Thus while an intimate relation undoubtedly does exist between the soils and rocks of a country in general, and a very special relation between any given soil and the rock from which it has been derived, so that the inspection of a Geological Map will convey to the instructed eye a true general notion of the agricultural character and capabilities of the country it represents, still it does not exhibit to the eye, as I have said, the absolute and comparative fertility of its different soils in terms of any given crop, nor can it, in a country like this, precisely define the limits which separate soils of one quality from those of another.

These points are only to be ascertained by special inquiry, and by a special survey and personal inspection. To make such inquiries and such a personal inspection, was among the main objects of my tour through the Province. The results of what I saw and learned myself, together with much other information obtained from the documents contained in the Land Office, from Doctor Gesner's Reports, and from other sources, I have been able, chiefly through the indefatigable and most willing assistance lent to me by Mr. Brown, to embody in the Maps No. II. and No. III. attached to the present Report.

In these maps I have represented by different colours and figures, the different qualities of soil in the Province, and the geographical position and approximate extent of each quality. For this purpose I have divided the soils into five different qualities, represented by a series of numbers, of which No. 1 indicates the best and No. 5 the worst quality.

The special varieties of soil denoted by the figures and numbers, are as follows:—

No. I. on the uncoloured, and the bright red on the coloured map, denote the soil of best quality in the Province. This consists chiefly of river intervales, islands, and marsh lands. It is only of limited extent, and is confined, for the most part, to the course of the River Saint John, that of the Petitcodiac, and to the neighbourhood of Sackville.

No. II. and the pale red colour, denote the best quality of upland, and such portions of good intervale and marsh land as are not included under No. I. It is to be understood, however, that there is much marsh and, both dyked and undyked, which does not deserve a place even under this second head. This first class upland exists chiefly in the Counties of Carleton and Restigouche.

No. III. coloured blue, is the second rate upland, inferior to No. II., but still very good in quality. It represents the medium soils of the Province, and stretches over a much larger surface than any of the other colours.

No. IV. coloured bright yellow, is inferior in quality to any of the others. It is decidedly inferior or poor land, resembling the least productive of that which is now under cultivation. It consists for the most part of light sandy or gravelly soils, hungry, but easily worked, or of stony and rocky ground, which is difficult and expensive to clear, but as in some parts of Charlotte County, productive when cleared.

This class also includes lands covered with heavy hemlock, and other soft wood, which though hard to clear, and unfavourable for first crops, may hereafter prove productive when it has been submitted fairly to the plough. It will be seen that a great extent of this bright yellow land exists in the northern half of the Province.

No. V. coloured pale yellow, includes all which in its present condition appears incapable of cultivation.

The naked flats distinguished as bogs, heaths, barrens, carriboo plains, &c., are all comprehended under this colour, and tracts of swampy country, which at present are not only useless in themselves, but a source of injury to the adjoining districts. All this pale yellow is not to be considered absolutely irreclaimable, but to be unfit for present culture or for settlement, till much larger progress has been made in the general improvement of the Province. The dark spots, coloured with

* See his third Report, p. 66.

Indian ink, represent the localities of some of the naked and barren plains which are included under this No. V.

It is not to be supposed that I or my travelling companions have been able to inspect, even cursorily, the whole of the country we have thus ventured to colour and to distinguish by numbers. The country we have actually seen and explored during our late tour may be judged of from the green lines traced on both maps, which represent the routes we took, and the country we actually went over. Our knowledge of the rest has been gathered from numerous persons whom we met with in different parts of the Province, from the reports and surveys deposited in the Land Office, and from observations of Dr. Gesner. Though far from being correct, these maps are valuable, both as an approximation to the truth, and as embodying nearly all that is at present known as to the soils of the Province. Your Excellency will, I am sure, both be inclined to value them more, and to make larger allowances for their want of correctness, when I mention they are the only maps of the kind of any country which, so far as I know, have yet been attempted, and that they have been of necessity executed in a very short period of time for so extensive a work.

The relative areas, or extent of surface covered by these several soils, as they are represented in the coloured map, are very nearly as follows:—

No. I.	coloured bright red,	50,000 acres.
No. II.	coloured light red,	1,000,000 "
No. III.	coloured blue,	6,950,000 "
No. IV.	coloured bright yellow,	5,000,000 "
No. V.	coloured pale yellow,	5,000,000 "
Total area of the Province,		18,000,000 acres.

The area of the Province has been calculated so as to include the territory within the boundary, as it may possibly be determined, between New Brunswick and Canada.

Such are the relative geographical limits of the soils of different qualities in the Province, and the areas covered by each respectively, according to the best information I have been able to collect.

The absolute values of each variety of soils in terms of the staple crops of the Province, I have estimated as follows:—

It is usual to talk and judge of the absolute or comparative value of land in New Brunswick by the quantity of hay it is capable of producing. I have taken this crop therefore as one standard by which to fix the absolute and relative value of the different qualities of the soil in the Province. Then of the grain crops—oats, taking the whole Province together, is the most certain, and probably the best in quality. The culture of the oat is extending also, and the consumption of oatmeal as a common food of the people, is greatly on the increase. I take this crop therefore as a second standard. I assume also, but this is an arbitrary assumption, that as an index of the value of land at this time in this Province, with its present modes of culture, 20 bushels of oats are equal to a ton of hay. In other words, I assume that where a ton of hay can be produced, twenty bushels of oats may be produced, or *its equivalent of some other variety of human food.*

Thus I have the means of giving a value to the different varieties of soil, in terms either of food for stock or food for man.

I have classified the soils of the Province therefore in terms of these crops at the following absolute and relative value per imperial acre.

No. I.	will produce	2½ tons of hay,	or 50 bushels oats	pr. acre.
No. II.	"	2 tons "	40 bushels	"
No. III.	"	1½ tons "	30 bushels	"
No. IV.	"	1 ton "	20 bushels	"

The only reasonable objection which so far as I know can be made against this estimate is, to the value in oats assigned to the quality of the soil called No *I.*

It may be correct to object that this first class soil does not in practice produce 50 bushels of oats, but the real effect of this objection is very small: First, because nearly all this land is yearly cut for hay: Second, because grain crops (except in Sunbury, the Indian Corn,) do not succeed upon it in consequence of their rankness, which makes them lodge and refuse to ripen: and, Thirdly, because under proper culture in this climate, land that produces 2½ to 4 tons of hay, as the first class intervale and dyked marsh does, *ought* also to bear easily and to ripen upwards of 50 or 60 bushels of oats.

The whole production of food for man or beast which the Province would yield, supposing all the available and to be cultivated according to the present methods, and that hay and oats bear to each other the relation of one ton to twenty bushels, would therefore be—

	Tons of Hay.		Bushels of Oats.
1st Class,	125,000	or	2,500,000
2nd Class,	2,000,000	or	40,000,000
3rd Class,	10,425,000	or	208,500,000
4th Class,	500,000	or	10,000,000
Total produce,	17,555,000		351,000,000

Being an average produce per acre over the thirteen millions of acres of available land, of 1⅓ tons of hay or 27 bushels of oats.

What amount of population will this quantity of food sustain?

There are various ways by which we may arrive at an approximation to the number of people which a country will comfortably maintain upon its own agricultural resources. The simplest and the most commonly adopted in regard to a new country like this, is to say, if so many acres now in cultivation support the present population, then, as many times as this number of acres is contained in the whole available area of the country, so many times may the population be increased without exceeding the ability of the country to sustain it.

Thus in New Brunswick, there are said to be at present about 600,000 acres under culture, and the produce of these acres sustains, of—

Men, women and children,	210,000
Horses and cattle,	150,000
Sheep and pigs,	250,000

But 600,000 are contained in 13,000,000, the number of available acres in the Province, nearly 22 times, so that supposing every 600,000 acres to support an equal population, the Province ought to be capable of feeding about—

Men, women and children,	4,620,000
Horses and cattle,	3,300,000
Sheep and pigs,	5,500,000

The human population and the stock maintaining the same relative proportions as they do at present.

But this estimate is obviously only a mere guess, and by accident only can be near the truth, because supposing the quantity of land actually in culture to be correctly stated, (which cannot with any degree of confidence be affirmed,) the important consideration is entirely neglected, that the land now in cultivation may be much superior in quality to those which are in a wilderness state. This indeed is very likely to be the

case, as the history of agriculture shows that the least productive lands by nature, unless they are much more easy to work, are always the last to be brought into cultivation. It leaves out of view also the question of fuel, which we shall by and by see has a most important relation to the agricultural capabilities of a country and its power of supporting a given amount of population.

But from the data above given we can approximate to the truth in another way, answering directly the question, what amount of population will the produce we suppose the Province able to yield, maintain?

If we suppose a full grown man to live entirely upon oats without other food, he will require to support him for twelve months, about 1000lb of oatmeal, equal to about 2000lb of oats, which at the low average of 35lb per bushel, amounts to 57 bushels. If we allow that each of the population, big and little, consumes 40 bushels, an apparently high average, then the consumption of each individual, according to our estimate of the comparative productive powers of the land, in regard to hay and oats, would be equivalent to two tons of hay, in other words, the breadth of land which would grow two tons of hay would on an average support one individual if fed upon oatmeal.

The usual allowance for the winter feed of a horse in this Province is four tons of hay, and for a cow two tons, sheep and pigs may be estimated at a quarter of a ton each.

The cattle and horses together are estimated at 150,000. If the relative proportions of the two kinds of stock be as in Canada West, about four to one,* then the entire population and live stock, (poultry, dogs, &c. &c. excluded,) would require for their support the following amount of produce, calculated in tons of hay:

210,000 at 2 tons each,	420,000 tons.
30,000 horses, 4 tons each,	120,000
120,000 cattle, 2 tons,	240,000
250,000 sheep and pigs, ¼ ton,	62,500
	842,500

But we have seen that the average produce in hay of the whole 13,000,000 of available land may be estimated at one and a third tons per acre,—the above 842,500 tons of hay therefore represent 631,875 acres of land of average quality.

It will be observed that this sum comes very near the extent of land supposed to be at present actually cultivated in the Province. It is also about one-twentieth part of the whole available area (13,000,000) in acres and in hay; so that the Province, according to this mode of calculation, be supposed capable of supporting twenty times its present numbers of inhabitants and of live stock, that is—

Men, women and children,	4,200,000
Horses,	600,000
Cattle,	2,400,000
Sheep and pigs,	5,000,000

If the proportion of animals materially diminish, of course the number of human beings which the country is able to support would proportionably increase.

Those who are familiar with the feeding of stock will have observed that in the preceding calculation I have allowed for the support of the live stock only during the seven months of winter, and that no land has been assigned for pasture during the remainder of the year while the hay is growing.

It will be also observed, however, that I have supposed all the stock to be full grown, and have assigned a full allowance of hay to every animal, whatever its age. A considerable surplus therefore will remain unconsumed when the winter ends, which will go some length in feeding the stock in summer, or, which would be preferred, in allowing land to be set aside for pasture or for soiling the animals with green food in the stables.

Again, by referring to the relative proportions of land employed in raising food for the human and the animal population, as the relative numbers in which they exist in New Brunswick, as they are given in a preceding page, it will be seen that about equal quantities are devoted to each. That is to say, that nearly half the land will always be under a grain culture, and will consequently be producing a large quantity of straw of various kinds, upon which all the stock will be more or less fed.

I do not stay here to remark on the unthrift which I in many parts of the Province observed, in the use of straw from different grains, nor upon the greater good which might be derived from this part of the crops, under a more skilful mode of feeding. I only observe that the two indifinite allowances above made will in my opinion amply make up in the whole for the additional quantity of food necessary to maintain the stock during the summer months over and above the quantity of hay adopted in my calculation.

Before quitting the general question as to the food which the land will raise, and the population it will support, there are two additional observations which it is necessary to introduce.

First—That I have made no allowance for the human food produced in the form of beef, mutton, pork, milk, cheese and butter. The hay grown on the one half of the surface of the country is, for the most part, consumed in the manufacture of these articles. When a calculation is made of the quantity of human food raised in this way, the numerical rate of the sheep and pigs to the human population being taken as it is in this Province at present, and the dead weight of the stock at the average which the common breeds usually attain by the present system of feeding, it appears that the beef, mutton, pork, and milk, ought alone to support a population, equal to about one third of that which the corn land sustains.*

* In Canada West, according to the Census of 1848, the numbers of horses was 151,389, and of cattle 565,845.

* A calculation of this kind is very difficult to make, and involves a great many necessary assumptions. I am not aware of its ever having been attempted before, and how uncertain the approximation given in the text is, will be seen by the following statement of the way in which I have arrived at it.

The neat cattle of the Province amount to about 120,000, averaging all ages, these are replaced in about six years, or one sixth is killed every year, and the dead weight of the carcase of each beast is about 500 pounds. This gives ten millions pounds of beef killed and consumed every year. If 40,000 of the cattle be cows giving milk, and they each yield 450 gallons of milk a year, or at the rate of 5 quarts a day all the year round, there will be for consumption 18 millions of gallons of milk.

If the sheep, as in Upper Canada, be nearly double the number of the pigs, and they are replaced every year, and average a dead weight of 50 lbs., there will be eaten yearly (160,000x50) 8 millions of pounds of mutton.

Lastly, if the 30,000 pigs at the age of 18 months, and have an average dead weight of 200 lbs., there will be a yearly consumption of fresh pork equal to ten millions and six hundred pounds.

Thus we have of annual food produced—

Beef,	10,000,000 pounds.
Mutton,	8,000,000 "
Pork,	10,000,000 "

If we deduct one sixth for bone, and seven tenths of the remainder for water contained in the flesh, we have—

Thus the whole capabilities of the soil in respect to the support of a population, may be represented by—

Men, women and children,	5,600,000
Horses,	600,000
Cattle,	2,400,000
Sheep and pigs,	500,000

Second—That I have made no reference to the Fisheries which are already so large a source of wealth to the Province, and of food to the people. The value of this supply of food may be allowed to stand against and to pay for the West India produce, and other necessaries of life which they cannot raise themselves, but which in addition to their beef, milk and meal, the inhabitants will require.

That we appear to fix at upwards of five and a half millions the amount of population which New Brunswick, according to the data we have before us, would in ordinary seasons easily sustain.* But here the question of fuel comes in to modify in a more or less remarkable manner our calculations and opinions upon this important subject. This question is deserving of a separate consideration.

Chapter IV.

Of the supply of Fossil and other Fuel in New Brunswick, and its relation to the Agricultural capabilities of the Province.

The preceding calculations have been made on the supposition that the whole available land of the Province is occupied in the raising of hay or corn, none of it is supposed to be covered with wood either for use and exportation as timber, or for consumption as fuel. But in a country like New Brunswick, fuel is a necessary of life almost as urgent as food itself. If wood, therefore, is to be used as fuel, a large portion of the Province must be left in perpetual forest.

In countries which like part of France are densely peopled, and yet which depend entirely upon the native forests for their fuel, it has been long ascertained, both how many cords of wood a hectare will produce in a year, and what proportion of land under wood will supply the ordinary demand for fuel by an ordinary family for domestic purposes. But in a new country like this, where wood is abundant, is consumed extravagantly by most of the inhabitants, and when once cut down is rarely encouraged to grow again on the same land, it is very difficult to form an estimate of the extent of surface which under other circumstances would be necessary to raise wood enough to supply fuel to its inhabitants. I have endeavoured to form an idea of the smallest area required in proportion to the population, by the following mode of calculation. I assume that—

1st. An ordinary family will consume at least ten cords of wood in a year; at present most families burn a larger quantity than this, but as fuel becomes scarce and dear, more economical methods of consumption will be discovered, and a more sparing use of fuel on the whole will be generally made.

2nd. An acre of land under wood will produce in a growth of fifty years, about fifty cords of fire wood.

3rd. Therefore to keep a family in fire wood, a fifth part of such an acre must be cut every year, to grow again in fifty years, or ten acres of land constantly under wood, will at this rate of growth be required by each family,

4th. And if each family consist of five persons, then two acres of wood land must be reserved for the supply of fuel to each inhabitant.

If we apply this result to the calculations made in the preceding chapter, we shall find it materially to interfere with the amount of population which the lands of the Province will be able to sustain. It makes each individual to require not a surface merely which is capable of raising two tons, but (an acre averaging $1\frac{1}{3}$ tons) large enough to raise $4\frac{2}{3}$ tons of hay.

Allowing this large quantity, the number of four millions two hundred thousand persons, we calculated the country alone to be capable of sustaining, is reduced to 2,730,000; and the whole population sustaining capabilities of the Province, including meat and milk, sinks from 5,600,000 to 3,640,000.

It may be said that the five millions of acres which are unavailable for agricultural purposes, will grow wood, and may, so far at least, supply fuel for those who live upon the available land. This is true; but supposing all the barren land to grow cord wood at the rate above stated, and to be all accessible, still it will only supply fuel for a population of two millions of people for domestic purposes, without any allowance for the wants of lime kilns, steamboats, manufactures, or other public works.

But in reality the wood on these inferior lands will not be available for fuel over a considerable portion of the Province. It will be cut down and shipped or hauled to the large towns, but the small proprietors throughout the several Counties will prefer to retain a portion of wood land on their own farms for the supply of their own wants, each holder of a hundred acres for example, when all his clearing is over, will reserve ten acres in wood for the use of his family, and in this way, even if no farm were less than 100 acres, 10 per cent. of the available land will be shut up from the labours of the plough, independent of the supply of the Towns, Villages and Manufactories. This is very generally the case in the north of Europe, where a farm is considered of small value to which a sufficient breadth of woodland is not attached, where the population is kept down by the necessity for raising fuel, and where the conservation and economical cutting of wood for the use of the iron furnaces and manufactures, has long been a source of grave concern to the several national governments.

If we allow that one half the fuel required for domestic purposes may be grown and generally obtained from land scattered through the several Counties, which

---

Bone,	4,766,000
Water,	16,680,000
Dry food,	7,154,000
	28,600,000

We have besides, 18 millions of gallons of milk, of which each gallon contains upwards of a pound of dry solid food.

Thus we have altogether—

Dry food in the flesh meat,	7,154,000
Dry food in the milk,	18,000,000
Total animal food,	25,154,000 lbs.

Including all ages, about one pound of this dry food, or half this quantity with half a proportion of vegetable food, may be considered equal to the maintenance of one person for one day, or it will support about 70,000 people for a whole year. This, as I have said in the text, adds about one third to the number which the land under grain is capable of sustaining.

A part of this large power the animal food will derive from the opportunity of consuming it along with an equivalent proportion of vegetable food.

* The large amount of this *possible* population must not surprise the reader. No tract of country so large as New Brunswick has ever yet attained to probably one half the density of population, which its average produce, under cultivation, ought to enable it to maintain on the fruits of its own soil.

is unfit for agricultural purposes, and that the remainder is grown in the neighbourhood where it is required, then each individual will require 2½ acres of the average available land to produce his food and fuel, and assuming all the other data from which the former numbers were deduced, the power of New Brunswick in corn and cattle to support a population, will be nearly as follows:—

Men, women and children,	4,200,000
Horses,	450,000
Cattle,	1,800,000
Sheep and pigs,	3,750,000

Supposing all the land devoted to the growth of food, and calculating as human food,

With Corn alone.	Corn, Beef and Milk.
Men, women and children, 4,200,000	5,600,000
Horses, 600,000	600,000
Cattle, 2,400,000	2,400,000
Sheep and pigs, 5,000,000	5,000,000

Supposing it has to grow all its fuel also in the form of wood,

Of which one half grows on the unavailable Land.	Of which all is grown on land that might be in Corn or Hay.
Corn, Beef and Milk, all consumed.	
Men, women and children, 4,200,000	3,640,000
Horses, 450,000	300,000
Cattle, 1,800,000	1,200,000
Sheep and pigs, 3,750,000	2,500,000

To place in a stronger light the point I am about to press upon Your Excellency's attention, I subjoin in one Tabular view the amount of population which the Province would support under the several conditions I have separately considered in this and the preceding Chapter.

Supposing all the available land devoted to the growth of food, and calculating as human food—		Supposing the fuel all growing on the land in the form of wood—(Corn, beef and milk being all consumed.)	
The Corn alone.	Corn, Beef, & Milk.	If half the fuel be grown on the available land.	If the whole be grown on land available for crops.
Men, women and children,	4,200,000	5,600,000	4,200,000	3,640,000
Horses,	600,000	600,000	450,000	300,000
Cattle,	2,400,000	2,400,000	1,800,000	1,200,000
Sheep and Pigs,	5,000,000	5,000,000	3,750,000	2,500,000

Your Excellency will see from the above numbers, that the source of the fuel of a country has a most material influence on its capability to support a population. If New Brunswick possesses in its mineral resources an available supply of fossil fuel, sufficient for its domestic wants, it might hope to sustain in comfort a population approaching to six millions. On the other hand, if wood is to be grown and consumed for fuel, and to be grown on accessible and economical places, its capabilities sink down to the maintenance of 2½ millions of inhabitants, and one half the number of live stock.

It may indeed be said that much time will elapse before New Brunswick can feel any inconvenience from a want of fuel; and speaking of the Province generally, this would be true. But in particular localities where clearings and settlements have extended, fuel is already becoming scarce and dear. Such is the case, for example, in Sussex Vale; and it is the pressing wants of the more advanced parts of a country which indicate the kind of measure which must be adopted, or legislative proceedings taken for the future good of the whole.

In the Geological Map, No. I., attached to the Report, it will be seen that a large breadth of the Province rests on what are called the coal measures. These strata or beds of rock are of the same general age as those in which the productive coal beds of Nova Scotia, of Prince Edward Island, of England, and of the United States occur, and they contain in various places the seam of coal which are to be seen in many parts of the Province. Attempts have been made from time to time to work these beds, especially on the Grand Lake, the Memramcook, the Petitcodiac, the Salmon River, the Coal Creek of the Saint Nicholas River, and in other localities: all these attempts however, owing in part to the thinness of the seams, to the impurity of the coal, and to their occasional high inclination, have failed to raise the mineral in any considerable quantity, or to yield a reasonable profit to the undertakers.

The existence of available beds of coal in the Province, has hitherto been looked upon more in an exclusively manufacturing and mercantile, than in an agricultural light. Iron ore is said to be abundant, and if coal could be found to smelt it, centres of industry would spring up which would enhance the price of agricultural produce in their neighbourhood. This is true, but the actual existence of the coal would render unnecessary the large growth of wood for fuel, and would thus set free a great extent of land for the exercise of rural industry and the growth of corn.

On the other hand, if this iron is to be smelted with wood, the extent of the manufacture, however desirable in other respects, would greatly increase the demand for fuel, or of land to be kept in perpetual forest, and would in like proportion lessen the agricultural resources of the Province.

The existence and possibility of profitably working beds of coal in New Brunswick, is as important therefore to the agricultural as it is to the other interests—to the developement of the agricultural resources of the different parts of the Province, and to the formation of any thing like a correct estimate of the extent of these resources.

In reading over Dr. Gesner's Reports in regard to the Geology of the Province, I have been struck with the labour he has felt himself obliged to expend year after year in exalting the dignity of geological science, its money value in discovering the natural resources of a country, and its consequent claims upon general consideration and support; like all men whose fate it is to pioneer the way to new views, new studies, and new habits of thought, he evidently writes as if he felt his work to be very much up-hill—as if he were labouring for men who did not generally understand or appreciate his task, and he was therefore induced occasionally to minister a little too strongly to the vulgar views of immediate profit from scientific inquiry, and thus to create expectations which his own labours did not realize.

This was especially the case in regard to the richness of the coal fields of New Brunswick. From all I have seen or learned, the opinions he expressed and the hopes he awakened on this subject were much too sanguine, and in a considerable degree exaggerated. This proved unfortunate in many ways; it has not only injured his own reputation for general accuracy, and diminished the confidence with which his Reports generally were read, but it has lessened the confidence of the people in the predictions of science generally, and probably prevented or retarded other researches

which might have been undertaken in reference to the Geology and Mineralogy of the Province.

With a view of placing before Your Excellency at a glance a summary of all that is yet known of the coal deposits in New Brunswick, I have requested my friend Dr. Robb to fill up the several columns of the following Table, (No. 1.) The materials have been derived chiefly from Dr. Gesner's Reports, but the principal observations of Dr. Robb and myself are also included.

From this Table and the Report annexed to it, it appears that nearly all the seams that have been discovered are very thin, that such as are thicker are represented to be poor in quality, and that very little coal has yet been extracted or is likely to be profitably obtained from them.

Many of those varieties called cannel and gas coal appear to be only bituminous shales which leave an ash nearly as bulky as the original coal. The gas coal of the Memramcook River is of this kind, and its quality for the manufacture of gas may be judged of from the fact that a ton of it yields only a thousand feet of gas, as tried at the Saint John Gas' Works, while the best qualities of English and Scotch cannel used, and of Behimmon's coal from the County of Durham in England, yield 12,000 cubic feet.

The discovery said to have been made of a thick bed of bitumen on Frederick's Brook, in Albert County, is very interesting, and should reports not be exaggerated, will undoubtedly prove a source of profit.

No. 1. *Table exhibiting the actual state of our present knowledge in regard to the Coal deposits of New Brunswick.*

County.	Locality.	Thickness.	Variety.	Quality.	Dip & Angle.	Observed or reported by	Remarks.
		ft. in.					
York,	Nashwaak River,	0 5	Caking,	fair,	E.	Robb,	a few bushels have been burnt.
	Tay Creek,	?	..	poor,	?		out crop not observed.
	Nashwaaksis River,	0 2	..	fair,	?	Hon. T. Baillie,	not worked.
	Lyon's Stream,	0 4	..	..	?	Gesner,	a few bushels taken out.
Queen's,	Newcastle District,	1 8	..	..	nearly horizontal,	Gesner & Robb,	from one to two thousand bushels per annum have been taken out.
	Salmon River,	1 10	..	..	..		
	Coal Creek,	1 8	..	..	..		
	Washademoak River,	1 0	..	..	..	Gesner,	a few bushels taken out.
King's,	Ward's Creek,	3 0	Cannel,	poor,	..	Gesner & Robb,	not worked.
	Dutch Valley,	3 0	..	..	..		do.
Albert,	Pollet River,	?	Caking,	fair,	..		do.
	Coverdale River,	?	?	?	..		do.
	Turtle River,	10 0	Cannel,	poor,	..		a few bushels taken out.
	Frederick's Brook,	9 0	Bitumen, not Coal,	..	S.	Gesner & Robb,	a bed 9 ft. thick recently reported. a Mining lease applied for or granted.
	Cape Enragé,	0 8	Caking,	fair,	S.S.E. high,	Gesner and Johnston,	not worked.
	Grindstone Island,	?	..	..	?	Gesner,	do.
	Salmon River,	4 0	Common,	poor,	S.S.E.	Johnston,	do.
Westmorland,	Bellevenux Village,		Cannel,	poor,	..	Gesner,	
	Memramcook River,	4 6	A Bituminous shale called Cannel Coal,	..	S.S.E.	Gesner and Robb,	one or two hundred tons have been taken out.
	Dorchester,				..	Gesner,	not worked.
	Scadouk River,	small	Caking,	fair	..	Gesner,	out-crop not observed.
	Petitcodiac River,	2 0	..	..	N.E. 10°	Gesner,	a few bushels have been got out.
Kent,	Coverdale River,	?	?	?	..		not worked.
	Buctouche River,	?	..	..	?	Gesner,	do.
	Richibucto River,	1 3	Caking,	fair,	N.W. 10°	Gesner & Robb,	occasionally worked.
Northumberland,	5 miles below Chatham,	small	..	..	..	Gesner,	not worked.
	11 do above Newcastle,	..	?	?	..	..	out-crop not observed.
	Bartholomew's River,	?	?	?	..	..	
	Grand River,	?	?	?	..	..	
Gloucester,	New Bandon,	0 8	Caking,	fair,	N.E. 2°	Logan & Robb,	not worked.
	.. ..	0 6	.. ..	..	..	..	
Restigouche,	Point la Luine,	0 3	Stony,	bad,	..	Gesner & Robb,	
	.. ..	0 3	..	..	..	..	
Saint John,	Little River,	0 3	Anthracite,	fair,	N. 10°	Gesner,	not worked.
	Quaco,	0 3	Lignite,	[illegible]		Gesner,	Mine opened but found unprofitable, and abandoned.

Fredericton, 26th November, 1849.

Sir,—In compliance with your request that I should prepare a "short notice of the existence of Coal in New Brunswick, and its consequences to the Colony, as derived from my own observations and inquiries, and to the published Reports of Dr. Gesner," I have drawn up the following Report:—

More than one third of the area of New Brunswick is occupied by rocks whose composition and contents, both mineral and fossil, resemble those peculiar to that which as a whole has been termed the Carboniferous system of rocks.

A great portion of the space occupied by them, say seven or eight thousand square miles, has been termed by Dr. Gesner the "Great New Brunswick Coal Field."—Its area certainly is very considerable, although it is not "one of the largest area discovered upon the Globe."—(Rep. IV. p. 64.)—The Illinois coal field, says Sir C. Lyell, is about as large as the whole of England, (Travels in N. A., I. 28); and the area of the Appalachian coal field, according to Profs. H. Rogers, "upon a moderate estimate amounts to sixty three thousand square miles."—(Trans. Assoc. Am. Geol., I. 436.)

The carboniferous rocks of New Brunswick form but a part of that series, which as a whole, has been termed by Mr. Logan and others the Eastern Coal Field of N. America. The rocks of this series first appear on the northern margin of the Bay of Chaleur, (and probably at one period occupied the whole of it,) thence pass deeply into the interior of New Brunswick and Nova Scotia, and constitute no inconsiderable portion of the Islands of Prince Edward, Cape Breton and Newfoundland.

The rocks or measures which constitute this system are conglomerates, sandstones and shales of various degrees of fineness and purity, and of various colours, but all obviously deposits from water. Subordinate to these we have beds of limestone, coal and plaster, and occasionally ores of iron, copper and manganese.

In many other countries there is a very exact line of demarcation recognized between the rocks of the coal series and those above and below it, but in this country there is still considerable difficulty in defining the limits of these respectively; and although I consider most of the sandstones, conglomerate, and shales of New Brunswick, to belong to the carboniferous system of rocks, this term must for the present be construed so as to include the true coal measures, and others below them as far as the old red sandstone or Devonian series, as understood by Sir C. Lyell and other Geologists.

By the observations of Lyell, Brown, and Dawson, in Nova Scotia and Cape Breton, it would appear that the carboniferous system of the eastern portion of North America may be divided into three groups or formations, each of which is no less than six thousand feet in thickness. These are—1st, an *upper*, consisting chiefly of reddish measures, with two thin beds of coal and one of gypsum: 2nd, a *middle*, which consists of gray and brown sandstones, with workable beds of coal and ironstone: 3rd, a *lower*, consisting chiefly of reddish sandstones and conglomerates, with a few thin seams of coal, and with much plaster and limestone.

In Dr. Gesner's Reports on the Geology of this Province, red rocks, or rocks accompanied with plaster, have generally been termed new red sandstone, and have been said to overlie the coal measures; but if the red rocks which contain the plaster really underlie the productive coal measures in New Brunswick as in Nova Scotia and Cape Breton, and as I suspect they do, a revision of the matter will be required: at present there is much difficulty in making use of his data regarding the order of superposition in this part of our series of rocks.

Speaking of the consequences of Coal to this Colony, Dr. Gesner says, (Rep. IV. 18,)—"The immense but unexplored deposits of coal in the Province are sufficient to supply Canada and all the demands of the extensive coasts of the Gulf; they are capable of sustaining manufactories, railroads and steam communication to an extent scarcely to be contemplated in the present day, and they will also support a trade with other parts of the world."—Further he adds, (IV. 64,) that "when it is considered that one third part of this country contains more or less of the bituminous mineral, the quantity of coal in New Brunswick will appear inexhaustible;"—and in another Report to the Legislature, when speaking of the same subject, he says, "when all the circumstances are duly considered, it may be seen of what importance New Brunswick is destined to become, not only to herself and her sister Colonies, but to Great Britain and the United States, whose supplies of coal must, to a great extent, be dependent on these colonial resources."—(III. 36.)

In order to afford more definite ideas concerning the beds of coal actually known to exist in the Province, and to enable us to estimate at its real value the ground work of the many vague assertions which from time to time have been made concerning this department of our mineral resources, I propose to bring together short notices of all the known out-croppings of coal in the different Counties of the Province.

York.—1. An out-cropping of coal, resting on fire clay, may be seen at a side cut on the right bank of the River Nashwaak, nearly opposite Mr. M'Lean's farm; the coal does not seem to be more than a few inches in thickness, and could not be worked with any profit there.

2. On the Tay Creek, a branch of the Nashwaak, coal has long been known to exist. In walking up the stream, from its mouth, drift pieces are found occasionally, and then become larger and more abundant till we reach a bend in the river, under a high bank of gray sandstone, above which no more coal is observed; hence it may be supposed that the out-crop is near, and as it is not in the cliffs it must be in the bed of the brook, where, however, I did not detect it. Some of the pieces found near this place were about ten inches thick, though it is possible that the proper seam may have been thicker. The dip of the sandstones was easterly, and very low, so that the coal may have been connected with the seam seen on the Nashwaak.

3. I have a specimen of coal from land near M'Leod's Hill, on the Royal Road: but I am informed, on good authority, that the seam from which it came is thinner than either of the above.

4. Dr. Gesner, (IV. 26,) considers "it is far from being improbable that coal might be procured at the very capital of the Province, although the rocks themselves offer but few indications of its existence near the surface." As the rocks near Fredericton have an easterly dip, and as there are no appearances of coal in the sandstones, which run out altogether a short distance to the westward, we are hardly warranted, as yet, in supposing that coal will ever be mined at this locality.

5. I have long understood that coal had been got on Lyons' Creek, a small tributary of the Oromocto River, and that it had been used by a blacksmith near Hartt's Mills; on making further inquiry, however, I found that it was only a few inches in thickness, and therefore unavailable. I presume that this is the bed alluded to by Dr. Gesner, (I. 71,) of which he says, "the coal is only four inches thick, and appears on the bank of the river between strata of bituminous shale, where fossil remains are abundant; that there are thick beds of coal beneath, however," he adds "there can be no doubt." Enough is said to excite the imagination, but not to satisfy the reason.

Sunbury.—Exploratory surveys and boring for coal were undertaken some years ago in the Parish of Burton, but in no case, I believe, was workable coal discovered.

Queen's.—1. I have understood that some borings were made near Gagetown, but they were unsuccessful. Dr. Gesner (I. 73,) observes, that "no doubt can be entertained that coal may be procured in the County adjacent to Fredericton, and Gagetown." This remains still to be seen.

2. Coal has been got on the Grand Lake for upwards of forty years, but as yet there are no workings of any extent in any part of its valley.

The coal occurs near the head of the Lake, and at present it is chiefly worked on the Shore road, south of the Newcastle Creek; the workings are either open to the day, or adits run in from the side of the hill, on the rise of the measures, which dip towards the Lake, at an angle of less than 10°. At one of the levels the section observed by me was as follows:—

Clay drift of surface,	8 ft.	0 in.
Shaly sandstone, (*shelf,*)	1	6
White clay,	0	8
Fire clay,	4	0
Coal with pyrites,	0	4
Black clay, (*sheepskin,*)	0	1½
Coal, (main seam,)	1	3
Underclay, (*pavement rock,*)	unknown.	
	15	10½

At another place, where the measures were seen at a "stripping," or open digging, the appearances were as follows:—

Red clay,	1 ft.	0 in.
Soft yellow clay,	3	6
Hard yellow clay, (*coal rock,*)	3	0
Blue shale,	1	6
Coal,	0	4
Black clay,	0	2
Coal,	1	6
Under clay,	unknown.	
	11	0

As may be supposed, the mining operations are all carried on in a small and rude manner, yet from time to time, I believe that nearly 2000 chaldrons per annum have been brought into market. Within 20 years all the coal was got by *strippings*, or open diggings, but since that time it is chiefly got out by adits or levels: of these there are or have been a great many on the Newcastle Creek, on Salmon River and Coal Creek. The settlers of the vicintiy used to go into these mines during the winter instead of going into the woods. Messrs. Bertou Brothers, of Saint John, have recently taken out mining leases and wrought the coal on a somewhat more extensive scale.

The coal is bituminous, and cakes or fuses when heated, so as to form a hollow fire admirably fitted for blacksmith's use, but less so for ordinary grates, without frequent stirring.

The Grand Lake coal now brought to market is much better cleaned from pyrites ("sulphur") and clay than it used to be formerly, and I believe that it is preferred by the Saint John blacksmiths to any of the imported varieties.

The uniform quality, thickness and depth of the coal got at the Lake District, lead to the conclusion that one bed only has been opened as yet. Dr. Gesner says, however, (III. 72,) "there can be no doubt that there are other and far richer deposits of coal beneath the one already discovered, but at what distance from the surface it is impossible to calculate, in consequence of the almost horizontal position of each stratum in the coal series." If the out-crops of other and far richer deposits of coal had been known—if they had dipped towards the quarter alluded to—and if they had not suffered much denudation, the above expressions would have been more jasifiable than they appear.

An exploratory boring was undertaken in 1837, by the Salmon River Coal Company, at a cost of £2000, but the returns (supposing them to be correct) gave but little promise as far as they went; the boring was made to the depth of upwards of 400 feet, and in this distance a few thin seams of coal were passed through, and one of bituminous shale and coal 8 feet thick was reported; nothing further was done and the company broke up.

3. Coal has also been found on the Washademoak River, near the mouth of Long's Creek—its thickness is about a foot, and according to Dr. Gesner, (III. 60,) "is probably accompanied by more valuable deposits than have yet been discovered."

4. Coal has also been reported to me as occurring on the New Canaan River, another branch of the Washademoak, but it is not unlikely that both this and the former may be part of the same bed as that seen at the Grand Lake.

King's.—In Dr. Gesner's second Report (p. 63) it is mentioned that the rocks of the Westmorland coal field occur at Ward's Creek, a small stream which flows from the south and joins the Salmon River in Sussex Vale. At the farm then held by Mr. A. Sheck, he reports "a stratum of impure cannel coal, about three feet in thickness, and from the qualities of this kind of coal mingled with the debris of the surface, it is evident that it exists in much greater quantities and of a quality more pure in situations now concealed by beds of sand and other detrital matter." This stratum, accompanied by a fine grained sandstone, containing remains and impressions of plants of the coal period, was observed at various points for six miles in a N. E. direction towards Dutch Valley, and, as Dr. Gesner adds, "although the largest and most important beds of coal remain undiscovered, yet an advancement is made towards their development." (p. 64.)

In 1847 I had an opportunity of visiting the farm mentioned above, and then I found a brownish bituminous shale or slate in contact with a sandstone containing remains of what appeared to be fucoids. We made a wood fire, and got the former to burn, still there was far too much earthy matter present to entitle it to be included under the head of coal.

Albert.—1. In the Pollet River, about 15 miles from where it joins the Petitcodiac River, small seams of common coal appear in its bed, and some drift coal is found in the neighbourhood. Dr. Gesner, (II. 65,) observes in regard to this case "that it is abundant in the concealed stata beneath, appears very evident." Coal may or may not be abundant underneath, although it is hardly fair to require us to admit that it is *very evident* that it is either one or the other.

2. In the following pages of the same Report, coal is stated to appear at the head of Turtle Creek, and ten miles N.N.W. from Shepody; it was likewise seen on Mr. Stephens' land, where a stratum of coal ten feet in thickness was observed in the bed of a brook; the coal found in this vicinity is said to be of much superior quality to any found along the whole line of out-cropping, it kindled quickly, and afforded a greater quantity of carburetted hydrogen gas than any of the imported varieties. The earthy matter varied in quantity from twelve to twenty five per cent., and the ashes contained carbonate of lime. The out-crop of this coal was within 500 yards of trap and syenite, which form a high and steep declivity along its southern edge to the distance of ten miles. Although the proportion of ashes above stated is very large, the above mentioned stratum must be regarded as one of considerable importance, and I regret that I had not an opportunity of seeing it with you when we were in Albert County together. It ought to be tried experimentally at the Saint John Gas Works or elsewhere.

3. Dr. G. (III. 28.) mentions the occurrence of a bed of coal at Frederick's Brook, a Branch of Weldon's Creek, which flows into the Petitcodiac River, in the Parish of Hillsborough. It exists, he says, "in several separate strata, the largest of which is about nine feet in thickness." The quality of this coal is stated to be superior to that of the Memramcook or Stephens' Farm, mentioned above; a quantity of it was collected and fired in the bed of the stream, it ignited readily and burned with great splendour; the strata consisted of sandstone, slate, bituminous shale and coal, which ran E. and W., with a southerly dip.

I visited this place in October last, and found on the land of Mr. J. Steves, near the head of Frederick's Brook, a good deal of brownish bituminous shale, but no coal whatever. Subsequent to the period of Dr. Gesner's Report, a boring had been made for coal by Messieurs Bryant and Sherer; we saw some of their old works near the edge of the brook where they had bored to a depth of 40 feet, but without finding any coal. Mr. Steves showed me what had been regarded as coal, but it proved to be mineral pitch or hard bitumen; it had only been found, he said, in small rolled fragments in the surface drift of his fields. The occurrence of this mineral in New Brunswick is interesting, but it was impossible for me in a hurried visit to attempt to discover its proper site.

4. Coal occurs on Mr. Richardson's land, at Cape Enrage, in Chignecto Bay: you yourself visited it in October last, and informed me that it was of the common kind, about eight inches thick, and occurring with the usual shales and sandstones, which here dip at a very high angle; that the coal section was very good, and that if other beds had existed, besides the above, they would have been readily seen. (II. 23.)

5. At Salmon River, further west, and on land belonging to Mr. Foster, coal was spoken of also, but it was said to be impure and of small extent.

6. On the south side of Grindstone Island, Dr. G. reports "several strata of soft red shale with narrow seams of coal." The course of the strata is W., and dip S. 40°; although there are indications of coal at several localities, no out-cropping of any practical value was discovered on the shore. (— 25.)

Westmorland.—1. On Taylor's farm, on the west side of the Memramcook River, four miles above Dorchester, there is a good natural section of the coal measures; the dip is S. S. E., and nearly 40°. Here occurs a bed of highly bituminous shale 4½ feet thick, into which an adit had been made by Mr. Steadman; it ran in, on the dip, for forty or fifty feet, and if followed much farther in the same direction would issue below high water mark; about 200 tons of the mineral were piled on the bank for shipment. It is easily set fire to and blazes readily, but leaves an ash nearly as bulky as the original piece. Scotch cannel coal leaves about 4 per cent. of ashes. I have heard that this substance has been tried at the Saint John Gas Works, but was not considered suitable there; it ought to be tried again. Dr. G. remarks (II. 67,) that the same coal may be seen on the east side of the Memramcook River, a short distance north of Dorchester. I was not able to observe coal there, though there is in that vicinity a bituminous shale and a very fetid limestone.

2. At Cape Belleveaux Village, Dr. G. speaks of coal appearing under circumstances similar to those mentioned in regard to Taylor's farm, but I am not aware of its having been opened as yet, the direction of the strata is N.E. and the dip high. (III. 27.)

3. Coal has been found on the Scadouk River, and has been used by a blacksmith there.

Dr. G. did not succeed in discovering the out-crop, although, as he observes, "it is evident, that by boring in a situation judiciously chosen, the coal strata might be found; and which from their proximity to the harbour, would prove most advantageous to this portion of the Province. (II. 69.)

4. In 1841 bituminous coal was discovered in the Tedish River, a cart-load of it having been procured and consumed in the forge of a blacksmith; Dr. G. (II. 85,) reports that it occurs in a thin stratum about ten feet below the soil, and between beds of bituminous shale, met by fire clay above and below. It dips N.E. at an angle of 10°.

Kent.—1. A statum of good coal is reported to have been discovered on the Cocagne River, about three miles above the bridge, by Dr. Gesner's son. "The stratum was found in the bottom of a large brook, and beneath three feet of rapid water. It was estimated to be two feet thick, but might nevertheless exceed three feet in some situations. By sinking a shaft a short distance from the brook," the Dr. adds, "so as to avoid the influx of water, this coal may be opened immediately." (IV. 86.)

2. "Coal has also been discovered on the Buctouche River, and there can be no doubt that it may be obtained in this district in great quantities." (IV. 86.) "It is very evident that these coal strata are the most superficial, and therefore the least valuable in the series to which they belong; and from their small degree of inclination it may be justly inferred that the thickest and most extensive deposits are still concealed in the earth." (l. c.) Although I have not had an opportunity of observing either of these last places, still, I may be excused for observing that although these coal strata are the most superficial, they are not necessarily the least valuable of the series; that is a point which cannot be proved until borings are actually made, or the out-crops themselves have been seen.

3. Coal was discovered nearly thirty years ago upon the Richibucto River; the best known locality is on the Coal Branch, about three miles above Mr. Ford's mills. I visited the locality in October last. The coal crops out about half way up the face of a high cliff on the west side of the brook, and is placed between layers of crumbling shale; the coal cakes like the Grand Lake coal, and is about 15 inches thick; the dip is N.W. 10°. One or two hundred chaldrons of this coal have been got out from time to time, by excavating under the cliff; but unless other beds are discovered, this place can never become the seat of extensive coal mining. Judging by the quality and the thickness of the seam, it may yet prove to be the same as the one at the head of the Grand Lake, from which the sandstones pass continuously, but in an undulating manner, towards the Gulf shore. Dr. Gesner remarks, (IV. 90,) "that it is probable that there is another stratum near the base of the cliff," though his labours to discover it were unsuccessful.

Northumberland.—1. About five miles below Chatham there is every indication of the existence of workable beds of coal: a small but perfect stratum appears on the cliff on the property of Mr. Williston; "appearances," he adds, "render it almost certain that coal may be obtained here at no great depth from the surface." (IV. 95.)

2. About eleven miles from Newcastle, on the south west branch, coal appears on the south bank of the River. It is but an inconsiderable stratum belonging to one of the superficial beds already alluded to. (IV. 97.)

3. Coal has been found on the Renous and Bartholomew's Rivers, but the water was too low to allow any canoes to pass at the time of my exploration in this quarter. (IV. 97.)

Gloucester.—Out-croppings of bituminous coal have been seen at New Bandon, and drift coal has been picked up near Bathurst Harbour in quantities sufficient to justify parties in boring in the neighbourhood: various shafts have been sunk under the direction of Mr. Stevens, while agent for the Gloucester Mining Company, and others; but in no case, so far as I am aware, have workable beds been attained. In Mr. Logan's elaborate section from Cranberry Cape to Point Dumai, a distance of twelve miles along the shore, only two seams of coal were observed, and these were respectively eight and six inches in thickness. They were both supported by an under clay with stigmaria, and dipped with a very low angle to the N.E.

Restigouche.—Coal has long been spoken of on the Restigouche, between Campbelltown and Dalhousie. In 1839 I had an opportunity of examining that shore, and observed both at Point Anim and P. a Pin Sec, a black coaly rock, which was said to have been used for fuel. It was a black shale, indurated and changed by the neighbouring igneous rocks. By Mr. Logan's report, it appears that the sandstones which line the margin of that river do contain a small but regular seam of coal and carboniferous shale together measuring three inches; "it is not however to be inferred," says he "that the group belongs to what is emphatically called the carboniferous æra, or that there is much probability of discovering the mineral associated in sufficient quantity with its strata to render it profitable to mining enterprise; though seven thousand feet of vertical thickness in continuous succession have been carefully examined," nothing, he adds, "like a working seam, nor anything but this one like a regular seam, or like a seam at all, has been met with."

Saint John.—Dr. Gesner remarks (II. 12,) that he discovered two small veins of anthracite coal in a fine grained clay slate near the Penitentiary; "and it is probable" he adds "that a workable quantity is not very far distant from that spot." (II. 12.) The occurrence of coal and vegetable fossils in the rocks of that vicinity is very curious, and requires further investigation; I have never had an opportunity of seeing the anthracite in situ.

Charlotte.—I am not aware of coal ever having been reported in this County. It is much more likely to become the seat of mining for ores of the metals. Search for coal has recently been made among the dark coloured slate near Saint Stephen, but these are far below the true coal measures.

Carleton.—Coal has not yet been spoken of from Carleton. If the gypsiferous rocks of the Tobique belong to the carboniferous series at all, they must underlie the productive coal measures. At the Red Rapids the western edge of the red rocks is seen to rest unconformably on the slates, and near the head of the river they are met by igneous rocks: it is just possible the red rocks of this river have been in former times connected with the red rocks of the Bay de Chaleur, from which they were first separated by the upheval of the igneous rocks just spoken of, which constitute the highest land in New Brunswick.

In conclusion, it is sufficiently obvious—

1. That though very many out-crops of common coal, well adapted for blacksmiths' use, are known to exist in the country, yet none of them exceed eighteen or twenty inches in thickness.

2. That though the beds of cannel coal reported to exist have a very considerable thickness, they hardly come up to the average standard of purity.

3. That the importance of the beds which are known has been over-stated, while the probabilily of finding others of greater thickness and improved quality, has been much exaggerated.

Most respectfully, Sir,
Your obedient humble servant,
(Signed) J. ROBB,
Prof. Chem. & Nat. History, King's Col.

To Professor JOHNSTON, &c. &c.

The sum of the reasoning and information contained in this Chapter appears to be—

1. That in reference to the agricultural resources of the Province, and its population-sustaining capability, the supposed existence of fossil fuel is a point of great importance.

2. That without fossil fuel manufactories can be established and maintained only at the expense of its agricultural and future population-sustaining capabilities.

3. That Dr. Gesner, whose knowledge of the Province is very extensive, has predicted the discovery of valuable beds of coal, which shall prove of great benefit to the mercantile, manufacturing and agricultural interests of New Brunswick: but

4. That Dr. Robb, and others, who have had opportunities of examining many parts of the country, do not participate in this opinion.

5. That the decision of the question would be of great moment to the Colony, not only in setting a disputed matter at rest, but in diffusing throughout the community distinct and positive notions as to the real resources of the country, and the line which ought to be taken to develope them—and in pointing out to the purely agricultural settler the mode of clearing he ought to adopt, with the view of securing to himself and to the future occupants of the farm, if necessary, the benefits of an abundant and economically available supply of fuel, with as little loss of valuable land as possible.

I venture therefore to suggest to Your Excellency, as likely to promote all the material interests of the Colony, that means should be taken to secure a survey of the Coal measures of the Province—*with reference especially to their positive and economical value, as available sources of fossil fuel.* This survey should be made by a person who is familiar not only with the principles of geology, but with the practical economy of coal mining also,—and if with a knowledge of the

coal mines of England or of the United States, he possessed some familiarity also with those of Prince Edward Island and Nova Scotia, the prospect of advantage to the Province from his labours would be greatly increased.

That the advantage to the agricultural interests, in so far as it affects the rearing of timber, is concerned, would be general also, will appear from the numerous places in which coal has been detected. An inspection of the Geological Map, in which these places are distinguished by large black dots, will show how many parts of the Province would be benefited directly by the exploration. Let it be proved that coal exists in available quantity in these localities, and clearings may proceed without regard to future provisions of fuel. Let it be established on the other hand, that no reasonable expectation of fossil supplies can be entertained, and every proprietor will see the necessity of reserving ten acres of accessible wood land for his household fuel. The Legislature may even think it necessary to enact some compulsory statute upon the subject.

It has been proposed to institute borings at the public expense, with the view of determining whether more valuable beds of coal do not exist at a greater depth. It would not be prudent, I think, to do so to any extent, till further positive information is obtained.

Chapter V.

State of the Roads as connected with the development of the Agricultural capabilities of the Province.

The state of the Roads in any Country may be regarded as a very fair index of its material development; and the efforts making to improve them, of the desire of those who govern to advance its most positive interests.

I have already in a previous part of this Report alluded to the generally excellent condition of the high Roads and numerous Bridges of the Province, as both interesting and striking to a stranger who passes through it. As the repairing, maintaining, and extending of those Roads are most material circumstances in connection with agricultural progress, I requested Mr. Brown, during the course of our tour, to make such notes and observations regarding them as, from his long experience in planning and surveying the Roads of the Province, he thought it might be desirable to lay before Your Excellency. Since our return to Fredericton he has drawn up from these notes the following observations, which I have much pleasure in being able to incorporate in my Report:—

"The Roads of New Brunswick are by Law divided into two classes, called Great Roads and Bye Roads. The Great Roads are specially described by Legislative enactment, made and kept in repair by annual grants of the public money, and are intended to connect the most important Towns and Districts in the Province. They may be arranged in the following order, viz:—

II.	Saint John to Fredericton,	65 miles.
	Saint John to Saint Andrews,	65
	Saint John to Quaco,	31
	Gondola Point to Fredericton,	70
	Saint John to Nova Scotia Line,	136
	Dorchester to Shediac,	16
	Cole's Island to Cape Tormeutine,	31
	Bend to Richibucto,	48
	Richibucto to Chatham,	40
	Chatham to Bathurst,	48
	Bathurst to Campbelltown,	71
	Fredericton to Newcastle,	106
	Fredericton to Woodstock,	62
	Woodstock to Houlton,	12
	Woodstock to Grand Falls,	71
	Grand Falls to Madawaska,	40
	Saint Andrews to Fredericton,	76
	Waweig to Saint Stephen,	12
	Oak Bay to Eel River,	74
	Nerepis to Gagetown,	24
	Newcastle to Bathurst, via Pocmouche,	115
	Salisbury to Harvey,	42
	Hampton to Bellisle,	4
	Pickard's to American Boundary,	5
	Grand Falls to American Boundary,	3
		1269 miles.

The opening and making of these Great Roads, the erection of Bridges, with the allowances to explorers, surveyors, and supervisors, cost the Province in the first place a sum exceeding £150,000; and an average sum of at least £10,000 per annum for the last fifteen years has been expended to keep them in repair.

When a new line of Great Road is projected, a Commissioner is appointed to explore and mark it out. The district is first carefully examined from one end to the other, and if it be covered with trees, as is commonly the case, its principal features can only be ascertained by climbing frequently, and observing the bearings of the distant hills, lakes, vallies, &c. If there be streams or rivers to cross, the bridging places must be selected and points fixed by which steep hills, lakes, and other objectionable places may be avoided. The line is then bushed, staked, or otherwise marked out—its courses, distances, elevations, and depressions, noted down—an estimate made up of the cost of opening and making the road, with an account of the character and quality of the land over which it passes. A report of all this is sent to the Governor, and by his command, laid before the House of Assembly. It is then discussed, and if it receive the sanction of the majority, a Bill is brought in to place the line on the Great Road establishment.

This Bill is then sent up for the concurrence of the Legislative Council, and on being there approved, a grant of money is made towards the opening of the road. A Supervisor is then appointed, who, after public notice, lets out at auction to the lowest bidders the making of certain portions of the road, the building of the bridges, &c. Contracts, with written specifications, are entered into between the several parties and the supervisors, and the money is paid on completion of the work. Accounts, verified on oath by the supervisor, with receipts signed by the contractors as vouchers, are then forwarded to the Provincial Audit Office, and there carefully examined and reported on. These accounts, vouchers, and reports, are afterwards submitted to the Assembly, and again examined and reported on by a Committee of that House.

Supervisors have annally to enter into bonds, with sureties, for the faithful performance of their duties, and particularly for the proper disposal of the monies with which they are entrusted—they are allowed ten per cent. of the sums by them severally expended, as remuneration for their services, and are liable to lose their places when their proceedings are reported unsatisfactory.

The following is an outline of the character and condition of the several Great Roads in the Province:—

From Saint John to Fredericton, sixty four miles. The road leads up on the right hand side of the main River Saint John, through the Counties of King's, Queen's and Sunbury, and into the County of York. In all that distance it crosses no river of any magnitude except the Oromocto, where an expensive and convenient drawbridge has been erected. From Saint John to "Government House," a distance of about thirty miles, a good deal of the ground is rough and broken, and in some places the road rises high up, overlooking the river and much of the adjacent country—in other places it is low, and almost on a level with the water—then it winds away among mountains, turning and twisting through side cuts, and past the bases of frightful precipices several hundred feet in height. The site is well chosen, and the high grounds are ascended by gradual slopes, perfectly safe, and comparatively easy. From the half way house to Fredericton the ground is generally level. The bridges are all safe, and the road is in good condition all the way.

From Saint John to Saint Andrews, sixty five miles. The road passes near the coast in the Counties of Saint John and Charlotte, crossing the Musquash, Magaguadavic, Digdeguash and Bocabec Rivers, besides several smaller rivers and streams; a great part of the district through which it passes is rough, rocky, and undulating. The site was in many places ill chosen, and this road has therefore undergone from time to time expensive alterations, and cost more money than the same length of road in any other part of the Province. Some of the bridges, particularly those at Digdeguash and Musquash, are expensive.

There has been a great deal of travelling on it for many years, and much care has been taken by the supervisor from year to year to keep it well gravelled, and the top part hard and smooth. There is however a want of uniformity observable along the line—many places are unnecessarily crooked; and between Bocabec and Saint Andrews there are several difficult hills that ought yet to be avoided. The road is now, and has been for a number of years past, in as good a state for travelling as the nature of the ground and the objections arising from the injudicious laying of it out in the first instance, would admit of.

From Saint John to Quaco, thirty one miles. The road passes through a good deal of hilly, hard and rough ground. The district is all in the County of Saint John, and generally settled. The road joins the flourishing village of Quaco with the City of Saint John, and is very much travelled. It has only been a few years on the great road establishment, has no expensive bridges on it, and in as good condition as could be expected.

From Gondola Point to Fredericton, seventy miles. The road passes through the several Counties of King's, Queen's, and Sunbury, and into the County of York, in a well settled country the most of the way. There are ferries on this line at Gondola Point, Washademoak, Jemseg and Fredericton. From Gondola Point to Washademoak, a distance of about thirty miles, the district is hilly, undulating and uneven, and several hills over which the road passes, more especially between Bellisle and Washademoak, are too steep either for convenience or safety. Between the Jemseg and the mouth of the Nashwaak, opposite Fredericton, thirty three miles, it is nearly level the whole way, and passes through one of the most fertile and highly valued agricultural districts in the Province, being an extensive alluvial deposit on the left side of the River Saint John. Taken altogether, and at all times of the year, it is one of the worst lines of road in the country. So many ferries make it inconvenient, and it is not possible to bridge them; then large portions of it are liable to be covered with water in the spring of the year, and are for the time being impassable. Some of the few bridges on the line are out of repair at present; were they put in good condition, and a few of the steep hills avoided, nothing more could reasonably be expected.

From Saint John to the Nova Scotia Line, one hundred and thirty six miles. This road passes through some of the finest agricultural districts in the Province. Beginning at Saint John, it passes into King's County, and crosses the Hammond River sixteen miles from the city: thence it runs through a cultivated district a distance of seven miles, and over the Kennebeccasis River at the Village of Hampton. From Hampton it runs up on the right hand side of the Kennebeccasis, through a beautiful and fertile country, and crossing several branches of that river, reaches the head of the settlement fifty seven miles from Saint John. It then passes through a wilderness about ten miles, and crossing the Petitcodiac above the head of the tide where it is narrow, follows it down through a well settled country within sight of the river to the Bend, a thriving village, ninety four miles from Saint John. Leaving the Bend it passes through the French settlement at Memramcook, and thence down on the left side of that river to Dorchester, the Shire Town of Westmorland County, distant from Saint John one hundred and eighteen miles. Thence it passes through the beautiful district of Sackville, crossing the Tantamar River, and running through the great marsh over a point of land near the ruins of Fort Cumberland, until it reaches the Missiquash River, being the line between New Brunswick and Nova Scotia. There are several large and expensive bridges on this line, the principal of which are those of Hammond River, Hampton, Memramcook and Tantamar. The Bridge over Hammond River was built on the common cross-truss principle, and covered in. Soon after its erection it began to bend in the middle, and was afterwards supported by two chain cables and a block underneath. It is a clumsy ill looking fabric, but withal safe and convenient. The bridge at Hampton is built on blocks and in good repair. That at Memramcook on the cross-truss principle, covered, very good, and nearly new. That over the Tantamar on the same principle, covered also, and in good order. The whole line of road is in good travelling condition, though that portion of it between Roache's and the head of the Petitcodiac seems to have received less attention that the rest.

From Dorchester to Shediac, sixteen miles. This road branches off from the Great Road from Saint John to the Nova Scotia Line, near the Memramcook Bridge, and passes thence through the interior of the County of Westmorland, to Shediac. There are no very expensive bridges on it, and it is now, and has been for a number of years, in a good state for travelling.

From Cole's Island to Cape Tormentine, thirty one miles. The road passes through a country settled and cultivated the greater part of the way. It runs through the beautiful village at the head of Bay Verte, and between that village and its commencement, through one of the most fertile agricultural districts in the Province. The site is well chosen, and there are no heavy bridges on it. It has been but a short time on the great road establishment, and is not yet very perfectly made, though in tolerable travelling condition. It is all the way in the County of Westmorland.

From the Bend to Richibucto, forty eight miles. The road passes through a district mostly settled and generally level. There are five large and expensive bridges on this line, besides others of a smaller size—namely, Shediac, Cocagne, Little Buctouche, Big Buctouche, and Richibucto. These bridges do not as in rapid rivers require a great deal of skill in building; but to keep them all up and in good repair must ever require a large outlay of money; some of them are nearly new, and they all are in a safe travelling condition at present. If measured, their united length would not be much short of two miles. The road is partly in Westmorland and partly in Kent, and in a good safe travelling state.

From Richibucto to Chatham, forty miles. This road also passes through a district chiefly settled and generally level. There are five pretty long bridges on the line, passing over rivers where the tide ebbs and flows—one of them is new, and they all appear safe, though one is old and somewhat out of repair. The united length of the bridges on this line is nearly a mile. The road is in a rather better state than that between the Bend and Richibucto. It joins the Shire Town of the County of Kent with Chatham, in the County of Northumberland.

From Chatham to Bathurst, forty eight miles. This line begins with a steam ferry boat crossing the River Miramichi, about a mile wide. After passing through the settlements on the left hand side of that river, it enters the wilderness, and running through a very unpromising district, reaches the half way house. Here the land improves, and the road continues chiefly through the wilderness to Bathurst. In its course it crosses the Little Bartibog, the Big Bartibog, Tabusintac, and a few other streams, and at last a wide ferry at the mouth of the Nepisiguit. The country through which this road passes is generally level. A great portion of the road is straight, very well made, and in excellent travelling condition, though some of the bridges are a little out of repair.

From Bathurst to Campbelltown, seventy one miles. This road passes through a level, well settled, and productive agricultural district of the Province, It runs up through the County of Gloucester on the side of the Bay of Chaleurs, and entering the County of Restigouche near Belldoune Point, reaches Dalhousie, the Shire Town of the last named County, distant from Bathurst fifty five miles. From Dalhousie it passes through the settlements on the right side of the Restigouche River, a distance of fifteen miles farther, to Campbelltown, where it terminates. In its course it crosses the Bathurst Basin, on a long bridge built on blocks, very convenient, safe, and in good repair. It afterwards crosses Tatagouche, Elm Tree, Jaquet, Benjamin, Charlo, and Eel Rivers, and several other streams, all falling into the Bay of Chaleurs. The bridges, with the exception of the one over Bathurst Basin, are not very expensive and are all in a safe condition. One is new, and from the appearance of the materials and the manner of building, is likely to last a long time. The road is in first rate order, made with great uniformity and regularity, and in excellent condition for travelling. A serious mistake appears to have been made in the laying out of this road in the immediate vicinity of the Town of Dalhousie, where an expensive portion of it will probably yet be abandoned.

From Fredericton to Newcastle, one hundred and six miles. This road passes up through the County of York near the right bank of the River Nashwaak, and over the Portage to the River Miramichi, where it enters the County of Northumberland at Boiestown, forty five miles from Fredericton. Thence it runs down on the right side of the Miramichi to Doak's, and thence on the left side of the same river to Newcastle, the Shire Town of the County of Northumberland. The River Saint John is crossed at Fredericton by a steam ferry boat. The road afterwards crosses the Nashwaak, the South West or main Miramichi, Bartholomew's River, Renous River, and other smaller streams; and at last, the North West Branch, a mile wide, is crossed in a horse ferry boat. The bridges over the before named rivers are large and extensive, and a great deal of skill and care is required in their construction, in order to withstand the fury of the rapid water and masses of ice during the spring freshets. The bridge over the main river, near Doak's, is built on the cross-truss principle, and covered; it is said by competent judges to be the best in the Province. There are very few objectionable hills on this line, and the bridges are all safe and

in good repair. The road has been constructed in a very superior manner, passes through a country chiefly settled, and is in excellent travelling condition.

From Fredericton to Woodstock, sixty two miles. This road passes up all the way through a well settled and productive agricultural district, on the right side of the River Saint John. The ground is in general hilly and undulating, and very much cut up with deep ravines. There is a great number of bridges on this line, and many of them expensive, particularly those over Currier's Creek, Long's Creek, Garden's Creek, Sullivan's Creek, Bull's Creek, and Maduxnikik. The road also abounds in side cuts, and expensive excavations Formerly the Great Road from Fredericton to Woodstock crossed the River Saint John at Burgoine's Ferry, sixteen miles above Fredericton, and passing up on the other side of the River, crossed again at Patchell's Ferry, a few miles below Woodstock; but these Ferries being always inconvenient, sometimes dangerous, and at other times impassable, the road was, after a careful survey and a large outlay of money, opened and completed the whole way on the same side. Its construction cost a large sum, and it will ever require a considerable annual expenditure to keep it in repair. It is very much used, and at present in a satisfactory state.

From Woodstock to Houlton, twelve miles. This road connects the Town of Woodstock, in the County of Carleton, with the Town of Houlton, in the State of Maine. It passes through a very fruitful and productive agricultural district, over ground generally undulating and uneven, and is now, and has been for a number of years past, in a good state for travelling.

From Woodstock to the Grand Falls, seventy one miles. The road continues up on the right side of the Saint John, at no great distance from the River, passing the whole way through one of the most productive agricultural districts in the Province. The line in its course crosses a number of rivers and streams, all falling into the Saint John, the principal of which are the Little Presqu'ile, the Big Presqu'ile, the River De Chute, and the Restook. From Woodstock to the River De Chute, thirty eight miles, the country is very hilly, undulating and uneven, and in general exceedingly unfavourable for road making. There are several expensive bridges on the line, the principal of which are those over the Big Presqu'ile and the Restook; the latter is new, and perhaps the best bridge of the kind in the Province. An exploration and survey of the whole country between Woodstock and the Grand Falls was made nine years ago, by Commissioners from Canada and New Brunswick; they laid out a new line through the settlements in rear of the present road, joining it again at the River De Chute. They also laid out a new line from the Restook to the Grand Falls, which has been since opened and completed, and much of the wilderness country settled. From Woodstock to the River De Chute, great improvements have been made in the old line within the last nine years; many steep hills have been avoided, others have been cut down, and their angles lessened; still this part of the road abounds with hills and steep difficult places, which must ever render it inconvenient, and it is therefore desirable that the new line through the back settlement should be finished and established as the Great Road. From River De Chute to the Restook, it is in good travelling condition, and the site generally as well chosen as the nature of the ground will allow. From the Restook to the Grand Falls, it is in a very good state, generally level, and the easiest portion of the whole line; still there are two or three hills which ought yet to be avoided. The whole line is very much travelled.

From the Grand Falls to Madawaska, forty miles. This road passes from the Village at the Grand Falls, up on the left side of the Saint John, through a well settled, fertile, and comparatively level portion of the Province; crossing in its course, first the main River Saint John itself, and afterwards a number of rivers and streams falling into the main river on the eastern side of the same; the principal of which are Grand River, Quisibis River, and Green River. This line, although it has been but a short time on the great road establishment, and is necessarily yet incomplete, is now in a pretty fair travelling condition, and with a few improvements and small alterations, would be one of the easiest and best lines in the Province. Some of the bridges are a little out of repair, and a very good looking new Bridge over the Quisibis is now being built; it will be the most expensive bridge on the whole line; the bottom is soft, and it has been found a difficult matter to make a bridge stand there; the work, so far, appears to be exceedingly well done, and the materials are the best of their kind. There is one ferry on this line of road, that over the main river in the still water at the head of the Village, a short distance above the Grand Falls.

From Saint Andrews to Fredericton, seventy eight miles. This road passes through a well settled district between the waters of the River Saint Croix and the Chamcook Mountains, and running up on the left bank of the Waweig, crosses that river above the tideway, it then pursues its course through the settlements in the interior, and crossing the Digdeguash River, enters the County of York near the River Magaguadavic, about thirty two miles from Saint Andrews. Crossing the Magaguadavic, it passes on through the wilderness to the Harvey Settlement, thence through the Hanwell Settlement, and thence to Fredericton. There are no expensive bridges on the line: the principal being those at Johnston's Cove, Digdeguash, Upper Trout Brook, and Magaguadavic. The bridging has therefore cost far less than that of any other great road of equal extent. Though it passes through an undulating and rather rough portion of the Province, this road has few hard or difficult places on it, and is now, and has generally been for a number of years past, in a good travelling state.

From Waweig to Saint Stephen, twelve miles. This road runs through a densely settled district its whole length. It branches off from the Great Road to Fredericton about ten miles from Saint Andrews, and crossing the Waweig on a long bridge over the tideway, passes round the head of Oak Bay, and thence over to the left bank of the Saint Croix near Porter's Mill, and thence to the end of the bridge in the Town of Saint Stephen, where it terminates. There are several expensive bridges on it, especially those over the Waweig River and Porter's Mill Stream. It has been very much improved since it was put upon the great road establishment, and though now in fair travelling condition, may yet be improved a little more.

From Oak Bay to Eel River, seventy four miles. Though the exploring and laying out of this line cost a large sum of money, and it has been on the great road list a number of years, it has not yet been opened through for summer travelling. It passed in the first place through a dense wilderness, and the operations on it from year to year, under two Supervisors, have mostly been from each end inwards towards the middle of the forest. On the Charlotte end, the turnpiking has been carried forward from twenty five to thirty miles, but this part is by no means in a good travelling state, having been cut to pieces by carting heavy loads of lumber thereon. On the other end the turnpiking has not proceeded so far. It is cleared and bridged all the way for travelling in the winter, and is very much used. Though a good deal of the land over which it passes is hard and stony, the settling of the country has followed the opening of the road, and both ends are now well settled. It has very few bridges on it, and when finished will be easy, and a great portion of it nearly level. Running through the Counties of Charlotte and Carleton, it is deemed of great importance to both.

From the Nerepis Road to Gagetown, twenty four miles. This road branches off from the Great Road from Saint John to Fredericton, at a building called "Government House," near the head of the Nerepis River, and after passing through "Coot Hill," and other back settlements, and running through a hilly and undulating district, reaches Gagetown, the Shire Town of Queen's County, close to the River Saint John. It is in good travelling condition, and there are no heavy bridges on it.

From Newcastle to Bathurst, via Pocmouche, one hundred and fifteen miles. This road passes down near the northern coast of Miramichi Bay, and along near the Gulph of Saint Lawrence in the County of Northumberland. It then enters the County of Gloucester, and crossing the eastern end of that County, again reaches the coast on the Bay of Chaleurs, which it follows round all the way to Bathurst. It passes through a country generally level, and a large portion of it well suited for the purposes of agriculture. There are no very expensive bridges on this road, except that over the Bartibog River, but there are long ferries at Tabusintac, Big Tracadie, Little Tracadie, Pocmouche, and Caraquet, all well attended. There are many fine settlements along the line, especially that part of it within the County of Gloucester. The road has been but a short time on the great road list, and is yet incomplete, though it can now be travelled the whole way with double horse carriages with safety and comparative ease. There are some excellent specimens of road making on it.

Salisbury to Harvey, forty two miles. This road branches off from the Great Road from Saint John to the Nova Scotia Line, and crossing the Petitcodiac River near the head of the tide, passes through the County of Albert, and terminates near Shepody Bay, at the southern part of that County. It has been but a short time on the great road establishment, and is therefore in an unfinished state. The land, though generally settled, and much of it very favourable for the purposes

of Agriculture, is in many places not very favourable for road making. There are several expensive bridges; and this road although at present safe and passable, will yet require a considerable outlay of money to put it in good travelling condition.

From Hampton to Bellisle, four miles. This road merely joins the Village of Hampton in King's County, with the Great Road from Gondola Point to Fredericton.

From Pickard's to the American Boundary, five miles. This road joins the Village at Tobique, in the County of Carleton, to the end of a road in the State of Maine.

From Grand Falls to the American Boundary, three miles. This road joins the Village at the Grand Falls, in the County of Carleton, to another road in the State of Maine.

The united length of those three roads being only twelve miles, further description is deemed unnecessary.

There are also, the road from Roix' to the head of Oak Bay in the County of Charlotte, for which, as a Great Road, no provision has yet been made, and the roads from the Little Falls on the Madawaska to the American and Canadian Boundaries, yet unfinished.

In addition to these, there are several other lines now in progress, intended for Great Roads, but which have not yet been added to the list. Of these last there are—The Royal Road, from the River Saint John, opposite to Fredericton, to the Grand Falls, through the interior of the country: the road from Fredericton through the interior of the country to Richibucto in the County of Kent: the road from Fredericton to the Nerepis, via Douglas Valley: the road from the Red Rock Settlement, in the County of Charlotte, to the Nerepis in Queen's County: the road from Loch Lomond in the County of Saint John, to Sussex Vale in King's County: the road from Brockway's in the County of York, to Saint Stephen in the County of Charlotte. The length of these roads, when added together, exceeds three hundred miles. They have all been explored and laid out, and considerable sums of money expended in opening and improving certain portions of them.

BYE ROADS.

The Bye Roads are not like the Great Roads, specially and separately described by law. They are intended to connect and unite the settlements with one another, and to accommodate the inhabitants of the respective Parishes. They are principally under the direction of Parish officers, denominated "Commissioners of Highways." Three Commissioners for each Parish are annually appointed by the Justices of the Peace in their General Sessions for the several Counties, whose duty it is to lay out, alter, improve, and otherwise regulate all the Bye Roads within their respective Parishes, in accordance with the provisions of a Law relating to Bye Roads. It is the duty of the Commissioners so appointed, early in the spring of each year, to assess and appoint all the able bodied male inhabitants, each according to his property, income or occupation, to perform so many days labour on the bye roads within the limits of certain districts where they respectively reside; so that no one shall be required to do more than twenty, nor less than two days labour. Lists of the names of persons with the number of days labour required from each, are then made out and handed over by the Commissioners to certain other Parish officers called "Surveyors," also annually appointed by the Justices of the Peace to oversee the labour so to be performed in the respective districts. Each man is summoned by the Surveyor. The inhabitants of the district meet at a certain time and place, with such tools as are required, and under the direction of the Surveyor, perform the number of days works specified by the Commissioners in the list. Persons refusing or neglecting to appear, or not working to the satisfaction of the Surveyor, are liable to be prosecuted and fined. The sum of two shillings and six pence a day is received in lieu of labour from any one who chooses to pay rather than work, and all monies so received is expended under the direction of the Commissioners for the improvement of the roads. Returns of all the roads laid out or altered by the Commissioners are made to the County Clerk, and by him entered in a book, and accounts of the receipts and expenditures of all money, and also of the number of days labour performed, are annually laid before the Justices in their General Sessions.

By this method of laying out the "Statute Labour," as it is commonly called, it so happens that in certain districts where there is a dense population the roads are kept in good repair, while in other districts where the settlers are scattering, the statute labour is altogether insufficient. In order to supply this defect, grants of money are made from the Provincial Treasury during the Legislative Session, in the following manner, viz:—First a round sum, say £12,000, or any other sum that may be agreed on, according to the circumstances of the country, is set apart for the Bye Road service. This is divided into suitable sums, and apportioned to the relative wants of the respective Counties. These divisions are then handed over to the Representatives of the different Counties, and by them again subdivided into smaller sums, to be applied for the improvement of such Bye Roads as require the same, where the Statute Labour of the inhabitants had been found inadequate. Commissioners are then appointed by His Excellency the Lieutenant Governor, for the purpose of expending on the Bye Roads the sums so granted, and the money is in all respects laid out, and accounted for, and the amount audited and reported on, in the same manner as money is expended and accounted for by Supervisors of Great Roads, as before described.

As lines of communication, the Bye Roads, in general, are by no means well planned. This, no doubt, arises in part from the want of skill in the Parish Commissioners, but more from the situation and condition of the new settlers and settlements. The Commissioners are by law required from time to time to lay out roads for the accommodation of existing settlements and neighbourhoods, and the roads are therefore laid out from settlement to settlement, and sometimes from house to house, just as they happen to spring up in the wilderness.

A good deal of fault has been found with the whole road system in this Province, and much has been said and written against it as tending to extravagance, political corruption, and gross mismanagement of the public money. It is, notwithstanding, an indisputable fact, that the Roads of New Brunswick, which fifteen years ago were every where a bye word and a reproach, are now in a better travelling condition than those of the adjoining Provinces, or the neighbouring States."

It would be impertinent in me to pretend either to criticise or to add to what Mr. Brown has so well said in regard to the public, or Great Roads of the Province; it gives a most useful exposition of their actual condition, and his observations and suggestions will, I am sure, be received with that consideration which his long experience and known firmness entitle them. But a glance at the Agricultural Maps attached to this Report, on which nearly all the existing Great Roads are laid down, will shew that there are large tracts of land, marked 2, 3, and 4, and coloured light red, blue, or bright yellow, into which no roads lead, and which are consequently at present wholly inaccessible to the settler. It must be for the interest of the Province, if it be considered desirable to facilitate the progress of settlement, and to give inducements to strangers to penetrate into the more promising parts of the interior, that roads should be opened up into those remote parts, especially where the land is believed to be of easy cultivation and fertile in corn.

I have myself observed the want of these roads in many parts of the Province through which I have passed, and I have regretted to see industrious men compelled to settle on inferior land, or less eligible situations, because the want of roads prevented access to more inviting fields of labour. It was interesting to remark, in visiting some of the more remote settlements, deepest cut into the woods, that is, to observe how the progress of clearing and of hut building along the road side, follows and keeps pace with the progress of the road itself.

I had made notes during my tour of special localities where new roads seemed urgent to aid the clearing and culture of valuable lands, and these I intended to embody in the present Report. Having learned, however, that the Surveyor General had directed his special attention to this means of opening up the better classes of wild lands, and through his Deputy Surveyors in the various Counties had collected numerous suggestions as to localities, directions, length, cost, &c. of various Great and Bye Roads which it would be useful to construct, I drew out a scheme of the following Table, and asked him to favour me by causing it to be filled up. This he has kindly done; and as presenting at one view all the information collected on this important subject by so many experienced men, it cannot fail to be of much use to the Province:—

III. *List of proposed Roads recommended, with a view to Agricultural Settlements, by the Honorable the Surveyor General of New Brunswick, and his Deputies*—1849.

County.	Situation.	Miles.	Probable cost.	Extent and quality of the Land opened up.		By whom recommended.
				Extent in Acres.	Quality as numbered on the Agricultural Map.	
Restigouche & Northumbeland	From Dalhousie to Boiestown,	110	£13,750	500,000	2, 3, 4, and 5,	Surveyor General.
Restigouche,	Elm Tree River to Jacquet River,	14	420	16,000	2 and 3,	Depy. Montgomery.
Do.	Eel River to Upsalquitch,	20	600	35,000	2 and 3,	do.
Do.	Christopher's Brook to Forks Upsalquitch,	18	540	22,000	2 and 3,	do.
Gloucester,	Teague's Brook to Caraquet,	13	390	30,000	3,	Depy. Carruthers.
Do.	New Bandon to Inuishannon,	5	150	8,000	3,	do.
Do.	Rose Hill continued up Tattagouche,	8	240	10,000	3,	do.
Do.	Nigado to Saint John Settlement,	6	180	6,000	2 and 3,	do.
Do.	Anderson Settlement to Jacquet River,	4	120	7,000	2 and 3,	do.
Do.	Middle River to Nepisiquit River,	13	390	20,000	3,	do.
Do.	Between Little Tracadi River & Pocmouche,	5	150	7,000	3,	Depy. J. Davidson.
Do.	Caraquet River to Bathurst Road,	24	720	30,000	3,	do.
Northumberland,	Gaspereau to Cain's River,	20	600	18,000	3 and 4,	Deputy Snell.
Do.	Burnt Church to Tabusintac,	6	180	10,000	3,	Depy. J. Davidson,
Do.	Wilfield Sett. to Barnabie's Riv. & branches.	16	480	20,000	3,	Deputy Peters.
Do.	Breadalbane Settlement to Boiestown,	30	900	40,000	3 and 4,	Deputy Price.
Kent,	Cocagne to Irishtown,	8	240	10,000	3,	Deputy Douglas.
Do.	Cocagne to Maclauchlan Road,	8	240	10,000	3,	do.
Do.	Saint Anthony to do.	8	240	10,000	3,	do.
Do.	Buctouche River to do.	7	210	8,000	3,	do.
Do.	Louisburg to do.	3½	105	4,000	3,	Deputy Layton,
Do.	Louisburg to Buctouche,	4	120	10,000	3,	do.
Do.	Mill Creek to Chockpish,	5	150	6,000	3,	do.
Do.	Between Bay des Vent and Kouchiboguac,	5	150	7,000	3 and 4,	Deputy Merzerall.
Do.	Little Black River to Richibucto Road,	4	120	3,000	3 and 4,	do.
Do.	Between Tweedie's and M'Innes' Brook,	3	90	4,000	3 and 4,	do.
Do.	South of Kouchibouguacis River,	8	240	10,000	3,	do.
Do.	South of Aldouane River,	2	60	2,000	3,	do.
Do.	North of Molus River,	7	210	10,000	3,	do.
Do.	South of Bass River,	5	150	8,000	3,	do.
Westmorland,	Mountain Settlement to Maclauchlan Road,	14	420	8,000	3,	Deputy Wilmot.
Do.	Butternut Ridge and North River,	3	90	4,000	3 and 4,	do.
Do.	North River and Nevers' Brook,	4	120	8,000	3 and 4,	do.
Albert,	Shepody Road to Coverdale River,	6	180	12,000	3,	Deputy Stiles.
Albert & St. John,	Point Wolf to Martin's Head,	7	210	10,000	3 and 4,	do.
St. John & King's,	Goose River to Mechanics' Settlement,	12	360	30,000	3 and 4,	Depy. Cunningham
Charlotte,	Canoose to Little Falls, Saint Croix,	10½	315	18,000	3 and 4,	Depy. W. Mahood.
Do.	Between Woodstock Road and Digdeguash,	4	120	6,000	3 and 4,	do.
Do.	Between Woodstock Road and Canoose,	2	60	2,000	3 and 4,	do.
Do.	From St. Stephen's Road to Connick's Dam,	4	120	6,000	3 and 4,	do.
Do.	Tryon Settlement to Flume Ridge,	3	90	3,000	3 and 5,	do.
King's,	Mill Stream to New Canaan,	8	240	20,000	3 and 4,	Depy. Fairweather.
Do.	Douglas Valley to Westfield,	17	510	10,000	3 and 4,	Deputy Kerr.
Queen's,	Picket's Cove to North Forks, New Canaan,	25	750	25,000	3,	Deputy Colling.
Do.	Gagetown Road to Victoria,	5	150	4,000	3 and 4,	do.
Do.	Gaspereau to Salmon Creek,	6	180	4,000	3,	Deputy Snell.
Do.	Harley Road to Salmon Riv. at Little Forks,	7	210	3,500	3 and 4,	do.
Do.	Between Salmon River and Coal Creek,	20	600	20,000	3,	do.
Sunbury,	Carlow to Penniac,	4	120	3,000	3 and 4,	Deputy Hatheway.
Do.	Penniac to Little River Mills,	20	600	18,000	3 and 5,	do.
Do.	North West Oromocto to Cork Settlement,	8	240	9,000	3 and 4,	do.
York,	Howard Settlement to Eel River,	7	210	10,000	3,	Depy. J. Davidson.
Do.	M'Leod's to Block 1, Nashwaak,	1½	40	3,000	3 and 4,	Deputy M'Lean.
Do.	Digdeguash to Magaguadavic Bridge,	23	690	20,000	3 and 4,	Josephus Moore.
Carleton,	Grand Falls to Madawaska,	20	680	230,000	3,	Deputy Harley.
Carleton, Northumberland, and Gloucester,	From Grand Falls to Bathurst, with branch lines to Newcastle,	200	25,000	960,000	2, 3, 4, and 5,	Surveyor General.
		830½	£54,440	2,327,500		

Crown Land Office, 10th December, 1849. (Signed) THOMAS BAILLIE, *Sur. Gen.*

NOTE.—The extent of land to be opened up by the proposed Roads is determined by a consideration of the quantity ungranted, and its fitness for cultivation.

The length of new roads recommended in the above Table—not all of course equally valuable for agricultural purposes nor equally urgent—is 830 miles, at a cost of £54,000. They are supposed to lay open 2,300,000 acres of different qualities of land. To show more clearly the kind of land into which each road penetrates, I have caused the quality to be in every case expressed in the sixth column of the Table, by the numbers 2, 3, 4, and 5, by which, as I have already explained, the different qualities of the land in the Province may be distinguished. I have also caused the proposed roads to be laid down in the Agricultural Map (No. 2) of a bright red colour, by which means it will not only convey at once to Your Excellency an idea of the propriety, value, and relative urgency of such roads, but will also enable you to judge how far

the real wants of the Colony are met by those roads, and what others it might be desirable to construct besides, or in preference to them.

I cannot conclude this Chapter without recommending to Your Excellency, and to the Houses of the Legislature, not only a continuance of the enlightened care hitherto bestowed upon the Great Roads, but a special consideration also to all roads which purpose to open up the better lands of the Province to the agricultural settler. Mr. Baillie, in a communication with which he furnished me, observes—"that if the Executive Government were authorized to expend a certain sum annually, in aid of some of the suggested lines of road, very satisfactory results would follow." I do not presume to give an opinion as to how the requisite steps ought to be taken or means appropriated, I may however be permitted to repeat what I have already observed at the beginning of this Chapter, that in all countries the roads are not only the most important agents in developing the natural agricultural resources, but that they are also an index of the zeal of those who govern, in behalf of this fundamental interest of a state, and of their wisdom in encouraging the use of the means most likely to promote it.

Chapter VI.

Actual and comparative productiveness of the Province, as shewn by the average quantities of Wheat and other Crops now raised from an Imperial acre of Land, in the different Counties.

In the preceding Chapters I have given a sketch of the general agricultural capabilities of New Brunswick, as they may be inferred from its geological structure, and of the absolute and comparative productive qualities of its soils, as deduced from practical observation and inquiry. But the natural qualities of the soil may be neglected, overlooked, or abused. The actual yield of the land may be very disproportionate to its possible yield. The crops may be less than they ought to be, for one or other of many reasons, to which I shall advert in the subsequent part of this Report.

It is in fact the actual condition of practical agriculture in the Province which will determine the actual productiveness of its soils; while on the other hand, the possible productiveness of its soils being known, the amount of produce actually raised will serve as an index or measure of the actual condition of the agricultural practice.

Looking at the matter in this point of view, it appeared to me of much consequence to collect as widely as could be done with the time and means at my disposal, numerical statements as to the actual number of bushels of the different kinds of grain and root crops usually cultivated within the Province, which were now raised from an imperial acre of land in its several Counties. Finding it impossible to collect all these data myself, I addressed a Circular to the farming proprietors and Agricultural Societies in the several parts of the Province, and from the answers I have received, the Tables (Nos. IV. and V.) have been compiled. They are not to be considered as rigorously accurate; they are liable to certain suspicions, to which I shall presently advert; but they are the first of the kind that have ever been compiled in reference to this Province; the numbers they contain have been given, I believe, according to the most careful judgment of the persons by whose names they are guaranteed, and in the absence of better information, they are deserving of a considerable amount of credit.

These Tables exhibit several facts of an interesting and some of a very striking kind: thus—

1. *The produce actually raised differs much in different parts of the same County.* Thus, in Westmorland, one person returns 15 and another 20 bushels as the average produce of wheat; in King's, one gives 15, another 25; in Sunbury, one gives 12½ and another 20; in York one gives 15 and another 32, and so on. Similar differences exist in regard to other kinds of grain.

Such differences are natural enough, and do not necessarily imply any incorrectness in the several returns. They may arise from natural and original differences in the nature of the soil; from its being more or less exhausted by previous treatment; or from the actual farming being in one case better and more generous than in another.

2. *In regard to Wheat,* the lowest minimum is in Queen's, where 8 bushels are given as sometimes reaped. In Saint John, Charlotte, and King's, the minimum is 10 bushels; from Carleton no return is given, and altogether the answers from that County are few and therefore defective. The largest maxima are from Kent, Charlotte, and York, where 40, 36 and 32 bushels respectively are sometimes reaped.

3. *In regard to Oats,* only one County, (Queen's) ever reaps less than 25 bushels an acre, according to these returns. In that County, as little as 13 bushels is occasionally reaped.

In four Counties the crop sometimes reaches 60 bushels; in two others, 50; in one, 45; and in four, to 40 bushels an acre. These numbers indicate what is indeed confirmed by numerous other circumstances, that not only do oats succeed admirably, but that they are well adapted to, and are one of the surest or least uncertain crops now grown in the Province.

4. *As to Maize or Indian Corn,* it will be seen that only in two Counties, (King's and Queen's,) is the minimum stated at less than 35 bushels an acre, while in four Counties, the smallest yield of this crop is represented at 40 and 45 bushels. In Sunbury, the large return of 80 bushels an acre is sometimes obtained, and in Charlotte and Northumberland, as much as 60 bushels.

This crop is liable to injury from early frosts, and is therefore somewhat uncertain in this climate, which by the great heat of its summers is otherwise well adapted to its growth. The four Counties of Sunbury, Queen's Charlotte, and Northumberland, would seem by the returns to be specially favourable to this crop.* If so its larger cultivation should be encouraged.

5. *As to Buckwheat,* 15 bushels an acre are the smallest return, while crops of 70 bushels are sometimes reaped. The experience of the last two years has shown not only that this crop in one or other of its varieties is tolerably certain, but that it is well adapted to the exhausted condition of many of the soils, and affords also a very palatable food.

6. *Of Potatoes,* the smallest return is 100 bushels, or about 3 tons an acre; but in Queen's County, a thousand bushels, about fourteen tons, are sometimes obtained. This latter amount is rarely surpassed even in the west of Scotland, the north western parts of England, and in Ireland, where the soil and climate are most propitious to this root.

* York and Carleton are generally considered among the best adapted for the growth of Indian Corn, but of this the returns do not afford evidence. I am somewhat surprised however that more returns should not have been received from the County of Carleton.

IV *Produce (in bushels) per Imperial Acre, and weight per Bushel of the different*

Counties.	No.	Wheat. No. of bushels.	Weight.	Barley.	Weight.	Oats.	Weight	Rye.	Weight.	Buck-wheat.
Saint John,	1	10 to 20	58 to 64	..	..	30 to 40	35 to 47	..	..	30 to 50
Charlotte,	2	20 to 36	62 to 66	..	..	30 to 40	35 to 43	..	..	..
do.	3	18	60	25	45	25	38	..	..	32
do.	4	20	55 to 60	30 to 35	46 to 54	30 to 45	36 to 43	..	..	20 to 40
do.	5	10 to 20	55 to 60	10 to 20	46 to 56	30 to 60	30 to 45	..	..	20 to 60
do.	6	..	..	..	..	25	40	..	..	..
Westmorland	7	16	60	20	45	32	36	..	..	20
do.	8	20	60	30	56	40	38 to 40	..	..	40
do.	9	15	55	28	40	30	33	..	..	22
do.	10	17	62	25 to 30	50	30 to 35	35	..	..	30 to 35
do.	11	?	60	..	..	?	30	..	..	..
do.	12	18	60	25	45	30	36	..	..	30
do.	13	20	60	40	..	45	..	..	..	50
do.	14	20 to 25	62	25 to 30	50	30 to 35	38	..	..	15 to 35
do.	16	20	60 to 65	30	50	40	36	..	..	30
King's,	17	15	60	25	45	25	36	30	55	25
do.	18	25	60 to 65	..	..	30 to 40	35 to 45	..	..	..
do.	19	20	50 to 55	30	..	35	35	..	..	30
do.	20	20 to 30	60 to 62	20 to 25	40 to 48	40 to 60	40 to 45	..	..	50 to 70
do.	20½	30	?	50	..	?	38 to 42	..	..	..
do.	21	15	60	15	50	25	35	30	55	25
do.	22	10 to 20	60	..	..	20 to 35	35 to 45	4 to 40	53	20 to 30
do.	23	20	60	30	54	30	34	..	..	25
Queen's,	24	17	63	18	50	30	35	25	54	25
do.	25	15 to 20	50	..	..	30	34	..	..	30 to 50
do.	26	..	..	..	..	13	36	11	54	25
do.	27	?	60	..	..	?	38 to 40	..	..	..
do.	28	8 to 20	56 to 60	..	..	15 to 30	30 to 35	8 to 20	50 to 54	15 to 20
do.	29	?	55 to 60	..	..	?	30 to 40	..	..	..
do.	30	10 to 15	66	..	..	40 to 60	36 to 40	..	..	25 to 50
do.	31	12	60	..	..	30	36	..	..	20
Sunbury,	32	15 to 30	50 to 60	..	..	30 to 50	30 to 44	15 to 25	50 to 56	20 to 60
do.	33	12½	62	..	..	40	38	..	..	20
do.	34	20	?	..	..	35	..	..	..	40
do.	35	15 to 30	50 to 63	20 to 40	50 to 60	30 to 50	30 to 50	..	..	20 to 50
York,	36	30	..	..	..	35	38	..	..	30
do.	37	..	..	19	53	35	39	..	..	17
do.	38	20	66	64	59	48	48	..	..	..
do.	40	..	..	..	..	30 to 40 & 60	30 to 40	..	..	..
do.	41	15	63	..	..	35	35	..	..	35
do.	42	32	65	35	50	50	35	..	..	45
do.	44	18	63	20	41	32	35 to 44	..	..	27
do.	45	20	..	..	..	35	..	20	..	35
Carleton,	46	?	64 to 65	..	..	?	36 to 46	..	..	..
do.	47	..	..	..	..	30	35	..	..	50
Albert,	48	25	60	40	50	40	33	..	..	50
do.	49	16 to 20	50 to 60	16 to 20	..	25	32 to 40	16 to 20	..	30
do.	50	16 to 20	50 to 60	16 to 20	50	25	35	16 to 20	50	30
do.	51	15 to 20	55 to 65	20	50	25	..	15 to 20	50	25
do.	52	16 to 20	58 to 62	16 to 20	50	25	35	16 to 20	50	30
Kent,	53	15	60	20	50	25	37 to 41	..	..	20
do.	54	15 to 40	62 to 70	..	..	25 to 35	32 to 38	..	..	..
Northumb'ld,	55	17	62	32	53 to 56	32	38	..	..	..
do.	56	15 to 25	60 to 66	25 to 35	50 to 56	30 to 40	35 to 40	..	..	30 to 50
do.	57	19½	63	..	..	31	36	..	..	..
Gloucester,	58	15 to 30	61 to 65	25 to 35	48 to 54	28 to 40	40 to 43	..	..	..
do.	60	20 to 25	60 to 66	..	..	25 to 30	36 to 40 & 42	..	..	..
Restigouche,	62	28	62 to 65	60	48	50	40 to 45	..	..	..

Crops raised in the several parts of the Province of New Brunswick.

Weight.	Indian Corn.	Weight.	Potatoes.	Turnips.	Carrots.	Mangel Wurzel.	Hay. Tons.	Authority.	No.
45 to 55	..	..	150 to 300	3 to 800	3 to 800	3 to 800	1½ to 4	D. B. Stevens, (C. Ag. So.)	1
..	..	..	..	..	..	..	..	Joseph Walton.	2
..	..	..	250	450	..	..	1 to 1½	David Mowatt.	3
55 to 60	45 to 60	58 to 60	200 to 320	4 to 600	4 to 600	..	1 to 2	James Stevenson.	4
..	..	..	200 to 500	3 to 700	..	..	..	John Mann, Junior.	5
..	..	..	350	600	..	..	..	John Farmer.	6
50	..	..	200	300	..	..	1½	Mr. ———	7
56	..	..	200	300	..	..	..	R. K. Gilbert.	8
45	..	..	120	..	..	..	..	Howard D. Charters.	9
45	..	..	250	500	..	..	..	Robert B. Chapman.	10
..	..	..	..	..	..	..	..	R. B. C. Weldon.	11
40	..	..	..	..	..	..	..	William Crane.	12
..	..	..	300	5 to 600	..	..	..	Charles Dixon.	13
54	..	..	..	..	..	..	..	John Trenholm.	14
45	..	..	300	250	..	..	2	Joseph Avard.	16
50	..	..	150 to 250	5 to 700	..	..	1 to 3	George Otty, (C. Ag. So.)	17
..	..	..	250 to 400	..	..	..	..	A. C. Evanson.	18
..	25	..	200	..	..	..	..	Henry Hayward.	19
..	..	..	200 to 300	..	..	..	2 to 3	Thomas Beer.	20
..	..	..	..	..	..	..	..	Andrew Aiton.	20½
50	..	..	200	..	..	..	1½	Matthew M'Leod.	21
40 to 50	..	..	..	..	..	..	..	Daniel M'Lauchlan.	22
50	40	60	200	2 to 400	..	..	..	William Keith.	23
40	40	63	200	500	..	..	1½	D. S. Smith, (C. Ag. So.)	24
..	30 to 50	..	150 to 400	6 to 1000	..	..	1 to 3	Allan Coster, (C. Ag. So.)	25
45	20	64	100	350	280	..	..	John Robertson.	26
..	..	..	..	..	..	..	..	Elijah A. Perkins.	27
45 to 50	20 to 50	55 to 60	..	..	..	..	..	William Reed.	28
36 to 46	..	..	..	..	..	..	1 to 2	William Pinder.	29
40	..	..	..	..	..	..	..	Samuel Mahood.	30
46	..	..	150	..	..	..	..	Robert Smyth.	31
40 to 50	40 to 80	54 to 60	150 to 400	2 to 800	4 to 600	4 to 600	1 to 3	C. L. Hatheway, (C. A. So.)	32
52	50	58	140	..	..	..	..	Nathaniel Hubbard.	33
..	35	..	250	..	..	..	..	Charles H. Clowes.	34
40 to 50	40 to 80	50 to 65	100 to 400	2 to 800	..	..	1 to 2	Charles Harrison.	35
56	..	..	300	..	..	..	..	Edward Simonds.	36
54	..	..	110	..	..	..	..	James Johnston.	37
..	..	..	154	..	8 to 1000	..	..	John H. Reid.	38
..	..	..	200 to 300	4 to 800	..	..	..	William Wilmot.	40
48	..	..	200	500	..	..	1 to 1½	Robert D. James.	41
50	40	60	200	500	..	..	1½	James Sutherland.	42
50	40	..	250	500	..	..	..	Israel Parent.	44
..	40	..	200	500	..	..	..	William Dow.	45
60	?	70	..	..	..	..	..	James Rankin.	46
45	35	60	250	..	..	..	..	James L. Pickett.	47
50	40	60	300	600	500	600	..	John Smith.	48
..	..	..	250	300	400	..	..	William H. Steves.	49
45	..	..	200	300	..	..	2	John Lewis.	50
35	..	..	250	250	..	..	..	William Wallace.	51
45	..	..	250	300	..	..	..	John M'Latchey.	52
50	..	..	150 to 200	300	..	..	1	Joseph C. Wheten.	53
..	..	..	200 to 300	3 to 600	..	..	1 to 2½	J. G. G. Layton.	54
..	..	..	200	..	..	..	2	James Caie, (C. Ag. So.)	55
40 to 50	40 to 60	55 to 60	175 to 250	375	500	..	..	John Porter.	56
..	..	..	..	..	..	..	2 to 3	John Hea.	57
..	..	..	250 to 300	5 to 600	..	..	1½ to 2½	H. W. Baldwin, (C. A. So.)	58
..	..	..	..	..	..	..	..	George Lockhart.	60
..	very good	..	170	..	..	..	..	Dugald Stewart.	62

V. *Maximum, Minimum and Average Produce of Wheat, Barley, Oats, Buckwheat, Maize, Potatoes, Turnips, and Hay, per Imperial Acre, in each County in the Province.*

COUNTIES.	WHEAT.			BARLEY.			OATS.			BUCKWHEAT.			MAIZE.			POTATOES.			TURNIPS.			HAY.		
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max	Min.	Av.
Saint John,	..	..	..	..	..	..	40	30	35	50	30	40	..	..	..	300	150	225	800	300	550	4	1½	2¾
Charlotte,	..	..	..	35	10	24	60	35	32½	60	20	34	60	45	52	500	200	308	700	400	483	2	1	1½
Westmorland,	..	..	..	40	20	26½	45	30	35¼	50	20	31⅛	..	..	..	300	130	228¾	600	250	380	2	1½	1¾
King's,	..	..	..	50	15	28⅛	60	25	34	70	25	31⅛	50	25	33¼	400	200	229 1-6	700	200	450	3	1	2
Queen's,	..	..	..	18	18	18	60	13	29	50	15	27½	40	20	33¼	400	100	181¼	1000	200	550	3	1	1¾
York,	..	..	..	64	19	34⅛	60	32	38⅜	45	17	31¼	40	40	40	300	110	208	800	400	520	1⅝	1	1¼
Sunbury,	..	..	..	40	20	30	50	30	38⅜	60	20	33¾	80	35	51¼	400	100	204	800	200	500	3	1	1⅝
Carleton,	..	..	..	..	..	..	30	30	30	50	50	50	35	35	35	250	250	250	..	..	..	..	..	..
Albert,	..	..	..	40	16	22⅜	40	25	28	50	25	33	40	40	40	300	200	250	600	250	290	2	1	1½
Kent,	..	..	..	20	20	20	35	25	30	20	20	20	..	..	..	300	150	212	600	300	375	2½	1	1¾
Northumberland,	..	..	..	35	25	29¾	40	25	31¾	50	30	40	60	40	50	250	175	206	375	375	375	2	2	2
Gloucester,	..	..	..	35	25	30	40	28	34	..	..	..	..	..	..	300	250	275	600	500	550	2¼	1¾	1¾
Restigouche,	..	..	..	60	60	60	50	50	50	..	..	..	..	..	..	170	170	170	..	..	..	..	..	..
Maxima, Minima, and Averages for the whole Province,	40	8	19 11/12	60	10	29	60	13	34	70	15	33¾	80	20	41⅜	500	100	226½	1000	200	456	4	1	1¾

7. But the most striking fact brought out by these Tables is the comparative high number by which the average produce of each crop in the entire Province is represented. These averages appear in the last line of the second Table, and are as follow :—

VI.

Wheat,	19 11-12, say 20 bushels.	
Barley,	29 bushels.	
Oats,	34	do.
Buckwheat,	33¾	do.
Rye,	20½	do.
Indian Corn,	41⅜	do.
Potatoes,	226½	do. or 6½ tons.
Turnips,	456	do. or 13¼ tons.

No very correct or trustworthy averages of the produce of the different crops in England, Scotland, or Great Britain, generally, have yet been compiled. It is believed, however, that 25 bushels of wheat per imperial acre, is a full average yield of all the land in Great Britain on which this crop is grown: some places, it is true, yield from 40 to 50, but others yield only 10 or 12 bushels per acre.

It is of less importance, however, to compare the above averages with any similar averages from Europe. It will be more interesting to Your Excellency and the Legislature, to compare them with similar averages collected in other parts of the Continent of America.

In the yearly volume of the transactions of the New York State Agricultural Society, for 1845, an estimate is given of the produce per imperial acre of each kind of crop in the several Counties, and a series of general averages for the whole State. The State averages, compared with those for New Brunswick above given, are as follow :—

VII. *Average produce per Imperial Acre.*

	State of New York.	New Brunswick.
Wheat,	14 bushels.	20 bushels.
Barley,	16 "	29 "
Oats,	26 "	34 "
Rye,	9¼ "	20½ "
Buckwheat,	14 "	33¾ "
Indian Corn,	25 "	41⅜ "
Potatoes.	90 "	226 "
Turnips,	88 "	460 "
Hay,	—	1¾ tons.

The superior productiveness of the soils of New Brunswick, as it is represented in the second of the above columns, is very striking. The irresistible conclusion to be drawn from it, appears to be, that looking only to what the soils under existing circumstances and methods of culture are said to produce, the Province of New Brunswick is greatly superior as a farming country to the State of New York.

In the first of the Tables above given, that which exhibits the actual yield of the different crops in the several parts of the Province, it will be seen that instead of giving an average, many of the authorities give the highest and lowest limits of the crops they usually reap from an acre. Thus in Sunbury, Mr. Hatheway gives for wheat the wide limits of 15 to 30 bushels, for buckwheat 20 to 60, and for Indian corn 40 to 80 bushels; others give limits quite as wide, out of which it has been very difficult for me to extract any precise truth. In all such cases I have taken the mean between the two numbers sent to me, and from these means have calculated my averages. Thus in the case of Sunbury, I have supposed that Mr. Hatheway meant to tell me, that the average produce of wheat in that County is 22½ bushels, of buckwheat 40 bushels, and of Indian corn 60 bushels.

It is just possible, however, that such was not the meaning of the numerous gentlemen who have sent me

returns in this form of highest and lowest yields, and that the averages I have deduced may therefore be higher than the truth. To meet this possibility, therefore, I have deduced a second series of averages, using the lowest numbers or limits only where two limits are given. In Sunbury, for example, I have taken 15, 20 and 40, as representing respectively the produce of wheat, buckwheat and Indian corn in bushels per imperial acre. As nearly one half of the returns give, as Mr. Hatheway does, the highest and lowest, and not the mean return, the averages I have thus arrived at are most probably below the truth. The following Table exhibits these, along with the former averages, and with those for the State of New York :—

VIII. *Average produce per Imperial Acre.*

	In New Brunswick.		In New York.
	From the minimum Returns.	From the whole Returns.	
Wheat,	17¾ bush.	19 11-12th bush.	14 bush.
Barley,	27	29	16
Oats,	33	34	26
Buckwheat,	28	33¾	14
Rye,	18	20½	9½
Indian Corn,	36½	41¾	25
Potatoes,	204	226	90
Turnips,	389	456	88

My object in computing these second averages, was to compare *them* also with those of the State of New York, and it will be seen that the numbers in the first column of the above Table, though in every case smaller than those in the second column, are still in every case larger than those in the third column, which represents the New York averages. We seem still therefore to be driven to the conclusion that, as a farming country, New Brunswick as a whole is superior to New York State as a whole.

But it is known that the north western part of the State of New York is naturally very rich, and that on the shores of Lake Ontario and the banks of the Genesee River, very fertile lands extend, yielding large crops of superior wheat. I extract therefore from the Tables of the New York State Agricultural Society the average produce of the several crops in three of the Counties of this North Western District. In the following Table they are compared with the averages for the whole of New Brunswick :—

IX. *In the State of New York.* | *New Brunswick.*

	Genesee.	Ontario.	Niagara.	Lowest average of whole Province.
Wheat,	16½	16	18	17¾
Barley,	15	19	19	27
Oats,	23	32	29	33
Buckwheat,	19	21	17	28
Rye,	10	9	8½	18
Indian Corn,	25	29	29	36½
Potatoes,	125	106	110	204
Turnips,	105	148	155	389

In the capability of growing all the common crops on which man and beast mainly depend, it would appear from a comparison of the above numbers, that the whole Province of New Brunswick taken together, exceeds even the favoured Genesee Valley, and the southern shores of Lake Ontario.

Although deprived at present of the opportunity of obtaining access to existing statistical details, relating to the agricultural condition of the other States of the Union generally, yet the possession of the Report of the Ohio "Board of Agriculture" for 1848, published early in the present year, enables me to compare the New Brunswick averages with those of that Western State for the year 1848. These Ohio State averages I have compiled from a series of County Reports, which are appended to the general Report of the Board which is presented annually to the State Legislature. Compared with the whole Province of New Brunswick, those of the whole State of Ohio are as follow :—

X. *Ohio in* 1848. *New Brunswick.*

		Smaller average.	Greater average.
Wheat,	15½ bush.	17¾ bushels	19 11-12 bush.
Barley,	24	27	29
Oats,	33¾	33	34
Buckwheat,	20¼	28	33¾
Rye,	16½	18	20½
Indian Corn,	41¼	36½	41¾
Potatoes,	69	204	226
Turnips,	—	389	456
Hay,	1¾	—	1¾ tons.

Except as regards oats, maize and hay, the above numbers are decidedly in favor of New Brunswick, in comparison with the whole State of Ohio. There are Counties in this State, indeed, as there are in the Province of New Brunswick, of which the average produce is greater than that for the whole State, as represented in the above Table. But to show how the three countries [stand] in this respect, I shall place in juxtaposition the two highest County averages for the Province of New Brunswick, and for the States of Ohio and New York respectively, in bushels per imperial acre :—

XI.

	N. Brunswick Counties of		*N. York.* Counties of		*Ohio.* Counties of	
	York	Restigouche	Monroe	New York	Shelby	Defiance
	bush.	bush.	bush	bush.	bush.	bushels.
Wheat,	22½	28	19½	20	22	20
Barley,	34½	60	19	—	40	20
Oats,	38¾	50	32	26	40	45
Rye,	20	?	10	—	15	25
Buckwheat,	31½	?	15	37½	20	15
Indian Corn,	240	—	30	40	25	45
Potatoes,	08	170	110	45	—	150
Turnips,	520	—	—	—	—	—
Hay,	1¼ tons	—	—	—	2 tons	2 tons.

On comparing the New Brunswick and New York numbers, it appears that no County in this State is equal in the production of any crop to the richest County in the Province of New Brunswick. As regards the two richest Counties in Ohio, nearly the same may be said, though the superiority in the growth of Indian corn appears to be on the side of the Ohio Counties.

This grain, it is known, does not, or is not supposed to suit the climate of Restigouche County, but the average for Sunbury (51¼ bushels) is considerably beyond that for Defiance County in Ohio.

From the United States we may turn for a moment to Canada. In the Appendix to the first Report of the Board of Registration and Statistics of Canada, published at Montreal in 1849, at page 29 an estimate is made of the average productiveness of Lower or Eastern Canada, in grain of all kinds. This estimate assigns 12 1-5 bushels per acre as the average productiveness in grain of all kinds of the land now in grain culture in Lower Canada. This estimate is not founded on good data, and may be too low, I therefore pass it by.

But in regard to Upper or Western Canada, the census returns for 1848 (contained in the same Appendix, page 38) give data, from which the average

productiveness in grain and potatoes of the different parts of Canada may be deduced with an approach to accuracy. The number of acres under each crop, and total produce in 20 districts, are there stated, and from them I have calculated the averages in the fourth column of the following Table, with the view of contrasting them with the New Brunswick averages in the fifth column :—

XII.	*Canada West in* 1848.			*New Brunswick.*
	Cultivated acres.	Produce in bushels	Produce per acre	Produce per acre.
Wheat,	593,695	7,358,773	12¾	17¾
Barley,	29,324	* 519,727	17¾	27
Oats,	285,571	7,055,734	24¾	33
Rye,	38,452	446,293	11½	18
Maize,	51,997	1,137,555	21¾	36½
Buckwheat,	26,656	432,573	16¾	28
Potatoes,	56,796	4,751,231	84	204

A comparison of the numbers in the last two colomns of the above Table are as much in favour of New Brunswick as those I have made with the average produce of the States of N. York and Ohio in the preceding Tables.

I do not dwell on the very favourable, and, on my own part, unanticipated result of all these comparisons. Before quitting this topic, however, I may be excused for observing that I do not personally vouch for the accuracy of the New Brunswick Returns. They are all I have been able to collect, and are, I believe, the only ones which exist. They are guaranteed by the names and handwriting of the parties by whom they have been transmitted to me. They may be exaggerated intentionally or otherwise. They may be high only because they come from the best farmers in the country—because the crops in New Brunswick are generally raised on new land—because the best land in the Province has hitherto been brought under cultivation, or because the crops of this year are larger than usual. To these, and other like objections, the returns embodied in the Tables I have given may be open; but in the absence of any data, by the help of which I can criticise them, I am bound to assume that they have been given to me in good faith, and with a due previous consideration of such circumstances and objections as the above, and I must reason upon them accordingly.

On the other hand I have not selected from a larger number the agricultural returns from the United States or from Canada, with which I have compared those of New Brunswick. I have taken all I can at present obtain access to, and I believe I have fairly contrasted them with each other.

On the whole, therefore, I think the result of this comparison of the actual productiveness of the soil of New Brunswick with that of other parts of North America, ought to be very satisfactory to the inhabitants of this Province, and is deserving of their serious consideration. So far as my knowledge of the intermediate country goes, I am induced to believe that the agricultural capabilities of New York are at least equal to those of any of the North Eastern States. If New Brunswick exceed New York in productiveness, it ought also to exceed all the States of New England.

And if it will in this respect bear a favourable comparison even with Ohio and with Upper Canada, it becomes doubtful how far on the whole the other Western States are superior to it. At all events there appears to me to be sufficient reason, until more satisfactory information is obtained, for the agricultural population of New Brunswick to remain contented with the capabilities of the soil they possess, and to give themselves up strenuously to the development of its latent resources, rather than to forsake it for other parts of Northern or Western America, which appear incapable of yielding larger crops than they can easily reap at home.

8. There is another interesting point exhibited in the columns of Table IV. which is deserving of special notice. This is the great weight per bushel the grain crops frequently attain. Wheat is said sometimes to reach the enormous weight of 70lbs. per bushel, and oats to 50lbs. a bushel,* but 62 to 66lbs. for wheat are common, and upwards of 40lbs. for oats.

The general averages for each County, deduced from Table IV. are as follow :—

XIII. COUNTIES.	Wheat.	Barley.	Oats.	Rye.	Buck-wheat.	Maize.
Saint John,	61	—	41	—	50	—
Westmorland,	60	48	35½	—	48	59
Albert,	58	50	34¾	50	45	—
Charlotte,	59	45	38	—	57	59
King's,	59½	48	37	—	48	60
Queen's,	58½	50	36½	53	43	61
Sunbury,	57	55	38	53	47	57
York,	63	50	38	—	51	60
Carleton,	64	—	38	—	52	65
Kent,	63	—	37	—	50	—
Northumberland,	62	53	37	—	45	57
Gloucester,	63	51	39	—	—	—
Restigouche,	63	48	42	—	—	—

And the general average weights for the whole Province are, for

Wheat,	60 11-13lbs.	Buckwheat,	48 8-11lbs.
Barley,	50 do.	Indian Corn,	59½ do.
Oats,	38 do.	Potatoes,	63 do.
Rye,	52¼ do.	Turnips,	66 do.
		Carrots,	63 do.

These average weights, over a whole Province, where the land is new, and manured only in rare instances, or at long intervals, indicate a capacity in the soil and climate to produce grain for human food of a very superior quality.

9. This observation leads me to advert to a point which first arrested my attention from its abstract scientific interest, but which possesses a direct practical importance to the inhabitants of the Province. I have in various places heard it stated, and by some warmly maintained, that wheaten flour from Canada or the United States was more nutritious, stronger as it is called, and went farther in a family, than flour manufactured in New Brunswick, and especially from Province grown wheat. Such a difference as this might arise either from an actual inferiority in the quality or composition of the grain itself, or from some difference in the mode of grinding and manufacturing it.

For my own part, I was unwilling to admit the existence of such an inferiority in the flour, when I considered the excellent quality of the wheat which the Province was capable of producing. It is true that if inferior or unsound wheat is ground, the flour produced cannot be so good, and may probably not go so far as that yielded by sound ripe grain. In this case the inferiority will be owing to the miller's selection of his sample, and not to the general inability of the millers of New Brunswick to produce first rate flour from good grain, nor to any general inferiority in the wheat which the Province actually does produce or is capable of producing.

Having consulted Mr. R. D. Wilmot, the Mayor of Saint John, who is practically acquainted with the wheat of Province growth, and with the absolute and

* See the return of Mr. Harrison from Sunbury.

comparative qualities of the flour manufactured both in the Province and in the United States, he informed me that the result of a trial made with a barrel of flour ground at his own Mill from wheat grown at Bellemont, in the County of Sunbury, against a barrel of superfine Genesee flour was, that the Province manufactured flour went farther, and gave a considerable number more loaves than the Genesee flour did, both being baked at the same time and in the same way. He since writes me, that "the fact is notorious, that at the same price the bakers take the home made flour in preference;" and he transmitted the following certificates from parties well known in the City of St. John:

Saint John, N. B., 24th Nov. 1849.

SIR,—In reply to your communication relative to the quantity of bread produced per barrel from the flour ground in this Province, as compared with the produce of that imported under the name of Genesee, the result of my own experience during the last twelve years, during which period I have carefully watched the quality as well as the productiveness of the different descriptions of flour used in my establishment, and I have no hesitation in stating that the average quality and productiveness of the flour ground in the mills of H. Gilbert, Esquire, and that of the Messieurs J. and R. Reed, from whom I have chiefly got my supplies, is much superior to the average quality of that imported from the United States.

I have, &c.

(Signed) JOHN M'LARDY, *Baker.*

R. D. Wilmot, Esq., Mayor.

Saint John, Nov. 26th, 1849.

SIR,—In reply to your communication, I beg to state that the result of my experience is, that the Genesee flour is not so strong an article, and will not produce as many pounds of bread per barrel as the flour manufactured here, which is principally made from southern red wheat.

The largest average quantity of bread I ever produced was from flour manufactured here, which turned out 132 loaves of 2lbs. each, from 196lbs. of flour.

I remain, &c. THOS. RANKIN, Jr.

R. D. Wilmot, Esquire, Mayor.

These letters show that the home millers are able to manufacture first rate strong flour from Southern wheat, and there is no reason why they may not do so also from the heavy Province grown red wheat; and should the Seasons in future prove favourable to the growth of wheat, there can I think be no good reason why the most fastidious taste should not find in home grown bread as palatable and economical an article of food as the superfine flour from New York usually affords.

10. *The quality of the Oats* for the production of oatmeal, is another question of considerable importance to the Province. This grain is more nutritious on the whole, weight for weight, when husked, than wheat is, and gives a meal which habit renders equally palatable with wheaten flour. The weight which oats are capable of attaining in this Province, renders it highly probable that the skilful miller could produce from them a superior quality of oatmeal, a presumption which is confirmed by the testimony of many persons, especially in the northern Counties, who have informed me that the Province made oatmeal is equal in every respect to what they had been accustomed to eat in Scotland.

I have learned with much satisfaction that the use of oatmeal is rapidly extending in many parts of the Province, and this not merely because of its very wholesome and nutritious qualities, but because the oat is one of the most certain, I might almost say the staple grain crop of the country. The Legislature of New Brunswick has I think shown a most wise discretion in the encouragement it has given in the erection of mills for grinding this grain.

District and Provincial premiums for the best quality of home made flour and oatmeal, could scarcely fail both to improve and fully to bring forward and establish the qualities of the home grain and home manufactured flour and oatmeal.

11. Before quitting this part of my subject, I ought perhaps to advert to the fact that in Tables IV. & V. compiled from the answers I have received to my published inquiries, no mention is made of beans or peas. This arises from the circumstance that scarcely any of the returns allude to these crops as usually grown in the district to which they refer.

The use of beans in feeding is as yet but little practised in the Province, and though the bush bean is here and there cultivated to a small extent, the raising of the common bean as an article of field culture has scarcely yet been fairly tried, even on soils and in localities apparently the best suited to its growth.

Peas succeed well, are grown largely, and form a considerable article of diet among the French habitans of Lower Canada.

CHAPTER VII.

Of the absolute and comparative prices obtained for Agricultural Produce in the different parts and Counties of the Province.

From what has been stated in the preceding Sections, it appears to be satisfactorily shown—

1st. That the soil of New Brunswick is capable of producing food for a very much larger population than now exists upon it; and

2nd. That on the whole, the cultivated land of the Province, is in its present state at least as productive as those of Canada West, of the State of New York, or of the State of Ohio on the whole.

There are reasonable grounds also for believing—

3rd. That the quality of the grain it produces is equal to and will produce as good flour and meal as are manufactured from the wheat and oats of the United States or of Canada.

It seems therefore natural to infer, that New Brunswick, having the natural ability, *ought* to grow bread stuffs and other provisions sufficient for its own consumption, and that no importation from abroad *ought* to be required. But here the prices received for agricultural produce in the markets of the Province come in as an important element in our reasoning. If these prices are not such as to remunerate the farmer, he may raise as much as his own establishment requires, but he will bring no produce to market; he will leave the markets open, that is to foreign growers, and compel intending purchasers to procure their supplies from abroad. In connection with this view of the remunerating character of agricultural pursuits in the Province, and the actual extent of its available capabilities, I have collected from as many quarters as I could, the average prices obtained for produce of different kinds in different parts of the Province; these I have digested into the following Tables, (XIV. and XV.,) which exhibit the actual prices obtained in the several parts of the Province, and the average prices obtained in the several Counties and in the whole Province respectively, for the natural or unmanufactured products of the farm, its grain, roots and hay; and XVI. and XVII., which exhibit the same facts in reference to the indirect or manufactured products, beef, mutton, pork, cheese and butter. The numbers in the second column of Tables XIV., XV., XVI. and XVII., refer to the returns indicated by the same numbers in Table IV., in which latter Table, opposite to each number, the names of my authorities will be found.

XIV. *Prices obtained for the different kinds of Grain and Roots in the several parts of the Province of New Brunswick.*

Counties.	No.	Wheat.	Barley.	Oats.	Rye.	Buck-wheat	Maize.	Potatoes.	Turnips.	Carrots.	Mangel Wurzel.	Hay. English.	Hay. Wild.	No
Saint John,	1	6s to 7s 6d	..	1s 6d to 3s	..	3s to 5s	..	1s 3d to 3s	1s to 2s 6d	2s to 3s	1s 6d to 2s 6d	40s to 80s	..	1
Charlotte,	2	7s 6d to 10s	..	2s to 3s 6d	..	..	..	..	..	..	..	..	..	2
	3	7s 6d	3s 9d	2s 3d	..	3s 6d	..	1s 6d	1s	2s 6d	..	50s	..	3
	4	6s 6d	3s 9d	2s 6d	..	3s	4s	2s to 3s 9d	1s to 1s 3d	1s 6d to 2s	..	40s to 60s	..	4
	5	7s 6d to 10s	3s to 4s 6d	1s 3d to 4s	..	..	..	1s 3d to 5s	9d to 1s 6d	..	..	..	..	5
	6	..	..	2s 6d	..	..	..	2s 6d	1s 3d	..	..	..	..	6
Westmorland,	7	7s 6d	4s	2s	..	4s	..	2s	1s 6d	..	..	40s	..	7
	8	6s 6d	3s	1s 9d	..	3s	..	1s 6d	1s	..	..	..	..	8
	9	7s 6d	3s 6d	1s 6d to 1s 9d	..	3s	..	1s 9d to 2s	..	..	..	40s	20s	9
	10	6s	3s	1s 6d	..	3s	..	1s 3d	1s	..	..	30s	15s	10
	11	8s	4s	1s 9d	5s	2s 6d	..	1s 6d to 2s 6d	1s 3d	..	..	40s	..	11
	12	7s	3s 6d	1s 9d	..	3s 6d	..	..	..	..	..	..	..	12
	13	7s 6d	4s	1s 6d	..	4s	..	..	..	..	..	..	..	13
	14	7s 6d	4s	1s 6d	..	4s	..	..	..	..	..	..	..	14
	16	7s	4s	2s	..	3s 6d	..	1s 3d	6d	..	..	40s	..	16
King's,	17	7s 6d	3s	2s	4s	2s 6d	uncertain,	2s	1s 6d	..	..	40s	..	17
	19	8s	4s	2s	..	2s 6d	..	..	..	..	..	..	..	19
	20	6s to 9s	3s to 3s 6d	1s 6d to 3s	..	2s 6d to 3s	..	9d to 1s 6d	..	..	..	30s to 90s	..	20
	21	7s	..	2s	4s	2s 6d	..	2s	..	..	..	40s	..	21
	23	7s 6d	4s	2s	..	2s 6d	5s	2s	1s 3d	..	..	..	..	23
Queen's,	24	8s	5s	1s 9d	5s	2s 6d	4s 6d	1s 6d	1s	..	..	40s	..	24
	25	7s 6d	..	1s 6d to 2s 6d	4s to 5s	2s 6d to 4s	4s to 5s	..	..	..	..	50s to 70s	..	25
	26	..	..	2s	5s	4s	5s	2s	1s 3d	2s 6d	..	..	..	26
	27	10s	6s	2s	..	4s	..	2s 6d	..	..	..	..	..	27
	29	9s to 10s	..	1s 6d to 2s 6d	..	..	..	..	..	..	..	40s	20s	29
	30	8s	..	1s 6d to 2s 6d	..	4s	..	..	..	..	..	..	..	30
	31	6s to 8s	..	2s	..	2s 6d	..	..	..	..	..	..	..	31
Sunbury,	32	6s to 10s	..	1s 6d to 2s 6d	4s to 6s 6d	4s to 5s	3s 9d to 6s 3d	1s 3d to 4s	1s to 1s 6d	2s to 2s 6d	2s to 2s 6d	30s to 80s	..	32
	33	10s	..	1s 6d	..	4s	5s	..	1s	..	..	..	..	33
	34	8s to 10s	..	1s 6d to 2s 6d	..	3s to 4s	5s	2s 6d to 5s	..	..	..	..	..	34
	35	6s to 10s	3s to 5s	1s 3d to 2s 6d	..	3s to 4s	4s to 5s	1s to 4s	10d to 1s 6d	..	..	30s to 80s	..	35
York,	36	..	..	2s	..	3s 6d	4s	2s	1s 3d	..	..	..	..	36
	37	..	5s	2s	..	..	..	..	..	..	..	..	..	37
	38	8s to 15s	4s to 8s	3s to 5s	..	..	..	1s 8d to 2s 3d	1s 6d	3s	1s 6d	..	..	38
	40	..	..	1s 6d to 3s	..	..	..	1s to 5s	1s 6d to 2s	..	..	..	..	40
	41	8s to 10s	..	2s	..	3s	..	2s	1s 3d	..	..	..	..	41
	42	7s 6d	4s	1s 9d	..	3s	4s 6d	1s 6d	1s	..	..	40s	..	42
	44	7s 6d	4s	2s	..	3s 9d	5s	1s 3d	1s 3d	..	..	40s	..	44
	45	10s	..	2s	4s	4s	..	2s	1s 3d	..	..	..	..	45
Carleton,	46	7s 6d	3s 6d	1s 6d	..	3s	6s 3d	2s	2s	..	..	40s to 60s	..	46
	47	..	..	2s 6d	..	4s	6s	2s 6d	..	..	..	..	..	47
Albert,	48	7s	3s	2s	..	2s 6d	4s	1s 6d	1s 3d	2s 6d	2s 6d	..	..	48
	49	6s to 7s	..	1s 9d	5s	4s	..	1s 6d	..	..	..	30s to 40s	..	49
	50	7s 6d	5s	1s 9d	5s	4s	..	1s 9d to 2s 6d	1s 3d	..	..	30s to 40s	..	50
	51	7s 6d	5s	1s 9d	..	4s	..	1s 6d	1s 3d	..	..	..	..	51
	52	7s 6d	5s	1s 9d	5s	4s	..	1s 6d	1s 3d	..	..	..	..	52
Kent,	53	5s 6d	4s to 5s	1s 6d to 2s	..	5s	..	1s 6d	1s	..	..	35s to 60s	..	53
	54	6s to 8s	..	1s 6d to 2s 6d	..	..	..	1s 3d to 2s	9d to 1s	..	..	50s to 60s	..	54
Northumberland.	55	8s	5s	2s 3d	..	..	..	2s	..	..	..	65s	..	55
	56	6s to 8s	5s to 6s	1s 9d to 2s 6d	..	4s to 6s	4s to 5s	1s 8d to 2s	1s to 1s 8d	2s to 2s 9d	..	..	..	56
	57	7s 6d to 10s	..	..	..	..	..	..	..	..	..	..	..	57
Gloucester,	60	6s to 7s 6d	3s 6d to 4s	2s	..	..	..	..	..	..	..	..	..	60
Restigouche,	62	8s to 10s	3s 6d to 5s	1s 8d to 2s 6d	..	..	..	2s	..	..	..	..	..	62

XV. *Average prices received for Grain and Roots in the several Counties of the Province of New Brunswick.*

Counties.	Wheat.	Barley.	Oats.	Rye.	Buck-wheat.	Maize.	Potatoes	Turnips.	Carrots	Mangel Wurzel.	Hay. English.	Hay. Wild.
Saint John,	6s 9d	..	2s 3d	..	4s	..	2s	1s 9d	2s 6d	2s	60s	..
Charlotte,	7s 10d	3s 9d	2s 6d	..	3s 3d	4s	2s 3d	1s 1½d	2s 3d	..	50s	..
Westmorland,	7s 2d	3s 8d	1s 8d	5s	3s 4d	..	1s 9d	1s	..	..	37s 6d	20s
King's,	7s 6d	3s 7d	2s 1d	3s 10d	2s 6½d	5s	1s 9d	1s 4d	..	1s 9½d	49s	..
Queen's,	8s 4d	5s 6d	1s 11d	4s 10d	3s 9d	4s 8d	2s	1s 1½d	2s 6d	..	45s	20s
Sunbury,	8s 9d	4s	1s 10d	5s 3d	3s 9d	4s 10d	2s 7d	1s 1d	2s 3d	2s 3d	55s	..
York,	8s 6d	4s 4d	2s	4s	3s 6d	4s 9d	1s 11d	1s 4d	3s	..	40s	..
Carleton,	7s 6d	3s 6d	2s	..	3s 6d	6s 1d	2s 3d	..	..	..	..	..
Albert.	7s 2d	4s 6d	1s 9d	5s	3s 8d	4s	1s 7½d	1s 2d	2s 6d	2s 6d	35s	..
Kent,	6s 3d	4s 6d	1s 10½d	..	5s	..	1s 9d	10d	..	..	48s	..
Northum'bld.,	7s 6d	5s 3d	2s 1d	..	5s	4s 6d	1s 10d	1s 4d	2s 4d	..	..	..
Gloucester,	6s 9d	3s 9d	2s	..	..	..	..	..	..	..	..	..
Restigouche,	9s	4s 3d	2s 1d	..	..	..	2s	..	..	..	..	..

General average prices obtained for Produce in the entire Colony of New Brunswick.

Per Bushel,	7s 6d	4s 2½d	2s	4s 10d	3s 9d	4s 8d	1s 11d	1s 2d	2s 5d	2s 1d	49s	20s
Per Quarter,	60s	33s 8d	16s	38s 8d	30s	37s 4d						

XVI. *Prices obtained for Beef, Mutton, Pork, Cheese and Butter, in the several parts of the Province of New Brunswick.*

Counties.	No.	Beef.	Mutton.	Pork.	Cheese.	Butter.
Saint John, ...	1	..	..	..	..	8d to 1s
Charlotte, ...	2	..	..	..	..	7½d to 1s
	3	3½d	3d to 4d	3½d	..	10d
	4	..	..	..	..	10d
	5	2½d to 3d	..	..	..	7½d to 1s
	6	3½d	..	..	..	1s
Westmorland, ...	7	3½d	..	..	..	9d
	8	3d to 4d	..	..	5d	9d
	9	..	..	3d to 4d	..	9d
	10	3d	..	..	5d	9d
	11	..	..	..	3½d	6d to 1s
	12	3d to 3½d	..	..	5d	9d
	13	..	..	..	5d to 6d	8d to 10d
	14	3d to 3½d	..	..	..	8d to 9d
	16	..	..	..	..	7d to 9d
King's, ...	17	3d to 3½d	..	..	5d	9d
	18	2d to 4½d	..	3d to 3½d	6d	8d to 1s
	19	..	..	..	..	10d
	20	2½d to 3½d	3d to 3½d	..	8½d	7½d to 1s 3d
	20½	..	..	..	..	9d
	21	2½d to 3½d	..	..	..	10d
	22	2½d to 4½d	2d to 4d	3d to 4½d	4d	6d to 1s
	23	3d	..	4½d	3d	9d
Queen's, ...	24	..	..	..	..	8d
	25	3d to 4d	..	..	5d	9d
	26	2½d	..	..	..	9d
	27	3½d	..	..	..	9d to 1s
	28	Fall—1½d to 3d; Spring—3d to 4½d	..	..	4d to 6d	8d to 10d
	29	..	..	..	..	7d to 1s
	30	2d to 3d	..	..	..	7½ to 1s
	31	..	..	..	4½	9d
Sunbury, ...	32	..	3d	3d to 4d	4d to 5d	7d to 1s 3d
	34	Fall—2d to 2½d; Spring—4d to 5d	..	..	4d to 5d	8d to 1s 3d
	35	2d to 4½d	..	..	..	8d to 1s
York, ...	36	3½d	..	..	..	1s
	38	..	..	..	..	11d
	41	2d to 2½d	2½d to 3d	2½d to 3d	5½d	10d
	42	3½d	3d to 4d	5d to 6d	..	8d
	44	2½d	3d	..	5d	9d
	45	2½d to 3d	..	..	6d	10d
Carleton, ...	46	..	..	..	..	6d to 1s
	47	3d	..	..	6d	9d
Albert, ...	48	3½d	..	..	4½d	8d
	49	1½ to 4d	..	..	..	..
	50	2d to 4d	2d to 3d	3½d	..	8d to 10d
	51	2d to 4d	2d to 3d	3½d	..	10d
	52	2d to 4d	..	3½d	..	8d to 10d
Kent, ...	53	2d to 6d	..	..	..	1s
	54	Fall—1d to 2d; Spring—5d to 6d	..	..	..	..
Northumberland, ..	55	..	..	..	5d to 6d	9d
	56	..	..	..	9d	9d
Gloucester, ...	60	3d to 6d	..	..	9d	9d to 1s
Restigouche, ...	62	3½d to 6d	..	..	9d	10d

XVII. *Average Prices of Beef, Mutton, Pork, Cheese and Butter in the several Counties of the Province of New Brunswick.*

Counties.	No.	Beef.	Mutton.	Pork.	Cheese.	Butter
Saint John,	1	..	..	..	..	10d
Charlotte,	2	3d	3½d	3½d	..	10¾d
Westmorland,	3	3¾d	..	3½d	4¾d	9d
King's,	4	3d	3d	3½d	5d	9½d
Queen's,	5	3d	..	..	5d	9¼d
Sunbury,	6	3¼d	5d	3½d	4½d	10d
York,	7	2¾d	3d	4d	5½d	10d
Carleton,	8	3d	..	..	6d	9d
Albert,	9	3¼d	2½d	3½d	4½d	9d
Kent,	10	3¾d	..	..	..	1s
Northumberl'd	11	..	..	..	5½d	9d
Gloucester,	12	4¼d	..	..	9d	10½d
Restigouche,	13	4¼d	..	..	9d	10d

General Average of the Prices of Beef, Mutton, Pork, Cheese and Butter for the entire Province of New Brunswick.

Beef.	Mutton.	Pork.	Cheese.	Butter.
3¼d.	3½d.	3½d.	5¾d.	9¾d.

These Tables are instructive in several respects—

1st. The first of them (Table XIV.) shows that the prices of produce are subject to considerable variations in the same locality. Thus in King's, No. 20 says that in his neighbourhood wheat varies from 6s. to 9s. a bushel, oats from 1s. 6d. to 3s., and hay from 30s. to 90s. a ton. In York, No. 38 represents wheat as varying in the neighbourhood of Fredericton from 8s. to 15s., Barley from 4s. to 8s. and oats from 3s. to 5s. per bushel. These prices are so far beyond those given by any other of my authorities, that I think they must refer to seed corn, and are not to be looked upon as usual market prices even at Fredericton in any season of the year.

2nd. The same thing appears in Table XVI. respecting beef and butter; the former (beef) varies in Kent, (according to No. 34,) from 1d. a pound in the Fall, to 6d. in the Spring; in Sunbury, from 2d. to 5d., and in the other Counties in somewhat less degree. The latter (butter) varies in Carleton from 6d. to 1s. a pound; in Sunbury from 7d. to 1s. 3d.; in King's from 7½d. to 1s. 3d.; and in other places, regarding which only the average is given, the variation probably is as excessive.

These variations imply one or both of two things—that the beef and butter are much more plentiful in the market at one season of the year than at another, or that the quality is superior in one season to what it is in another.

In the case of beef, the practice of slaughtering so largely in the fall of the year, causes both the quantity and quality at that season to affect the market price, and the usually poor feeding of cattle in winter produces a similar result as regards butter. I do not dwell on these points here, as I shall have occasion to draw especial attention to them in a subsequent part of this Report.

3rd. The Tables XIV. and XVI. show that the average prices of produce of the same kind, in different parts of the same County, occasionally differ very considerably. Thus the average price of wheat in one part of Westmorland is 6s., and in another 8s.; in one part of Queen's, 7s. 6d., and in another 10s. So in one part of Albert, barley sells for 3s., and in another for 5s.; while in one part of Carleton oats bring an average price of 2s. 6d., and in another of only 1s. 6d. a bushel.

4th. Again, Tables XV. and XVII., which represent the average prices for each County of the Province, show that similar differences exist throughout the whole year among the different Counties. Thus in Saint John the average price of wheat is 6s. 9d., in Kent 6s. 3d., in Sunbury, 8s. 9d., in Restigouche 9s. In King's barley sells for 3s. 7d., while in Queen's it brings 5s. 6d. In Westmorland oats average 1s. 8d., and in Charlotte 2s. 6d. a bushel. Similar differences appear, not only in regard to other grains and to root crops, but in regard to beef, butter and cheese.

Such differences as the above exist to a certain extent even in the oldest cultivated and most improved countries of Europe. It is chiefly to difficulty of transport from one market to another that such differences are owing. They prevent the farmer from carrying his produce to the highest market, and the consumer from obtaining his supplies from the cheapest source. Good roads not only add to the general comfort of the whole population, and hasten forward the development of the general capabilities of a country, but they are of direct money-value both to consumer and to producer in a degree which is very generally under-estimated.

I have already expressed my surprise at the great extent of good roads which the Province now possesses, but every year will open up new roads, and will improve existing means of communication; as these progress, not only will the country through which they pass advance along with them, but the inequalities of the prices paid or received for agricultural, and other produce, in different parts of the country, will gradually be lessened.

5th. But the general averages for the whole Province are most worthy of attentive consideration. These are for the different kinds of grain per bushel and per quarter—

XVIII.

	per bush.	per quar.		per bush.	per quar.
Wheat,	7s 6d	60s 0d	Rye,	4s 10d	38s 8d
Barley,	4 2¼	33 8	Buckwheat,	3 9	30 0
Oats,	2 0	16 0	Indian Corn,	4 8	37 4

For root crops and for hay the averages are—

XIX.

Potatoes,	1s 11d per bush.	Carrots,	2s 5d per bush.
Turnips,	1 2 do.	Man. Wurtzel,	2 1 do.
Eng. Hay,	49 0 per ton.	Marsh Hay,	20 0 per ton.

For the manufactured products of the farm they are as follows—

XX.

Beef,	3¼d per lb.	Cheese,	5¾d per lb.
Mutton,	3¼ "	Butter,	9¾ "
Pork,	3½ "		

I do not presume to give an opinion as to how far, in the existing circumstances of the Provincial farmer, the above prices are or are not absolutely remunerative. But when we consider at how much less cost these crops are raised in this Province than they are in Great Britain, and compare the prices in the two countries, it will appear that the New Brunswick farmer, with no rent and few taxes to pay, ought at least to be as well off as the English farmer. Thus reducing the New Brunswick currency to sterling money,* and taking the averages of the London Corn Exchange for the six months, ending the 3rd of November, being the most extensive English averages to

* Note.—It will be useful to the reader to annex a Table, shewing the nominal value of the Sovereign in the several Colonies in British North America. This statement is taken from the "Currency of the British Colonies," printed for H. M. Stationer's Office in 1848:

Canada, £1 4 4; Nova Scotia, £1 5s.; N. Brunswick, £1 4s. £1 therefore in New Brunswick currency is 1-6th less than the same nominal sum in Great Britain.

which I can at present refer, the prices of grain in the two countries are as follow per quarter :—

XXI.

	New Brunswick.	London.
Wheat,	48s 6d	41s 6d
Barley,	27 3	28 7
Oats,	13 9	16 10
Rye,	30 11	22 9

I do not found any argument or conclusions on the general superiority of the numbers in the second to those in the third column of the above Table.

It may be said that the English prices are at present unremunerative to the English farmer, and this may possibly be the case. No safe inference, therefore, can be drawn as to the sufficiency of New Brunswick prices, from any comparison of them with those now realized by the English farmer.

I have before me the Appendix to the *First Report of the Canadian Board of Registration and Statistics*, published at Montreal during the present year, in which is given (p. 43) a statement of the average prices of produce in Canada in 1848. I insert a comparison of these prices, and of those obtained at the Toronto market on the 10th October of the present year, with the New Brunswick prices already given :—

XXII.

	Upper Canada. Average for Toronto market, 1848.	10th Oct. 1849.	New Brunswick 1848 & 1849.
Wheat,	28s 0d	27s 0d	60s 8d
Barley,	18 0	14 0	34 0
Oats,	10 0	9 4	16 0
Buckwheat,	32 0	—	30 0
Rye,	18 0	25 6	38 8
Indian Corn,	20 0	—	37 4
Potatoes,	1 6	1 9	1 11

XXIII.

Beef,	-- --	0 2½ per lb.	0 3½
Mutton,	-- --	0 3½	0 3½
Pork,	-- --	0 3	0 3½
Fresh Butter,	-- --	0 8½	0 9¾
Firkin do.	-- --	0 5½	
Cheese,	-- --	0 4½	0 5¾

From the superiority of the New Brunswick prices *taken alone*, over those of Western Canada, exhibited in the above Table, we must not draw any hasty conclusions as to the better condition of the New Brunswick farmer. But if in respect of climate, of productiveness of soil, of cost of labour, and so on, he be on a level with his Canadian neighbour, we may reasonably say, that as he obtains a better price for his produce, he ought also to be more comfortable in his general circumstances.

Now the comparative productiveness and the market prices, as between Upper Canada and New Brunswick, according to the data already given, are as follow :—

XXIV.

	Upper Canada. Produce per acre.	Price per quarter.	New Brunswick. Produce per acre.	Price per quarter.
Wheat,	12¾	28s	17¾	60s 8d
Barley,	17½	18	27	34 0
Oats,	24¾	10	33	16 0
Rye,	11½	18	18	38 8
Maize,	21¾	20	36½	37 4
Buckwheat,	16½	32	28	30 0
Potatoes,	84	1 6d p. b.	204	1 11p.b

If the numbers in this Table are at all to be relied upon, they compel us to the conclusion, that both as to the productiveness of their soils, and to the prices obtained for produce, the New Brunswick farmers, as a body, have a decided advantage over Canada West, taken collectively. This of course is quite consistent with the existence of richer and poorer districts in either Province, to which the average numbers above given do not apply, and in respect of which the above general conclusions would be untrue.

The Report of the Board of Agriculture of Ohio, published in January last, and to which I have already referred, contains returns of the average prices of grain and roots obtained in the several Counties of that State in 1848, furnished by the Secretaries of the several County Agricultural Societies. I have tabulated these returns, and have drawn from them a general average of the prices obtained in the whole State in that year, compared with the New Brunswick prices. They are as follow in New Brunswick currency :—

XXV.

	State of Ohio.	New Brunswick.
Wheat,	31s 0d per quar.	60s 0d per quar.
Barley,	14 8 "	3 0 "
Oats,	8 0 "	16 0 "
Rye,	16 0 "	38 8 "
Buckwheat,	14 4 "	30 0 "
Indian Corn,	10 8 "	37 4 "
Potatoes,	1 10½ per bush.	1 11 per bush.
Hay,	23 9 per ton.	English, 49s. Marsh, 20s.

I need not remark on the great superiority of the New Brunswick over the Ohio State prices, as shown by the above Table. It ought to be borne in mind however, in order to understand the full value of the differences between the sets of numbers in the two columns, that the comparative productiveness of the two countries, as shown by Table X. inserted in a previous part of this Report, is also in favour of New Brunswick. To make this clearer, I introduce, as I have done in regard to Upper Canada, a combined view of the produce per acre, and the prices obtained in the two countries, on an average of the whole returns from each :—

XXVI.

	State of Ohio. Produce per acre in bush.	Price per quarter.	New Brunswick. Produce per acre in bush.	Price per quarter.
Wheat,	15½	31s	17¾	60s 8d
Barley,	24	14 8d	27	34
Oats,	33¾	8	33	16
Rye,	16¾	16	18	38 8
Buckwheat,	20½	14 4	28	30
Indian Corn,	41½	10 8	36½	37 4
Potatoes,	69½	bush. 1 10½	204	bush. 1 11
Hay,	tons 1¾	23 9	tons 1¾	20s to 49s

All the numbers, whether they represent produce or prices, are superior in the case of New Brunswick, except the produce of Indian Corn ; and it is probably in the general adaptation to the growth of this grain, that the State of Ohio differs most widely from New Brunswick in its agricultural character.

If we combine together the produce per acre and the prices obtained for the produce in the markets of Upper Canada, New Brunswick, and the State of Ohio, we shall obtain the average money value of an acre of each crop in the three countries. This money value—what it would sell for in the home market—ought to measure, if other things be equal, the comparative profit of farming, and the value of farms in the several countries. I have calculated these values, and embodied them in the following Table :—

XXVII. *Average money value of an acre of each crop.*

	State of Ohio.	Canada West.	N. Brunswick
Wheat,	£2 19 0	£2 4 7	£6 13 0
Barley,	2 4 0	1 19 4½	5 13 7½
Oats,	1 13 9	1 11 0	6 3 6
Rye,	1 12 4	1 5 10½	4 7 0
Buckwheat,	1 16 3	3 5 0	5 5 0
Indian Corn,	2 15 0	2 14 4½	8 10 4
Potatoes,	6 9 4½	6 6 0	19 11 0

A glance at these three columns shows how much larger a money return the New Brunswick land yields to the farmer than that of either Upper Canada or of

the State of Ohio. Unless there be something very special in the circumstances of the New Brunswick farmers therefore, one cannot refrain from concluding—

1st. *From the amount of produce*—

a. That grain and roots generally can be raised more cheaply in this Province than either in New York State, the State of Ohio, or Upper Canada; and

b. That it ought to be able to compete with these countries successfully, and drive them from its home markets.

2nd. *From the prices obtained*—That if the farmers in these countries can make a living, the New Brunswick farmer should be able to do so easier, and should be better off than they are.

Appendix to the Chapter on Prices.

As a further record and illustration of the prices of provisions in New Brunswick, I annex to this Chapter a Table of the Prices of Provisions in the Market of Saint John during the last five years, taken quarterly. It will be seen that these prices and these averages are, even at the place of most importation, comparatively high :—

XXVIII. *Table of the Prices of Provisions of various kinds in the Saint John Markets at different periods of the Years* 1845, 1846, 1847, 1848, *and* 1849.

Articles.	1845.											
	May.				August.				December.			
	s.	d.		s. d.	s.	d.		s. d.	s.	d.		s. d.
American Wheat, per bushel,	5	9	to	6		..				..		
Oats, per bushel,	2	3	to	2 6	2	6	to	2 10	2	6	to	3
Potatoes, per bushel,	1	8	to	2		..			2		to	4
Turnips, per bushel,		..				..				..		
American Superfine Flour, per barrel,	28	9	to	30	30				40		to	41 3
Mill Flour, per barrel,	28	9	to	30	27	6			37	6	to	38 9
Mill Flour, in bags, 196 lbs.,	27	6			26	3			35			
Rye Flour, per barrel,	20				19	6	to	20	28	9	to	30
Corn Meal, per barrel,	15		to	15 6	15		to	16	23		to	23 9
Oat Meal, per cwt.,		..				..				..		
Buckwheat Meal, per cwt.,		..				..				..		
Hay, per ton,		..				..				..		
Beef, per 100 lbs.,	25		to	32 6		..				..		
Do. on foot, (sinking offal,)		..				..			3	to		3½
Do. per lb., Butcher's Market,		..			4	to		6	4	to		6
Do. per lb., Country Market,		..			3	to		3½	2	to		3½
Pork, per pound,	3	to		3½		..			3	to		3½
Mutton, per pound,		..			4½	to		5	3	to		4½
Lamb, per pound,		..			4	to		4½	3	to		3½
Veal, per pound,	3	to		3½	2	to		4		..		
Butter, per lb., (Roll,)	10				9½	to		10	9	to		10
Butter, per lb., (Packed,)	9				9	to		9½	9			
Eggs, per dozen,	6½				8				9			

Articles.	1846.											
	March.				May.				August.				December.			
	s.	d.		s. d.	s.	d.		s. d.	s.	d.		s. d.	s.	d.		s. d.
American Wheat, per bushel,		..				..				..				..		
Oats, per bushel,	2	9	to	3	2		to	2 6	2				1	9	to	2 3
Potatoes, per bushel,	5				4	6	to	6	3				3		to	4
Turnips, per bushel,	1	6	to	2		..				..			1	4	to	1 6
American Sup. Flour, per barrel,	35				30		to	31 3	26	3	to	27 6	33		to	35
Mill Flour, per barrel,	32	6			28		to	29	26				31	3	to	32 6
Mill Flour, in bags, 196 lbs.	30				27	6			25		to	26 3	31	3		
Rye Flour, per barrel,	26	3			20		to	21	18				23	9	to	25
Corn Meal, per barrel,	22				19		to	20	16	9			22	6	to	23 9
Oat Meal, per cwt.,		..				..				..				..		
Buckwheat Meal, per cwt.,		..				..				..				..		
Hay, per ton,	75		to	100	60		to	80	50		to	60	50		to	70
Beef, per 100 lbs.,		..				..				..				..		
Do. on foot, (sinking offal.)		..				..				..				..		
Do. per lb., Butcher's Market,	4	to		6½	4	to		7	4	to		6	4	to		6½
Do. per lb., Country Market,	3½	to		4	4½	to		5		..			2½	to		3½
Pork, per pound,	4	to		5		..				..			3	to		3½
Mutton, per pound,	4	to		5		..			3½	to		4	3½	to		4
Lamb, per pound,	4	to		5		..			3½	to		4	3½	to		4
Veal, per pound,	3	to		6	4	to		5	3	to		4		..		
Butter, per lb., (Roll.)	10	to		11	1	2	to	1 3	11	to	1		1		to	1 2
Butter, per lb., (Packed,)	9	to		9½	1				9	to		10		9½		
Eggs, per dozen,	10	to	1		10					..			1	3		

Table of the prices of Provisions, &c.—Continued.

Articles.	1847.			
	March.	May.	August.	December.
American Wheat, per bushel,	..	..	..	..
Oats, per bushel,	2 3 to 2 6	3 3 to 3 6	..	2 3 to 2 9
Potatoes, per bushel,	3 6 to 4 0	5 6 to 6 6	3 6 to 4	4 to 5
Turnips, per bushel,	2	1 6	..	1 9 to 2
American Sup. Flour, per barrel,	41 3 to 45	60	38 to 41 3	37 6 to 41 3
Mill Flour, per barrel,	42 6 to 43 9	55	40 to 41 3	37 6
Mill Flour, in bags, 196 lbs.,	41 3 to 42 6	57 6 to 60	40 to 41 3	37 3
Rye Flour, per barrel,	28 9 to 30	40	25	30 to 31
Corn Meal, per barrel,	28 9 to 30	30 3	22 to 22 6	22 6 to 23 9
Oat Meal, per cwt.,	16 to 22 6	20 to 22 6	26 3	20 to 25
Buckwheat Meal, per cwt.,	12 6 to 15	14 to 16	..	11 6 to 15
Hay, per ton,	60 to 80	80 to 100	57 to 65	60 to 80
Beef, per 100 lbs,	..	..	..	..
Do. on foot, (sinking offal.)	..	..	..	..
Do. per lb., Butcher's Market,	4 to 7	5 to 7	4 to 7	3 to 6
Do. per lb., Country Market,	3 to 3½	4 to 4½	3½ to 5	2 to 3
Pork, per pound,	4½ to 5	4 to 5	..	3½ to 4
Mutton, per pound,	4 to 5	5 to 5½	4 to 4½	3 to 3½
Lamb, per pound,	..	3½ to 5	4 to 4½	2½ to 3
Veal, per pound,	3½ to 4½	3½ to 5	..	..
Butter, per lb., (Roll,)	1 3	1 3	1	1 to 1 1
Butter, per lb., (Packed.)	1 2	1 2	10	11
Eggs, per dozen,	1 6	7½ to 8	10½ to 11	1

1848.

	March.	June.	August.	December.
American Wheat, per bushel,	..	..	..	..
Oats, per bushel,	2 5 to 2 9	2 5 to 2 7	2 3 to 2 6	1 9 to 2
Potatoes, per bushel,	4 to 5	4 to 5	2 6 to 3	2 8 to 4
Turnips, per bushel,	..	..	3 6 to 5	1 6 to 2
American Sup. Flour, per barrel,	36 3 to 40	36 3 to 37 6	33 9 to 35	32 6 to 34
Mill Flour, per barrel,	36 3 to 37 6	36 3 to 37 6	32 9	31 3 to 32 6
Mill Flour, in bags, 196 lbs.,	36 3	36 3	31 3	30 to 31 3
Rye Flour, per barrel,	27 6 to 29	22 6	22 6 to 23 9	24 to 25
Corn Meal, per barrel,	18 to 19	16	16 3 to 17 6	17 6 to 18 9
Oat Meal, per cwt.,	17 to 25	16 to 17	16 to 17	14 6 to 15
Buckwheat Meal, per cwt.,	12 to 16 6	..	..	9 to 13
Hay, per ton,	30 to 45	40 to 45	35 to 40	35 to 50
Beef, per 100 lbs.,	..	..	..	..
Do. on foot, (sinking offal,)	..	..	..	..
Do. per lb., Butcher's Market,	3½ to 6	4 to 7	4 to 6	3 to 5
Do. per lb., Country Market,	2½ to 3	3½ to 4	2½ to 3½	1½ to 2½
Pork, per pound,	3½ to 4	5 to 6	..	2½ to 3
Mutton, per pound,	3 to 3½	5 to 6½	3½ to 4	2 to 3
Lamb, per pound,	3 to 3½	..	3 to 4	2 to 3
Veal, per pound.	3½ to 5	3½ to 5	3 to 4	2½ to 3½
Butter, per lb., (Roll,)	1	1	10 to 11	10 to 10½
Butter, per lb., (Packed,)	10 to 10½	1	7½ to 8	8½ to 9
Eggs, per dozen,	1	7½	7½	9 to 9½

1849.

	March.	June.	September.	December.
American Wheat, per bushel,	..	..	..	..
Oats, per bushel,	1 4 to 1 7	2 to 4	2 3 to 2 6	1 10 to 2
Potatoes, per bushel,	3 9 to 5	5 6 to 6	3 to 4	1 10 to 3
Turnips, per bushel,	2 6 to 3	1 9 to 2	..	1 to 1 3
American Sup. Flour, per barrel,	33 9 to 35	30 to 31 3	30 to 31 3	29 to 31 6
Mill Flour, per barrel,	31 to 32 6	30 to 31 3	28 9 to 30	28 9
Mill Flour, in bags, 196 lbs.,	31 3	30	28 to 30	28 9
Rye Flour, per barrel,	26	17 6 to 18 9	17 6 to 18 9	20

Table of the prices of Provisions, &c.—Continued.

Articles.	1849.							
	March.		June.		September.		December.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Corn Meal, per barrel,	25		18		17		17	to 18
Oat Meal, per cwt.,	12 6	to 14	12 6	to 14	12 6	to 14	12 6	to 14
Buckwheat Meal, per cwt.,	9	to 11	9	to 11	9	to 11	9 6	to 12 6
Hay, per ton,	35	to 40	40	to 50	50	to 60	60	to 70
Beef, per 100 lbs.,	..		..		..		..	
Do. on foot, (sinking offal.)	..		..		..		..	
Do. per lb., Butcher's Market,	4	to 6½	4	to 5½	4	to 6	3	to 5
Do. per lb., Country Market,	3	to 3½	3	to 3½	3	to 3½	1	to 2
Pork, per pound,	4½	to 5	..		..		2½	to 3½
Mutton, per pound,	3½	to 5	3	to 4	2½	to 3½	1½	to 2
Lamb. per pound,	3½	to 5	..		2	to 3½	1½	to 2
Veal, per pound,	3½	to 4½	2½	to 4	2	to 3½	2	to 3½
Butter, per lb., (Roll,)	9½		9½	to 10	9½	to 11	10	to 11
Butter, per lb., (Packed,)	8	to 8½	8	to 8½	8	to 9	10	to 11½
Eggs, per dozen,	..		8		7	to 7½	9	to 9½

The annexed Tables (A. & B.) also show the prices obtained for Cattle, and for the Butter and Cheese of one Cow :—

A. *Prices obtained for Cattle, &c., in the different parts of the Province of New Brunswick.*

Counties.	Oxen.	Steers.	Cows.	Heifers.	Sheep.	Lambs.	Authority.	No.
Saint John,..	..	..	3*l* to 3*l* 10s	..	..	..	D.B. Stevens,	1
Charlotte, ..	..	6*l* to 8*l*	..	£1 10s to £2,	..	..	Joseph Walton,	2
	..	..	..	..	..	Leicesters, 10s	David Mowatt,	3
	15*l* to 20*l*, yoke,	..	..	..	..	..	John Mann, Jr.	5
	..	..	..	1 yr. old 30s, 2 do. 60s	..	..	John Farmer,	6
Westmorland,	..	..	..	2 years old, 50s	..	..	Mr. ——	7
	10*l* to 12*l*, yoke,	Cattle	from 2 to 3	years old, £2 to £2 10s	..	..	H.D. Charters,	9
	10*l* to 12*l*, yoke,	Young	Stock from	£1 to £4,	..	..	Joseph Avard.	16
King's, ..	..	..	5*l* to 10*l*,	..	..	..	A. C. Evanson,	18
	18*l* to 20*l*, yoke,	..	..	..	25s to 30s	10s to 15s	Thomas Beer,	20
	..	..	£4 10s	..	..	..	Andrew Aiton,	20½
	12*l* to 18*l*, yoke,	..	£2 to £6,	..	8s to 15s	5s to 10s	D.M'Lauchlan.	22
	..	..	£3 to £6,	..	10s to 20s	..	William Keith,	23
Queen's, ..	..	Stock 3	yrs. old, 3*l*	to £5,	..	..	Wm. Pindar,	29
Sunbury, ..	..	..	..	..	10s to 17s 6d	..	C.L. Hatheway	32
York, ...	..	..	..	..	..	£2 for breeders	John H. Reid,	38
	..	Stock	from 1 to 3	years old, £1 10s to £4	..	..	Israel Parent,	44
Albert,.. ..	..	..	..	..	12s6d to 17s6d	17s 6d	John Lewis,	50
	10*l* to 12*l* 10s	..	..	3 years old, 50s to 60s	..	8s 9d	Wm. Wallace,	51
	..	..	..	..	15s to 17s 6d	8s 9d	J. M'Latchey,	52
Kent, ...	..	..	..	..	..	..		53
								55
Northumb'ld,	..	..	..	..	..	..		
	..	..	6*l* to 8*l*	..	..	..	John Porter,	56
Restigouche,	Calves, 25s to 30s ;	1 yr. old	50s ; 2 yrs. old, 70s,		15s to 20s	..	Dugald Stewart	62

d of Butter and Cheese from one Cow per week or season, and purposes for which the Cattle are kept.

Counties.	Kind of Stock.	Butter. lbs.	Cheese. lbs.	Purposes for which Cattle are kept.	Authority.	No.
Saint John,		3 to 5 per week,		From 1st May to 1st November	D. B. Stevens, C.A.S.	1
Charlotte,		6 " "		Dairy and Beef,	Joseph Walton,	2
		5 " "		Dairy and Labor, then for Beef,	David Mowatt,	3
		120 per season.		Dairy,	James Stevenson,	4
		100 " "		Dairy,	John Farmer,	6
Westmorland,		100 " "		Dairy, Labor and Beef,	Mr. ———	7
		80 " "		Dairy and Labor, then for Beef,	R. K. Gilbert,	8
		90 " "		Dairy,—young cattle kept for stocking the farm.	Howard D. Charters.	9
		120 " "		Dairy and Beef,	Robert B. Chapman,	10
		60 " "		Dairy,	R. B. C. Weldon,	11
		May 1 to Nov 11 60 to 100 pr sea.	75 to 150 per sea.	Dairy, Labor and Beef,	William Crane,	12
		60 to 100 " "			Charles Dixon,	13
		100 " "		Dairy and Labor,	John Trenholm,	14
		6 per week,		Dairy and Labor,	Joseph Avard,	16
King's,		70 per annum,	140 per annum.	Dairy, Labor, and Beef,	George Otty,	17
		60 to 90 pr season		Dairy and Beef,	A. C. Evanson,	18
		70 " "		Dairy,	Henry Hayward,	19
		6 per week,		Dairy and Beef,	Thomas Beer,	20
		70 per season,		Dairy and Beef,	Matthew M'Leod,	21
		7 per week,		Dairy,	Daniel M'Lauchlan,	22
		60 per season,		Dairy,	William Keith.	23
Queen's,		70 " "		Dairy,	Daniel S. Smith,	24
		60 to 100 in 6 mos.	120 to 200.	Dairy and Beef,	Rev. Allan Coster,	25
		4 pr wk for 6 "		Dairy,	John Robertson,	26
		80 per season.		Dairy and Beef,	Elijah A. Perkins,	27
		60 to 100 pr "	120 to 200 per sea.	Dairy and Beef,	William Reed,	28
		100 to 110 pr sea.		Dairy,	William Pindar,	29
		50 average "		Dairy,	Samuel Mahood,	30
		80 per season,	100 per season.	Dairy,	Robert Smyth,	31
Sunbury,		100 " "	200 " "	Dairy and Beef,	C. L. Hatheway,	32
		112 " "		Dairy and Beef,	Charles Harrison,	35
York,	Durham	12 per week,		Dairy and Beef,	John H. Reid,	38
		4 " "		Dairy,	R. D. James,	41
		112 per season,		Dairy,	James Sutherland,	42
		7 per week for 4 mon's, then less,	14 per week.	Dairy, Sheep for market,	Israel Parent,	44
		5 per week,		Dairy,	William Dow,	45
Carleton,		6 " "	8 " "	Dairy,	James L. Pickett,	47
Albert.		112 per season, or	224.	One quarter of stock for Dairy,	John Smith,	48
		60 to 100 pr sea.		Dairy, Labor and Beef,	John Lewis,	50
		100 to 120 " "		Dairy, Labor and Beef,	William Wallace,	51
		60 to 100 " "		Dairy, Labor and Beef,	John M'Latchey,	52
Kent,		4 pr week, 15th	May to 15th October.	Dairy,	Joseph C. Wheten,	53
Northumberland,		112 per season,		Dairy,	James Caie,	55
		112 per annum,	56 per annum.	Dairy,	John Porter,	56
Restigouche,		70 to 80 pr sea.	50 to 60 per season	Dairy,	Dugald Stewart,	62

Average of Butter and Cheese for the whole Province.

Butter.		Cheese.	
Per Week.	For the Season.	Per Week.	For the Season.
5¼ lbs.	89½ lbs.	11 lbs.	140¾ lbs.

XXIX.

Wholesale prices from Mr. Jardine's Store Books.

Years.		Wheat, per bush.	S. Flour, per brl.	R. Flour, per brl.	C. Meal, per brl.	Oatmeal, per cwt.
		s. d.	s. d.	s. d.	s. d.	s. d.
1844	May,	6 0	31 3	20 0	17 0	13 9
	Nov.	5 6	28 9	20 0	15 6	13 9
1845	May,	6 0	27 6	20 0	15 0	13 9
	Nov.	7 0	37 6	25 0	21 3	25 0
1846	May,	6 3	30 0	20 0	18 9	22 6
	Nov.	6 3	33 9	23 9	22 6	20 0
1847	May,	9 0	42 6	28 9	27 6	20 0
	Nov.	7 6	37 6	23 9	20 0	22 6
1848	May,	7 6	37 6	23 9	16 0	17 6
	Nov.	6 3	32 6	25 0	18 9	20 0
1849	May,	6 3	30 0	20 0	17 6	17 6
	Nov.	6 3	30 0	21 3	18 0	17 6

Chapter VIII.

Of the Climate of New Brunswick in relation to its Agricultural capabilities, and to the profits of Farming.

The subject of general climate is a very wide one, but the relations of climate to agriculture, in the economical sense, admit of a comparatively limited discussion.

Two things in regard to the climate of New Brunswick, I feel myself compelled by all the evidence I have collected, unreservedly to admit.

1st. That it is an exceedingly healthy climate. Every medical man I have met in the Province, I believe without exception, and almost every other person I have conversed with, assure me of this; and the healthy looks and the numerous families of the natives of all classes confirm these assurances.

2nd. That it does not prevent the soil from producing crops which, other things being equal, are not inferior either in quantity or in quality to those of average soils in England; while the Tables of produce introduced into a previous Chapter shows, that according to our present knowledge, it permits the soil of New Brunswick to yield crops which exceed the present averages of Upper Canada, and of the States of New York and Ohio.

The admission, especially of this latter fact, shortens our inquiry very much, and restricts our attention almost entirely to the economical influence of the climate on the farmer's operations—the mode in which it interferes with these operations—and the extent to which it lessens the farmer's profits.

1st. *As to the way in which it interferes with the farmer's operations.* This it does chiefly by shortening the period during which all the out-door business of the farm is to be performed.

The ploughing and sowing of spring, the root husbandry and hay making of summer, and the reaping and ploughing of autumn, have all to be hurried into the few months which intervene between the final thaws of spring and the first snows of approaching winter. It cannot be denied that, to whatever extent the time for these field operations is really shortened in New Brunswick, in comparison with other countries, by the duration of winter, to that extent the Provincial farmer is hampered in his work.

In connection with this point I was anxious to obtain precise data, from which I might hope to arrive at some clear idea of the time for field labour which the New Brunswick farmer has at his disposal. I therefore introduced an inquiry upon the subject among the questions I caused to be circulated among the practical men of the Province. To this question I have received numerous replies; and the following Table, compiled from them, exhibits the times of earliest sowing and latest fall ploughing in the different parts of the Province, with the names of the parties to whom I am indebted for the information:—

XXX. *Time of earliest Sowing and latest Fall Ploughing in the different parts of the Province of New Brunswick.*

Authority.	No.	Earliest Sowing.	Latest Ploughing.
D. B. Stevens, (C.A.S)	1	15th April,	20th November.
Joseph Walton,	2	20th "	15th "
David Mowatt,	3	25th "	15th "
James Stevenson,	4	8th "	25th "
John Mann, Jr.,	5	10th "	20th "
John Farmer,	6	15th "	30th "
Mr. ——	7	10th "	13th "
R. K. Gilbert,	8	17th March,	December.
Howard D. Charters,	9	15th April,	30th November.
R. B. C. Weldon,	11	1st "	30th October.
William Crane,	12	15th "	20th November.
Charles Dixon,	13	"	"
John Trenholm,	14	1st May,	25th "
Alex. Munroe,	15	20th April,	25th "
Joseph Avard,	16		1st December.
George Otty,	17	20th "	1st "
Henry Hayward,	19	20th "	1st "
Thomas Beer,	20	27th "	1st "
Andrew Aiton,	20½	14th "	12th November.
Matthew M'Leod,	21	1st May,	20th "
Daniel M'Lauchlan,	22	1st "	15th "
William Keith,	23	10th April,	15th "
Daniel S. Smith,	24	15th "	20th "
Allan Coster,	25	1st May,	30th "
John Robertson,	26	1st "	15th "
William Reed,	28	1st "	15th "
William Pindar,	29	April,	25th "
Samuel Mahood,	30	25th "	1st "
Robert Smyth,	31	1st May,	10th "

Times of earliest Sowing and latest Ploughing—Continued.

Authority.	No.	Earliest Sowing.	Latest Ploughing.
C. L. Hatheway,	32	20th April,	30th November.
Nath. Hubbard,	33	10th May,	15th "
Charles H. Clowes,	34	1st "	10th "
Charles Harrison,	35	1st "	1st "
Edward Simonds,	36	1st "	20th "
James Johnston,	37	1st "	16th "
John H. Reid,	38	15th April,	15th "
William Wilmot,	40	"	"
Robert D. James,	41	25th "	15th "
Edwin Jacob,	43	15th "	20th "
Israel Parent,	44	1st May,	10th "
William Dow,	45	1st "	15th "
James Rankin,	46	25th April,	15th "
James L. Pickett,	47	1st May,	10th "
John Smith	48	1st April,	10th "
William H. Steves,	49	1st May,	
John Lewis,	50	15th April,	25th "
William Wallace,	51	1st "	15th "
John M'Latchey,	52	1st May,	
Joseph C. Wheten,	53	1st "	1st "
J. G. G. Layton,	54	20th April,	15th "
James Caie,	55	1st May,	
John Porter,	56	1st "	15th "
H. W. Baldwin,	58	15th "	15th October.*
E Lockhart,	60	30th April,	15th November.
Dugald Stewart,	62	" "	15th "

Average latest Ploughing, - - - - 17th November.
Average earliest Sowing, - - - - 21st April.

*NOTE.—I am informed that this early date cannot mean that Mr. Baldwin at this period was stopped by the frost, but that he had then finished all the ploughing he himself intended to perform. I have allowed these and other early dates to stand, however, as they cannot have any great influence upon the averages I have drawn, and because I wish on all occasions, if possible, to err on the safe side—rather to appear to have a little shortened, if I mistake at all, than to deceive any one by lengthening the duration of summer.

If we suppose the year to consist only of a Summer and a Winter, and that the length of the Summer is very nearly represented by the interval between the earliest sowing and the latest reaping, we obtain from the preceding Table the following data and deductions:

1st. Earliest sowing in the Province, 17th March.
Latest ploughing in the Province, 1st Dec.
Longest Summer from these data—8 months & 14 days.

2nd. Latest early sowing, 15th May.
Earliest late ploughing, 1st Nov.
Shortest Summer from these data—5 months & 15 days.

3rd. Mean length of the Summer from these two results—6 months and 22 days.

4th. Average interval between the earliest sowing and latest ploughing—or mean length of Summer—deduced by combining all the returns in the preceding Table—6 months and 22 days.

This number being identical with that deduced from the extremes only, may be considered as a very near approximation to the general or average length of the Summer in New Brunswick.

It of course varies in different Counties to an extent which may in some measure be learned from the returns contained in the Table, but these variations do not affect any general considerations which are intended to embrace the whole Province.

The tillage of the land, and the growth of the crops therefore, in this part of the world, must be all accomplished in an average period of 6 months and 20 days.

Of this period, the growth of the wheat and the crops of spring corn requires an average period of three months and seventeen days. This appears from the following Table:—

XXXI. *Times of Sowing and Reaping the different kinds of Grains and Roots in the several parts of the Province.*

Counties.	No.	Wheat.		Barley.		Oats.		Rye.	
		Sowing.	Reaping.	Sowing.	Reaping.	Sowing.	Reaping.	Sowing.	Reaping.
Saint John, ...	1	Apr 15 to May 15	..	..	..	April 15 to May 15	Aug 15 to Sep 15	..	..
Charlotte, ...	2	Apr 20 to May 10	..	..	..	April 20 to May 10	Aug 20 to Sep 10	..	..
	3	Apr 25 to May 10	Aug 20 to Sep 1	May 15	Sep 1	April 25 to May 10	Aug 20 to Sep 1	..	..
	4	Apr 20 to May 1	Sep 1	May 15 to 25	Aug 25 to 30	May 1 to 15	Aug 28 to Sep 15	..	..
	5	May 1 to 10	Aug 20 to Sep 1	May 20 to June 10	Aug 20	April 20 to June 20	Aug 20 to Oct	..	..
	6	May 1	Sep 1	..	..	..	..	..	..
Westmoriand, ..	7	April	August	June	September	May	August	..	..
	8	Apr 1 to May 30	Aug 10 to Sep 20	May 10 to June 6	Aug 20 to Sep 20	April 1 to May 30	Aug 10 to Sept 20	..	..
	9	May 1 to June 1	Aug 30	June 1	Sep 1	May 1	Sep 1	..	..
	10	May 1 to 20	September	June 1 to 20	September	May 1 to 20	September	..	..
	11	April & May	Aug & Sep	June	do	April & May	Aug & Sep	..	..
	12	Apr 15 to May 15	Aug 20 to Sep 20	May	August	May	September	..	..
	14	May 1 to 31	Aug 15	June 15 to 30	September	May 1 to 31	Aug 15	..	..
	16	May 10 to 30	Aug 10 to Sep 10	June 1 to 25	..	April 20 to June 1	..	..	..
								winter grain.	
King's, ...	17	Apr 20 to May 20	Aug 20 to Sep 20	May 25 to June 10	Aug 15	April 20 to May 20	Aug 20 to Sep 20	Sep 25 to 30	Aug. 15.
	20	May 1 to 20	Aug 25	June 15 to July 5	Sep 25	do	July 30 to Aug 30	..	..
	20½	May 16	Aug 20	May 7	Aug 21	May 10 to 29	Aug 15	..	..
								winter grain.	
	21	May 1 to 15	Aug 25	May 20 to June 1	August	May 1 to 15	Aug 25 to Sep 1	Sep 25	August
								winter grain.	
	22	May 1	Aug 15	..	..	..	..	Oct 10 to 15	..
	23	do	..	May 20	..	May 10	..	..	..
								spring grain.	
Queen's,..	24	do	Sep 1	do	Aug 20	April 20	Sep 5	April 20	Sep 1
	25	do	August	..	..	May 1	August	..	..
								winter grain.	
	26	do	..	..	..	May 8	Aug 10	Nov 8	Aug 15
	28	May 10 to 20	Sep 1	..	..	May 1	Aug 20	May 1	Aug 20
	29	Apr 25 to May 1	Aug 20	..	..	April 25 to May 1	do	..	..
	30	Apr 28 to May 8	Aug 25	..	..	April 28 to May 8	Aug 25	..	..
	31	May 1 to 15	Sep 1 to 15	..	..	May 1 to 15	Aug 1 to 15	..	..
Sunbury, ...	32	April to June	Aug & Sep	..	..	April to June 10	Aug & Sep	..	..
	33	May 15	Aug 25	..	..	May 15	Sep 15	..	..
	34	May 12 to 18	Aug 20	..	..	May 7	Aug 20	..	..
	35	May 1 to June 10	Aug 20 to Oct 1	May 1 to June 10	Aug 20 to Oct 1	May 1 to June 10	Aug 20 to Oct 1	..	..
York, ...	36	June 1	Sep 1	..	..	May	August	..	..
	37	..	..	May 7	Aug 18	May 1 to 23	Sep 10	..	..
	40	..	..	..	..	May 15 to 25	..	..	..
	41	Apr 25 to May 15	Aug 25 to Sep 1	..	..	May 15 to 30	Sep 15 to 30	..	..
	42	May	September	May	September	May	September	..	..
	44	May 12 to 27	Aug 25 to Sep 1	May 25	Aug 10	May 1 to June 1	Aug 1 to Sep 10	..	..
Carleton, ...	46	May 15	Aug 25	do	Aug 25	May 15	Aug 25	..	..
Albert, ...	48	Apr 1 to May 20	do	May 20 to June 10	September	April 1 to May 20	do	..	..
	49	May 1 to 20	Aug 25 to Sep 20	May 1 to 20	Aug 25 to Sep 20	May 10 to June 20	Aug 25 to Sep 20	May 1 to 20	Aug 25 to Sep 20
	50	do	do	do	do	do	do	do	do
	51	do	do	do	do	do	do	do	do
Kent, ...	53	May 1 to 10	Sep 1 to 10	May 20 to June 1	Sep 1	May 10 to June 10	Sep 1 to Oct 1	..	..
	54	do	Aug 15	..	..	April 20 to June 1	Aug & Sep	..	..
Northumberland,	55	..	..	May 1 to June 15	Aug 15 to Sep 25	May 1 to June 15	Aug 15 to Sep 30	..	..
	57	Apr 10 to June 7	Aug 8 to Sep 18	..	..	..	..	..	..
Gloucester, ...	60	May	September	June	September	May & June	September	..	..
Restigouche,.. ..	62	May & June	do	do	do	to June 12 or 15	August	..	..

Buckwheat.		Indian Corn.		Potatoes.		Turnips.		Carrots & Man. Wurtzel.		Authority.	No
Sowing.	Reaping.	Sowing.	Reaping.	Planting.	Digging.	Sowing.	Pulling.	Sowing.	Pulling.		
June 1 to 15	Septe mber	..	..	Apr 20 to June 1	Sep 15 to Oct 15	June 1 to July 15	Oct 20 to Nov 10	May 1 to 20	Oct 20 to Nov 10	D. B. Stevens.	1
..	..	..	..	May 1 to Jun 1	..	June 15	..	..	..	Joseph Walton.	2
June 1	Sep 25	..	..	May 20 to Jun 10	Oct 10	June 20	Nov 1	..	..	David Mowatt.	3
June 10 to 20	Sep 20 to 28	May 15 to 20	Sep 1	May 1 to 20	Sep 20 to Oct 10	June 14 to 20	Oct 10 to Nov 10	May 10 to 15	Oct 20 to 30	James Stevenson.	4
June 20	Sep 10	..	..	May 15	Oct 1 to 20	Jun 10 to July 20	Oct 20 to Nov 20	..	..	John Mann, Jr.	5
..	..	..	..	May 15	Oct 1 to 8	June 1	Nov 1 to 15	..	..	John Farmer.	6
June	September	..	..	May	October	May	Nov	..	..	Mr. ———	7
June 1 to 15	Sep 20	..	..	Apr 30 to Jun 10	do	May 10 to Jun 15	do	..	..	R. K. Gilbert.	8
June 1	Sep 1	..	..	May 20	do	..	..	..	..	How. D. Charters.	9
June 1 to 20	September	..	..	May 20 to June 1	..	..	..	..	..	Roht. B. Chapman.	10
..	..	..	..	..	..	..	..	..	..	R. B. C. Weldon.	11
June	September	..	..	..	..	..	..	..	..	William Crane.	12
June 15 to 30	Sep 15	..	..	May	..	..	..	..	..	John Trenholm.	14
Jun 10 to July 10	..	..	..	May 10 to Jun 20	..	July 20 to Aug 1	..	..	..	Joseph Avard.	16
June 5 to 20	Sep 15	May 20	Sep 15	Apr 20 to May 20	Sep 20 to Oct 20	Jun 15 to July 15	Oct 15	..	..	George Otty.	17
June 13	do	..	..	May 1 to June 15	..	..	..	..	..	Thomas Beer.	20
May 1 to 22	Aug & Sep	May 21	Oct 2	May 22	..	May 1	..	May 1	..	Andrew Aiton.	20½
June 5 to 20	September	May 20	..	do	Oct 1	June 1 to 20	Nov	..	..	Matthew M'Leod.	21
June 10 to 17	Sep 15 to 30	..	..	..	..	..	..	..	..	Dan. M'Lauchlan.	22
June 15	..	May 15	..	June 1	..	June	..	..	..	William Keith.	23
do	Sep 10	do	Sep 20	May 10 to Jun 10	Oct 1	June 1	Oct 25	..	..	Danl. S. Smith.	24
June 1 to 20	Sep 1 to 30	May 10 to 30	Sep 15 to 30	June	Sep & Oct	June 1 to July 1	..	May 1 to Jun 10	..	Rev. Allan Coster.	25
June 18	Sep 18	May 21	Sep 20	May 12	..	..	..	..	..	John Robertson.	26
June 10 to 30	Sep 25	May 15 to 25	Sep 15	..	..	..	..	..	..	William Reed.	28
June and July	Sep 10	..	..	..	..	..	..	..	..	William Pindar.	29
June 15	Sep 1 to 17	..	..	..	..	..	..	..	..	Samuel Mahood.	30
..	..	..	..	Apr 10 to May 15	..	..	..	..	..	Robert Smyth.	31
June 20	Sep 1	May & June	Sep 1	May 1 to June 20	October	May 20 to July 20	Nov	..	..	C. L. Hatheway.	32
..	..	May 21	Sep 10	..	..	..	..	..	..	Nathl. Hubbard.	33
June 5	Sep 3	..	..	May 8	..	June 5	..	..	..	Charles H. Clowes.	34
June 10	Sep 15	May 20 to Jun 10	Sep 1 to Nov 1	May 10 to July 1	Sep 1 to Nov 1	June 1 to July 1	Sep 15 to Nov 1	..	..	Charles Harrison.	35
June 15	Sep 1	May 20	Sep 15	May 15	October	..	..	May 25	October	Edward Simonds.	36
June 8	Sep 11	..	..	May 8	Oct 1	May 19	..	May 19	..	James Johnston.	37
..	..	..	..	May 15 to 20	..	June 1	..	..	..	William Wilmot.	40
June 1	Aug 25	..	..	May 20 to June 1	Oct 1	June	Oct	..	..	Robert D. James.	41
Juue	September	May	..	..	..	..	..	..	..	James Sutherland.	42
June 10	Sep 1	May 25	Oct 1	May 20	Oct 1	..	..	..	..	Israel Parent.	44
June 15 to 20	do	May 24	September	May 25 to June 1	October	June 18	..	May 7	..	James Rankin.	46
May 20 to Jun 10	September	..	..	..	..	..	..	..	..	John Smith.	48
May 10 to Jun 20	Sep 25	..	..	May 10 to Jun 20	..	..	..	..	..	William H. Steves.	49
May 10 to Jun 10	do	..	..	do	..	May 10 to Jun 10	..	..	..	John Lewis.	50
May 20 to Jun 10	September	..	..	May 1 to June 20	October	May 1 to June 20	..	..	..	William Wallace.	51
after the full moon	in June	..	..	May 1 to June 1	Sep 1 to Oct 20	July 10 to 20	Oct 25	..	..	Joseph C. Wheten.	53
..	..	..	..	May 15 to Jun 10	..	June 1 to July 15	..	..	..	J. G. G. Layton.	54
..	..	..	..	May and June	October	..	..	..	..	James Cale.	55
..	..	..	..	..	..	..	..	..	..	John Hea.	57
..	..	..	..	..	..	..	..	..	..	E. Lockhart.	60
..	..	May	September	..	..	..	..	..	..	Dugald Stewart.	62

From this Table we deduce for the mean period of growth of—

	Months.	Days.
1st. Spring Wheat,	3	20
2d. Barley,	3	6
3d. Oats,	3	20
4th. Spring Rye,	4	0
5th. Buckwheat,	3	3
6th. Indian Corn,	3	32
Average period of growth,	3	17

Did my limits permit, I might advert to several interesting points which are either brought out or suggested by a consideration of the dates embodied in these two tables, and which form a valuable record of the existing climatic conditions of the Province, in so far as they affect some of the most important operations of the farmer.

But returning to our immediate topic, we have—

	Months.	Days.
The average duration of Summer,	6	22
The average period of growth of crops from the above Table,	3	17
Leaving for the spring and autumn ploughing, &c., before seed time and after reaping,	3	3

If we examine the second of the above Tables, we find that the corn crops are reaped between the 20th August and the end of September. Some of the returns give a later date than the 22nd of October, and that is for Indian corn; but the average latest ploughing deduced from Table XXX. is on the 21st of November, leaving about seven weeks clear for autumn ploughing before the winter sets in. In Spring, therefore, before the average sowing time, there will be about six weeks, during which ploughing and other preparatory treatment of the land can be carried on.

It must be confessed that these periods are short compared with the length of time for out-door labour which the English and more southern Scottish farmers possess. The effect of this, if other things were all equal, would be to impose upon the New Brunswick farmer the necessity of employing a larger force of men and cattle to perform the work of a farm of equal extent than the British farmer needs to do. If this be so, the effect must be to increase the comparative outlay of the New Brunswick cultivator, and to diminish in a proportionate degree his profits.

Two points, however, have been brought under my notice as in some measure palliating or countervailing any evil which may arise from this cause; thus—

1st. The number of days during which rain impedes the operations of the British farmer is notoriously very great. In some Counties, which possess soils of a peculiarly tenacious character, it brings in another evil in addition to that which attends the New Brunswick winter. It not only shortens the period during which the work of preparing the land can be done, but it also makes it heavier or more difficult to do. Thus the farmer's expenses in Great Britain are considerably increased by the precarious nature of the climate he lives in.

But in New Brunswick the climate is more steady and equable. Rains do not so constantly fall, and when they do descend, the soils in most parts of the Province are so porous as readily to allow them to pass through. Thus the out-door operations of the farmer are less impeded by rain, and the disposable time he possesses, compared with that of the British farmer, is really not to be measured by the number of days at the disposal of each.

The following Table represents the number of rainy days in the several months of the year for five years, as observed by Mr. Peter Dewar, at Gardner's Creek, in the County of Saint John:—

XXXII. *Number of rainy days.*

Months.	1845.	1846.	1847.	1848.	1849.	Mean.
January,	2	1	..	5	3	2 1-5
February,	5	..	1	3	..	1 4-5
March,	4	8	1	2	6	4 1-5
April,	2	3	6	4	5	4
May,	10	8	4	7	6	7
June,	7	10	12	9	5	8 3-5
July,	15	9	7	9	4	8 4-5
August,	7	5	9	9	6	7 1-5
September,	9	4	10	11	6	8
October,	7	6	6	12	8	7 4-5
November,	10	5	5	6	?	
December,	6	..	9	9	?	
Total rainy days,	84	59	70	86	?	?
No. of snowy days,	42	33	45	35	20	?

NOTE.—Mr. Jardine of Saint John informs me, that on consulting his Farm Book, he finds that in 1844 there were 272 dry days, 67 wet, and 26 snowy.

I am informed that in the County of Saint John, where the Register was kept from which the above Table was compiled, more rain falls than is usual throughout the Province; but assuming the above to be a fair average of the rainy days, we have in the month of April and May, in which the Spring ploughing and sowing has to be performed, only eleven rainy days to interrupt the farmer's operations Again, in October and November, when the Fall ploughing has to be performed, there are about two weeks of rainy days. Supposing therefore that every one of these rainy days is stormy enough to arrest out-door operations, which I imagine cannot be the case, there remain of dry ploughing time in Spring upwards of five weeks, and in Autumn a clear month.

With a single pair of horses, an industrious man will plough, sow and harrow many acres of land during these two periods.*

* As an additional illustration of the climate of New Brunswick, though not bearing immediately upon the point discussed in the text, I insert the following Table sent to me by Mr. Samuel Mahood, of Queen's County. It shows especially how many bright days there are in the year in this Colony, on which clearness of the sky, the rapid growth of the crops, and the falls of heavy dews at night, very much depend:—

XXXIII.

1848.	No. of stormy days.	No. of cloudy days.	No of clear days.	Greatest heat.	Greatest cold.
January,	4	5	22	..	14° below 0
February,	10	5	13	..	6 below 0
March,	7	4	2	..	down to 0
April,	5	4	21	..	20
May,	7	8	16	..	
June,	11	4	15	110° in sun.	
July,	9	3	19	116 in sun.	
August,	9	4	18	122 in sun.	
September,	13	6	11	58 in shade.	
October,	14	2	15		
November,	8	1	21		
December,	7	5	19		10 below 0
Total,	104	51	192		
1849.					
January,	3	5	23	..	20° below 0
February,	5	7	16	..	6 below 0
March,	8	3	20	46° in shade.	
April,	6	4	20	..	20
May,	6	4	21	100	
June,	3	9	18	122 in sun.	100 in shade.
July,	5	2	24	124 in sun.	100 in shade.
August,	5	5	21	123 exposed.	
September,	6	6	18		

I am not in possession of data sufficient to enable me to compare, in regard to their economical advantages, the climate of any part of New England or of the State of New York, with that of New Brunswick. If however we date the commencement of the Winter in this Province from the closing of the River Saint John at Fredericton, and that of New York from the closing of the Erie Canal, the following Table exhibits a comparative view of the time of these commencements in the two countries in each of the last twenty five years. I have also included in it a column representing the dates at which the first snow has fallen in the State of Maine during the same period :—

XXXIV.

Table of the closing of the Saint John River at Fredericton, and of the Erie Canal in New York, and of the first fall of Snow in Maine, for the last 25 years.

Winters.	Closing of the Saint John.	Closing of the Erie Canal.	First snow in Maine.
1825..	Nov. 20,	Dec. 5,	Nov. 16,
1826..	" 14,	" 18,	" 14,
1827..	Dec. 3,	" 18,	" 7,
1828..	Nov. 19,	" 20,	" 12,
1829..	" 15,	" 17,	" 8,
1830..	" 29,	" 17,	" 26,
1831..	Dec. 1,	" 1,	" 22,
1832..	Nov. 15,	" 21,	" 7,
1833..	" 5,	" 12,	" 20,
1834..	" 17,	" 12,	Oct. 20,
1835..	" 23,	Nov. 30,	" 11,
1836..	" 19,	" 26,	Nov. 12,
1837..	" 9,	Dec. 9,	Oct. 13,
1838..	" 25,	Nov. 25,	" 14,
1839..	" 23,	Dec. 16,	" 3,
1840..	" 23,	" 3,	Nov. 26,
1841..	" 27,	Nov. 29,	Oct. 9,
1842..	" 22,	" 23,	Nov. 8,
1843..	" 14,	Dec. 1,	" 8,
1844..	" 27,	Nov. 26,	" 30,
1845..	Dec. 4,	" 29,	Oct. 30,
1846..	Nov. 28,	" 28,	Nov. 30,
1847..	Dec. 16,	Dec. 21,	Oct. 14,
1848..	Nov. 18,	" 9,	Nov. 9,
1849..	Dec. 2,	" 5,	
Average dates,	Nov. 16,	Dec. 7,	Nov. 4.
Average open water,	218 days.	240 days.	

This Table shows that the full Winter's frost sets in at Fredericton, on an average of 25 years, on the 16th November; and at Albany in New York, on the 7th December. This would indicate a difference in the length of Winter in the two countries of 21 days, supposing the Spring to be equally early in both.

The average number of days during which the River Saint John and the New York Canals have been *open* during the last 25 years respectively, are—

Saint John River is open	218 days.
New York Canals,	240
Difference,	22 days.

This indicates a difference in the length of the Winter in the two countries of 22 days, which is almost identical with the difference deduced from the period of closing the canals.

Thus two facts follow from the numbers in the Tables—

1st. That the Winter in Western New York is 22 days shorter than in New Brunswick :

2d. That this shortness consists in the addition of 21 days to the open weather of the Fall, and only one day to the open weather of Spring.

It appears therefore, for his Spring operations, the New York farmer has only one day's advantage over the New Brunswick farmer, while he has 21 days longer time to labour his land in the Autumn.

But two points of importance will more or less affect the advantage he will derive from this greater length of Summer; these are—

1st. The period which elapses on an average between sowing and reaping, or the time which his crops take to grow. Upon this point I am in possession of no data; but if this time be longer in New York, it will lessen in a proportionate degree the time which will remain for ploughing and preparing the land in the Fall.

2d. The number of rainy days which occur during the Fall, in comparison with New Brunswick, and in the months of April and May when the Spring work is performed ;—

These were, for Rochester and New York, and for Saint John, in New Brunswick, in 1848—

XXXV.	Rochester.	N. York.	St. John.
April,	6	6	4
May,	15	15	7
September,	13	8	11
October,	13	9	12
November,	4	7	6
	51	45	40

If we were entitled to consider these as averages, which of course we cannot safely do, we should conclude that the 22 days longer weather which the New York farmer has for out-door labour, is diminished at Rochester one half by the greater number of rainy days, and at New York one fourth

All that we can safely conclude from the above data is, that the New York farmer, if his crops grow as fast as they do on the New Brunswick farms, has from 10 to 15 days longer time for fall ploughing—a difference which, to an industrious farmer, is not without its value. In both countries equal haste must be exercised in dispatching the Spring operations.

This last remark brings me to consider the second point in reference to the New Brunswick Winter, which is supposed to be of importance in connection with its effects upon the farmer's out-door labour.

2nd. I am informed that the severe frosts in winter generally penetrate so deep into the ground, especially when it is not covered with grass, as to raise up and separate the particles from each other to a considerable depth ; so that when the thaw comes, it is already so loose and open as scarcely to require ploughing at all, or if ploughed, to be done with little force and great speed.

There is much truth in the fact thus stated, and much apparent reason in the statement which follows it. This effect of the frost may also cause us to hesitate before we condemn as niggardly and universally wrong, the prevailing custom of giving the land, in nearly all cases, only one ploughing. In so far as the mere mechanical loosening of the soil is concerned, this one ploughing in New Brunswick, may, with the aid of the Winter, be equal to two ploughings in Great Britain. But ploughing has also other purposes to serve, to which I shall return on a subsequent occasion.

The practical point to ascertain is, how far this effect of the Winter's frost will facilitate or render unnecessary the ordinary preparatory labors of the farm—thus lessen the expense of cultivation, and virtually prolong the season of out-door employment. I have been favoured with many opinions in reference to the general

effects of the frost in opening, mellowing and rendering friable, soils of every description; but few of them advert specifically to the degree of economical benefit which the farm derives from it. Mr. Robert Gray, of York County, whose long familiarity with Scottish Agriculture, as a practical farmer, gives his opinion much weight, writes me as follows:—"The frost of winter leaves the land in a very friable state, and in better order for green crops than any number of ploughings done in winter could make it. On this account I believe a pair of horses could work as much land here under a given rotation as they would in Scotland."

This opinion of Mr. Gray appears to settle the whole question; which is altogether an economical one. We are inquiring whether the shortness of the summer will necessarily impose upon the New Brunswick farmer the necessity of maintaining a larger force of men and horses than the British farmer would require to do the same work, plough and sow the same number of acres, and so on—and Mr. Gray, taking into account only the effects of the frost upon the soil, distinctly answers that it will not.

Did I feel myself justified in adopting the opinion of one man only on so important a matter, I should have much hesitation in dissenting from that of a practical man so cautious, so experienced, and so skilful as Mr. Gray. I have thought it my duty therefore to consult others also, and without any selection or ommission, I insert all the answers I have received as to the effects of the Winter upon the soils.

A. Its effects on ploughed land are favourable.

1. Advantageous to ploughed land, by pulverizing and saving labour in ploughing; the effects of the heavy covering of snow remaining on the ground during the whole winter are decidedly beneficial to the future crop.—D. B. Stevens, Saint John.

2. The effects of long winters on the soil are good, if the snow lies on until April.—Joseph Walton, Charlotte.

3. Not injurious when well covered with snow.—David Mowatt, Charlotte.—See No. 3 in Series B.

4. Long winters pulverize and enrich the soil, particularly when the snow lies late.—James Stevenson, Charlotte.

6. On fallow I consider the effect beneficial.—John Farmer, Charlotte.—See No. 6 in Series B.

8. The effect of the long winters is to interrupt decomposition and change therein, and it is retained in the same state it is in at the setting in of the frost; it has however the tendency to pulverize and loosen the soil, and save some labour of the plough.—R. K. Gilbert, Westmorland.

10. If the land is frozen in the fall, and covered with snow during the winter, it is favourable for crops the following spring.—Robert B. Chapman, Westmorland.—See No. 10 in Series B.

12. If the snow falls early and remains on the ground until the weather becomes mild in the spring, it is considered favourable to the soil.—William Crane, Westmorland.—See No. 12 in Series B.

13. The long winters do not injure the soil, but benefit it, providing the ground is frozen and covered with snow.—Charles Dixon, Westmorland.

15. No injurious effect.—Alexander Munroe, Westmorland.

16. The frost has generally a good effect upon the soil.—Joseph Avard, Westmorland.—See No. 16 in Series B.

18. The land is benefited by being covered with snow all the winter. I have observed that the crops are not so good when the snow disappears early. The land that is ploughed in autumn is not again touched until the grain is put under the harrow in the spring, the soil being completely pulverized.—A. C. Evanson, King's.

20. On ploughed land the winter is a benefit, making the soil beautifully mellow when it thaws and dries. If the snow begins early, falls heavy, say from 5 to 7 feet deep, and remains till the latter part of March or beginning of April, the whole country benefits, and an early spring is the result.—Thomas Beer, King's.—See No. 20 in Series B.

20½. If the land is constantly covered with snow, the heaving by frost causes a general pulverization.—Andrew Aiton, King's.—See No. 20½ in Series B.

22. I cannot see how the winter here can be so injurious to the soil as some imagine, as the frost and snow may be said to keep possession from the time the winter sets in till the spring, without any alternation, such as frost and thaws; and in my humble opinion the winters of the old country (although not near so long or severe) have a tendency far more to sap and wash away the fertile portions of the soil, through a succession of *rains*, *frosts* and *snows*.—Daniel M'Lauchlan, King's.

25. The frost has a tendency to improve the soil by pulverizing it after fall ploughing.—Allan Coster, Queen's.

32. When hard frozen or covered with snow, the soil is uninjured.—C. L. Hatheway, Sunbury.—See No. 32 in Series B.

33. When we have a good depth of snow, and to remain all winter, our meadow and pasture lands are much more productive: and as to the tillage land, we think it rather improves it than otherwise, particularly the clay soil that is ploughed in the autumn.—Nathaniel Hubbard, Sunbury.—See No 33 in Series B.

34. I am not aware of the winter being an injury to the soil.—Charles H. Clowes, Sunbury.

35. The winters I think have a beneficial effect upon the soil when covered with snow, and not too much exposed to frost.—Charles Harrison, Sunbury.

36. Our common winters in which the snow continues on the ground from November till April, do not I think in the least degree injure the soil, but on the contrary are very beneficial to the ploughed lands, the frost leaving them in the spring much more light and mellow than they were in the autumn.—Edward Simonds, York.—See No 36 in Series B.

38. On ploughed land I think the frost and snow make it friable. I do not think it hurts it in any way. Winters that the snow lies on the ground from 15th November to 10th April, are best for meadows and pastures, as they do not much kill the grass.—John H. Reid, York.

39. The frost of winter leaves the land in a very friable state and in better order for green crops than any number of ploughings in winter could make it. On this account, I believe a pair of horses could work as much land here under a given rotation, as they would in Scotland.—Robert Gray, York.

41. The effects of the long winter on the soil are chiefly observable in the easy working of the land when the frost is out of it.—Robert D. James, York.

43. The effects of the long winter on the soil vary with the character of the weather. When the frost continues almost uninterrupted from December to April, it is of course *one cause producing its corresponding effect* on the various sorts of soil and organized tissue. When interrupted by thaws, the effects are considerably diversified—sometimes destructive to roots and germs, but perhaps as often to weeds and insects.—Edwin Jacob, D.D., York.

44. The hard frosts serve to pulverize and mellow the ploughed lands.—Israel Parent, York.—See No 44 in Series B.

45. It is beneficial on all lands except the grass lands.—William Dow, York.

50. The winters in this country act very favourably in pulverizing the soil and making it productive.—John Lewis, Albert.

51. The winters in this country act favourably on the soil.—William Wallace, Albert.—See No. 51 in Series B.

55. The effects of the long winter on the soil, particularly on clayey lands, we conceive to be beneficial.—James Csie, Northumberland.

58. Winters, however severe, when the snow falls deep upon the gound, rather serve the soil.—Henry W. Baldwin, Gloucester.—See No. 58 in Series B.

62. The effects of the long winter on the soil are not understood, but the effect of the hard frost is to lessen the labour of the husbandman, as it heaves up, opens and pulverizes the earth, consequently it requires less tillage.—Dugald Stewart, Restigouche.

The general purport of all these opinions is, that upon ploughed land its action is decidedly advantageous. So much so, that most persons, because of this effect, do not think it necessary to plough their land more than once. When ploughed in the fall, the seed is merely harrowed into it in the spring. This must necessarily lessen the labour of the farmer, make the cultivation less expensive, and enable him to do more work with the same force in the same time. Only one of them, as I have already remarked, specifies the actual amount of saving of labour thus caused; but this one, (that of Mr. Gray,) estimates it to be so great, that a

pair of horses in this climate will be able to do as much ploughing in a year as they could in Scotland in the same time.

B. Its effects on grass land are often unfavourable.

3. Very injurious to the grass when bare or covered with ice.—David Mowatt, Charlotte.

5. The effects upon the soil by the long winters are very injurious to farming, as the roots of the grasses are affected, and winter grains cannot be used in consequence.—John Mann, Jr., Charlotte.

8. The soil being generally light the meadow land suffers materially by the frost heaving up the roots of the grasses, particularly when recently laid down, but the difficulty is obviated in a great measure by early rolling in the spring.—John Farmer, Charlotte.

9. The soil gets extremely cold and damp, and where stands it gets winter killed some times.—Howard D. Charters, Westmorland.

10. What is called mild winters, with frequent rains, or if the snow covers the ground before it is sufficiently frozen, has a bad effect.—Robt. B. Chapman, Westmorland.

16. On lands where the surface water is allowed to remain, the action of the frost on the grass roots is injurious, and not unfrequently destroys the crop or materially weakens it.—Joseph Avard, Westmorland.

19. The long winter is very injurious to the country. I am of opinion the hard freezing and the heavy rains reduce the strength from the soil.—Henry Hayward, King's.

20. On the meadows it tends to kill the grass roots, and make the land too cold, causing them to run to moss. If we have frequent thaws, taking away the snow in 48 hours, and then freezing hard before another fall, which is too often the case of late years, this proves very detrimental to the land, and all kinds of labour and travelling.—Thos. Beer, King's.

20½ If the ground is but partially covered, in dry hard weather the fine parts of the soil drifts off into hollows and ravines.—Andrew Aiton, King's.

24. One fortnight without snow on the land in winter has an injurious effect.—Daniel S. Smith, Queen's.

28. The intense frost during the winter leaves the soil in spring in a loose spungy state, so much so, that much of the nutritive substances contained are subject to be washed away by incessant rains and the water produced by melted snow; and frequently, if any rain falls during the winter, it is immediately frozen and becomes solid ice on the surface, which generally has a tendency to produce what is called winter killing, viz. the grass is so much injured that it must be broken up before the land can again produce grass.—William Reed, Queen's.

29. It generally kills the roots of the grass and washes the ploughed land.—Wm. Pindar, Queen's.

31. On high hilly lands it affects the grass roots and injures the soil.—Robert Smyth, Queen's.

32. With alternate freezing and thawing, particularly of clayey soils, it injures the grass land and winter grain.—C. L. Hatheway, Sunbury.

33. If we have frequent thaws, and frost immediately after, it injures our meadows and pasture lands.—Nathaniel Hubbard, Sunbury.

36. We sometimes have a very changeable winter, which is very injurious to our grass lands, by the heavy thaws and rain taking the snow off them and leaving them exposed to the action of the frost, which coming immediately after the thaw, when the land is very wet, expands the ground so much as to throw the grass roots out of their places and leave a great part of them exposed to the air; if we have another thaw it washes so much of the earth from the roots of the grass that they have nothing left to draw the frost out of them in the spring, and being exposed to the sun and air are generally killed.—Edward Simonds, York.

40. Our long winters are the most serious drawback to the farmer, but they have no serious effect on the soil provided the snow falls in November and remains on till some time in April. The want of snow to protect the grass or winter crops of grain has often proved injurious. Heavy rain in the winter followed by hard frosts, often kill the young clover, which is always followed by a lighter crop of hay on the higher ground.—William Wilmot, York.

44. The hard frost injures the grass on clay lands, as it heaves the grass up and exposes it to the atmosphere, and causes it to be weakly, but does not injure the dry land so much.—Israel Parent, York.

47. The effect of the long winter is very injurious to the grass.—James L. Pickett, Carleton.

51. The winter sometimes operates unfavourably on the meadow lands, killing the clover roots.—William Wallace, Albert.

53. The effect which frost and snow may have organically on the soil I know not, nor what effect "the rest from its labours" may produce; but I think the water which penetrates it in the spring, when the great body of snow melts, chilling and retarding vegetation, is injurious.—Joseph C. Wheten, Kent.

58. Without snow the frost is apt to kill the grass roots.—Henry W. Baldwin, Gloucester,

The substance of the evils produced upon grass land, as above expressed, are—That when the winter is changeable, so that a thaw comes on and fills the ground with water, which freezes afterwards, or when the ground, before being covered with snow, is subjected to a severe frost, the grass in old pastures and meadows, and the clover in artificial grass fields, is liable to be thrown out and winter killed,—that for the same reason winter grain cannot be sown,—that this effect is less on dry and light lands than on such as are wet or heavy, and that early spring rolling very much remedies the evil in grass lands,—that when uncovered, the fine soil is sometimes drifted before the winds in winter,—that the melting of the snows in spring occasionally chills the soils, causes them to run to moss, and sometimes washes them and diminishes their strength.

The evils complained of here, except the last, which is doubtful, are experienced by New Brunswick in common with all the northern parts of America. They are only occasional, however, and incidental, and to a certain degree can be prevented.

The inability to grow winter grain is not unfrequent in some parts of Scotland, owing to a similar action of the frost, and the winter killing of the clover is very generally complained of both in England and Scotland, and many unavailing remedies have been tried to prevent it.

Only two methods can be depended upon, as likely to be efficacious in lessening the effects of the alternate frosts and thaws.

These are, *first*, a thorough drainage of the land most subject to be winter killed or chilled in spring, that the water may have a more speedy escape, and thus to a less extent linger and freeze in it. The *other* is the early rolling in spring, recommended by Mr. Farmer of Charlotte County, and practised with so much advantage in the old country. Where land is in good heart, these two methods will often prevent the evils complained of; but for the occasional *scorching* effects of the cold winds, which, like the north west winds in the neighbourhood of Saint Andrews, sweeps over the ground when naked, and appears actually to *burn up* the grass, there is one other remedy, in regard to which I may here introduce a few general observations, which apply also to other cases similar to the present.

On the farms of New Brunswick, wood is to a certain extent considered a nuisance which it is desirable to get rid of, and hence it has almost every where been cut down indiscriminately, and few attempts have been made to preserve or plant belts or clumps of trees, which in Great Britain are every where found so necessary for the purpose of shelter. The consequence of this is, that almost every cleared section of the country is exposed to certain cold or prevailing winds, which scarcely any where fail every now and then in producing evidently injurious effects upon the farmer's crops.

Against these winds it is very desirable that shelter should be preserved. If belts or clumps of the original forests refuse to withstand the winds to which they have been unaccustomed, when the trees which sheltered

them have been cut down, as I understand is very generally the case, then plantations should be made across the course of the prevailing or most injurious winds. It will surprise persons who have no experience as to the effect of such shelter, to see how very much good is produced by it. Not only are the stock kept warm, which feed in pastures so protected, but the herbage and all the other crops are remarkably benefited by it. I know of one formerly unsheltered locality in the north of England, not exposed to the sea breeze, but to the sweep of the wind coming down a wide valley, the grass upon which, for pasture, was raised from 5*s.* to 40*s.* an acre of yearly rent, solely by the planting of belts of trees so as to turn off the prevailing winds.

Whoever travels through New Brunswick will every now and then come to spots where a very little previous experience will enable him to perceive the evil consequences of an ignorance or disregard of the importance of shelter in a country like this. I may instance as a striking case the Parish of New Bandon, along the coasts of the Bay of Chaleur, where the cleared land extends in a narrow naked stripe, skirted on the one side by the sea, and on the other by the original forest. All the force of the sea winds beats upon the unhappy fields, crops, cattle and inhabitants, rendering the natural richness for which the soil of the district is remarkable, of much less avail to its storm-tormented cultivators.

This want of shelter from the sea is one reason why the second range of lots is talked of as better than those on the shore, and which has introduced a mode of speech common along this coast, that one situation, or farm, is so many pea-jackets warmer than another.

Such shelter as I now recommend could, in a country like this, where land is still abundant and cheap, and where young trees can easly be made to grow, be very readily established. Its benefits would be that it would protect the land from the fierce winds, and prevent the grass and clover from being winter killed; it would assuage the severity of the winter both to the stock and to their masters, and it might ultimately, upon dry lands, restore the ability of young winter wheat. The new settler knows that in his first cleared field, while still surrounded by wood, winter wheat grows well, and that its ability to do so decreases as the natural shelter is cleared away.

On the whole, I think we must allow that though the period for out-door labour is shorter in New Brunswick —as it is in the Canadas, Maine, and in the Northern States—than in England, or in parts of Scotland, yet that the action of winter upon the soil is such as materially to lessen the labour necessary to bring it in to a proper state of tilth; and though we may not go so far as Mr. Gray in regard to the comparative amount of work which a pair of horses under proper management may be made to perform during the more brief summer, yet we may, I think, fairly conclude that there is nothing in the length of the winter which ought—where time is dilligently employed, and *its value is known* —seriously to interfere with the progress of out-door operations, or materially to add to the expenses of arable cultivation.

2nd. *As to the extent to which the Winter interferes with and diminishes the farmer's profits.*

We have seen that the harvests of New Brunswick are not to be complained of; that in comparison with other parts of North America, they are large. This secures a sufficient supply of human food, but may not make equally sure that which is required for the healthy nourishment of stock. The crops of hay are not complained of where the land is properly treated, but the long winter of 6½ months, during which all animals must be kept in the house, makes the New Brunswick farmer unable, with the same quantity of hay or other food, to support the same number of stock as the English farmer can. This evil the Provincial farmer expresses by saying "that the Winter eats up the Summer."

In regard to this point it is important to bear in mind that the New Brunswick farmer is subject to this evil in common with the other parts of northern America; that howsoever he may complain, there is no possibility of shortening the period during which his stock must be fed in the house; that his only resource is to adopt his system of husbandry so as to raise the largest possible amount of food for his stock from the smallest breadth of land; and lastly, that the very climate he complains of affords him some special facilities for doing so. To these latter points it will be most useful in this place to draw Your Excellency's attention.

First. As to the growth of hay, upon which all kinds of stock have hitherto been fed almost exclusively, the practice of mowing the grass land year after year, for ten or twelve or even twenty years in succession, is a sure way of not only exhausting the land, and finally of making it much more expensive to cultivate, but also of making it necessary to devote a much larger portion of the cleared surface to the production of food for the cattle, than under more reasonable management would be required. Let the farmer cease to cut his grass so frequently from the same fields without giving them any manure, and he will reap more from each when he does cut them. When the grain crop is reaped the land should always be sown down with grass seed instead of being left as it so frequently is in some districts, to cover itself with any wild grasses or weeds that choose to spring up; and where the presence of stumps upon new land prevents its being ploughed, after two or three years, let it be pastured only till the roots can be taken up, or let it be top dressed with manure to some extent, so long as it must be cut for hay. This top dressing might easily be affected on new land, if the manure which is of necessity made, but which by new settlers is so generally neglected and allowed to run to waste, were carefully collected and spread over the grass land in early spring. The ease with which first crops are raised by new settlers from burned land, without any manure, and the practice of clearing and taking the corn crops off a fresh portion every year, has led to this waste of manure, and to the starved crops of hay which so much of the cleared land now yields.

This custom of neglecting the hay land ought now to be given up by every settler, new and old, and after two years cutting at the most, except where it is very rank, they ought to be ploughed up and cropped after being manured, or where the stumps still remain and the land cannot be ploughed, it should be top dressed in the spring when the young grass begins to sprout.* Thus larger crops of hay would be universally obtained, and a smaller portion of the cleared surface of the Province be taken up in the feeding of its stock.

Second. But another equally important step in this direction, which it is the duty of the New Brunswick

* The first crops of grass grown among the stumps, are upon much of the hard wood land so rank as to lodge and scarcely to admit of being cut; upon such land manure need not be laid until the grass begins to lessen in quantity, but it ought nevertheless to be saved up for other land.

farmer to take, is the growth of green crops in much greater abundance, and over a larger portion of his land, than he has ever hitherto devoted to this purpose; and it is here that the special adaptation of the climate to which I have alluded tells. The Tables of Produce given in a preceding Chapter, have shown that in potatoes and turnips this Province greatly exceeds the present average produce of any of the other parts of North America with which we have compared it. The quantity of crop thus reaped confirms the uniform testimony borne to myself personally in all parts of the Province, as to the remarkable manner in which all root crops appear to thrive; and the frost, which seems to give annoyance in so many ways, is one of the agents by which this peculiar adaptation to root crops is brought about. It opens and pulverizes the soil, and "renders it fitter for green crops than any number of ploughings in winter could do."—(Mr. Gray.)

This adaptation to the growth of roots enables the soil to produce large crops, and these large crops go farther in the feeding of cattle than the hay off the same quantity of land will do, even where it has been manured as I have above recommended.

According to some, an acre of land in turnips will go three times as far as the same acre under hay. Crops vary so much, however, that no general rule can be established. It is certain only, that by feeding cattle partly with turnips and partly with hay or other dry food, not only will the same extent of land support more stock, but the same weight of food will go farther than when either of the two is given to cattle singly.

Nor is the good conferred upon the farmer by large green crops confined to the immediate influence upon the cattle and upon the extent of land necessary to support them; but the manure of a rich quality, which they are the means of placing at the farmer's disposal, enables the same extent of land to produce more corn than before, so that in a double sense he is benefited by this culture.—He employs less land than before in feeding his cattle, and he grows more corn per acre on the remainder of his farm.

If therefore it be impossible to shorten in fact the period of time during which the stock must be tended and fed in the house, the profit of the farmer, by improvements in his present system of cultivation and of feeding, may be increased in a degree equal to what, with his present system of management, would follow from such an actual shortening of the winter.

I would press the above considerations upon the practical farmer, as vitally important to his own individual profit, as well as to the fundamental interest of the Province.

Another way in which, according to some, the winter is hurtful to the interest of the New Brunswick farmer, is the directly injurious effect which it produces upon his stock. There can be no question that extreme cold, if animals are exposed to it, must be injurious to their health, and must interfere with the farmer's profit in keeping them. But if cattle are properly sheltered and fed, this cold ought in itself to produce no other evil effect, than simply to cause the consumption of a quantity of food per day, somewhat larger than under a milder atmosphere would be required. As however the climate of the Province might exercise, besides this, some special evil influence upon cattle, which a stranger to its winters could not anticipate, I have thought it right to consult the practical men of the Province, and I have been favoured with the following opinions upon the subject:—

Effect of the Winter on Stock.

1. Where proper care is taken, as housing, &c., the effects of the long winter are not injurious. Cattle in this country are not generally subject to disease.—D. B. Stevens, Saint John.

3. Expensive to winter, particularly if not kept in warm stables.—David Mowatt, Charlotte.

5. Cattle require more fodder and better shelter than is generally given.—John Mann, Jr., Charlotte.

6. Very prejudicial in all cases, but more particularly when hay is scarce.—John Farmer, Charlotte.

7. Stock must be kept in a warm place and well attended, or otherwise the long cold winter will materially injure it.—Mr. ———, Westmorland.

8. The growth of stock or cattle is much retarded during winter, but with warm housing they will retain a fair condition upon course hay.—R. K. Gilbert, Westmorland.

9. They get thin and weak towards spring.—Howard D. Charters, Westmorland.

10. The long winters have a bad effect on stock, as it requires much care, attention and experience to keep them in good condition.—Robert B. Chapman, Westmorland.

11. No harm with proper care.—R. B. C. Weldon, Westmorland.

12. Long and cold winters are unfavourable to stock.—Wm. Crane, Westmorland.

14. The stock frequently become poor during the long winter.—John Trenholm, Westmorland.

17. Stock if well fed and warmly housed suffer no deterioration.—George Otty, King's.

18. The stock of neat cattle do not thrive so well, particularly cows.—A. C. Evanson, King's.

19. The long winters hurt the growth of stock, and without the greatest attention they get reduced.—H. Hayward, King's.

20. The stock do not suffer as much as might be expected; if warmly housed and well fed they are subject to few diseases.—Thomas Beer, King's.

20½ If judiciously fed and well housed, in better condition than when put up.—Andrew Aiton, King's.

21. The winters have no injurious effect if cattle are comfortably housed and liberally fed.—Matthew M'Leod, King's.

22. Cattle throughout the whole winter must be attended to with great care, their houses made as warm as possible, and proper attention to cleaning, watering and feeding. Stock properly attended will winter admirably.—D. M'Lauchlan, King's.

24. If the stock is well housed and fed, they thrive as well as in summer.—Daniel S. Smith, Queen's.

25. Stock put up in good order, with care, improve in the winter.—Allan Coster, Queen's.

28. The stock do not improve much in growth unless kept well on the best of provender.—William Reed, Queen's.

29. The winters are very severe on the stock.—William Pindar, Queen's.

31. The winters are very severe on stock; unless well fed and warmly housed, they are subject to many diseases, especially the horn distemper.—Robert Smyth, Queen's.

32. Stock well housed and fed, thrive well in winter.—C. L. Hatheway, Sunbury.

34. Stock do well in winter if taken proper care of.—Chas. H. Clowes, Sunbury.

36. Cattle if properly housed and fed, lose but little.—Edw. Simonds, York.

38. Give the high bred cattle the same chance of feed and care in this Province as they do at home, and they will vie with them, as far as sheep, pigs, Durhams, Devons, Herefords or Ayrshires are concerned.—John H. Reid, York.

41. The winter has a bad effect on stock unless they are well fed and comfortably housed.—Robert D. James, York.

44. The stock is much injured by the long winters, having to feed on dry food for six months.—Israel Parent, York.

45. It is injurious on the quality and quantity of the stock owing to the difficulty of procuring fodder.—Wm. Dow, York.

46. The stock in very cold weather require to be carefully housed and fed.—James Rankin, Carleton.

47. The winters are injurious to stock.—James L. Pickett, Carleton.

50. The stock, if kept housed in warm stables, do not mind the cold weather, and if properly attended will improve during the coldest of the winter.—John Lewis, Albert.

51. The stock, if kept in warm stables, do not mind the cold, and if properly attended to will improve during winter.—Wm. Wallace, Albert.

53 On account of the expense of feeding cattle during the winter they are generally poor in the spring, and it requires the whole summer to revive them.—Joseph C. Wheten, Kent

55. The winters are not injurious to stock of any description when comfortably housed, either from their length or severity.—James Caie, Northumberland.

58. Long and severe winters are doubtless trying upon cattle, and if not well housed and attended to, reduce their strength and weight, but are seldom fatal.—H. W. Baldwin, Gloucester.

62. On stock it is not so severely felt as is the climate of Britain, for instead of your wet chilling atmosphere, here is a clear dry frost, bracing the nerves, from December to April, with not more than two or three rain showers during that period. Sheep thrive best fed out in the open air, with an open house or shed for them to enter at pleasure.—Dugald Stewart, Restigouche.

These opinions are nearly all favourable to the climate of the Province as fitted for the rearing and feeding of cattle. With proper care they not only winter well and gain size and flesh, but according to Mr. Maclauchlan they winter admirably; and according to Mr. Dugald Stewart, the climate of Restigouche, the most northerly part of the Province, is less severe upon stock than that of Great Britain.

A proper degree of warmth, however, good housing and good feeding, are necessary to the health and improvement of the cattle; and upon these points much alteration may be made for the better in the ordinary practice of the Colony.

It is acknowledged at present by chemical physiologists that warmth is equivalent to a certain portion of food—that an animal which is exposed to more cold will eat more—and that one that is better housed and warmer kept will eat less. To keep an animal comfortable therefore is to save food, and this alone ought to be a sufficient inducement, where a scarcity of winter food is complained of.

In my tour through the Province I have frequently observed how little attention appeared to be paid to the proper housing of the stock. Wide chinks between the boards or logs, of which the cattle houses or barns are built, or large openings about their feet, too often admit currents of cold air in the winter season. The most of the prevailing winds also find their way through the walls, and the comfort of the cattle is thus continually liable to be disturbed, the chance of their thriving interfered with, and their consumption of food increased. Those who allow such a state of their cattle houses to continue, unjustly blame the winter for what arises from their own want of care.

One of the opinions regarding the winter, which I have inserted above, makes it a matter of complaint that much care, attention and experience are required to keep cattle in condition while the winter lasts; this is no doubt true, but the same qualifications are necessary to success in any other branch of husbandry; and he who is unwilling to bestow all he possessses of them upon the business in which he is engaged, may happen to thrive, yet scarcely deserves to prosper.

Again, the winter feeding in the Colony is generally very much in the condition in which it was over a large part of Scotland some sixty years ago. To keep his stock alive was then the chief ambition of the Scottish farmer during the winter months, and he trusted to the nourishing grass of spring and summer to make up for the starving system of the colder part of the year. Such is very much the practice now in many parts of New Brunswick, but it stunts the cattle in their growth, and even in a money point of view is a false economy. The working ox, when spring arrives, has not sufficient strength to do all the work which the urgency of the season requires; while the animal which is sold for beef has so small a weight of muscle and fat, compared with that of its bones, and the quality of the meat is so inferior, that it is comparatively worthless in the market.

Thus not only does reason prescribe, but the profit of farming in the Colony requires—not that the winter should be blamed, from which no good can come—but that proper means should be taken for keeping cattle warm, and feeding them better than has hitherto been generally done.

Again, the impossibility of employing paid labour—the labour of hired servants that is—economically during the winter months, is alleged by some as a drawback to the profits of farming in New Brunswick. This is a question which experience only can determine; and from all I have been able to learn, experience is not so decidedly or generally against the profitable employment of agricultural labourers in winter as to justify a stranger in at once adopting this opinion.

The usual work of the farmer and his male assistants in the winter, is thrashing corn, carrying produce to mill and market, tending cattle and pigs, preparing artificial food for them, where this is done; collecting marsh, sea, mussel and bog mud; dressing flax and hemp; cutting down and clearing new land; cutting, splitting, and hauling wood for fires and fences; and upon stony land, hauling the stones that have been previously piled up for the making of fences. These are purely rural operations. Besides these they are often employed in making shingles, and getting logs for making sawn lumber; in hauling provisions for the lumberers; in hauling ship timber, spruce logs, cord wood, lath wood, handspikes, staves, and other small wood, to market.

In the present condition of the Province an industrious farmer, I am told, will always find something to do; and those who do all they can in winter are always most ready with every thing which is necessary to enable them to take the greatest possible advantage of the first departure of winter in preparing their land, and getting in their seed.

At the same time, in the employment of farm servants, a more careful attention to the collecting of manure, and to the feeding of stock, would in many localities afford the means of turning their labour to subsequent profit more effectually than is now done. The collecting of marsh mud, bay mud, mussel mud, and bog stuff, for the preparation of composts, might very profitably engage the attention of the farmer in various parts of the Province, more than it has ever hitherto done. More time might also be advantageouly given to collecting and keeping together the manure made by the stock during the winter. In fact, the New Brunswick farmers, from their general neglect of manures hitherto, are scarcely aware of the large share which the preparation of manures occupies among the other kinds of farm labour in Great Britain, and how well the labour bestowed upon this branch of husbandry pays. Lime might also be burned and hauled in winter, and advantageously mixed up with the bog stuff and earth into compost heaps.

The art of feeding cattle has now received great improvements; and the time and attention which the profitable feeding of stock requires, cannot be even imagined by farmers who have rarely given them any thing but coarse hay. To this feeding of stock I shall return in a subsequent part of this Report, only observing here, that this mode of tending and feeding cattle, though more expensive in the labour and in the kind and quantity of food it requires, is yet found to be far more profitable to the farmer than the older and less costly method.

The culture of flax to a small extent on every farm is to be recommended on other grounds, as I shall

hereafter more particularly explain; but very much also, because of the employment it gives to the members of the farmer's family when out-door labour is unsuitable.

The same may be said of hemp, to the growth of which some parts of the Province are specially adapted, because of the rank rapidity with which vegetation proceeds upon them. Wool combing is also a winter employment to a certain extent—to an extent in fact which will every year become greater, if the alleged adaptation of the climate to the rearing of sheep be properly taken advantage of. The prepared wool, like the dressed flax, will afford new employment to the females of the household, in spinning and in weaving those domestic fabrics, the production and use of which, in the present state of the Province, it is so desirable to encourage.

I might have considered the special question of employment in winter, to be included in the more general one, whether paid labour can be employed at all to a profit in agricultural operations in this Province, which I propose to discuss in the following Chapter. The profitable application of labour in winter, however, though it has much in common with the general question, is in some respects a different inquiry, and not undeserving of the brief consideration I have given it.

The substance of the reasonable results, to which this review of the relations of the New Brunswick climate to the operations and profits of the farmer leads, may be expressed in this summary:—

1st. That the length of winter limits very much the period for out-door operations; but that it also opens and makes friable the soil to such a degree, that the same labour of horse or man expended upon it, goes much farther than in the mother country; and that the number of dry working days is also greater in proportion than it is in Great Britain and Ireland. That the rapidity with which crops comes to maturity, leaves a considerable period for ploughing and other out-door work, both before the seed is sown and after the crops are reaped; and that by diligent attention and method, and by the use of animals which have a quick step, and of workmen who know the value of time, much more land might be kept in arable culture with the same force than is now done.

2nd. That though a large provision of winter food is required to maintain the stock during so many months, yet, that by the saving of manure upon farms of all kinds, even the newest, and applying it to the grass land in spring, and by the more extended cultivation of green crops, this food may be raised more easily than heretofore, and from a much smaller proportion of the cleared land of the farm. From this would be derived also the incidental advantage, that a better feeding of the stock and the production of more manure would insure the production of better beef and mutton, of a greater weight of butter and cheese, and of heavier harvests of grain.

3rd. That although to many it appears difficult to find profitable employment in winter for the members of the farmer's family, or for his paid servants, yet that more profit than is generally supposed may be derived from labour expended in the collection and saving of manure, in the preparation of composts, and in the proper tending of cattle, especially in the proper adjustment in time, kind, quantity and mode of preparation of the food with which they are fed. The dressing of flax, hemp and wool, also are means of winter employment, one or other of which in most districts may be made profitably available.

This summary of the question ought to be satisfactory at least to the New Brunswick farmer. How far it is fitted to induce others to settle in the Province, is not for me to decide; but for those who are here, or who come to settle, the true course is not to hunt up causes of complaint, which can always and every where be abundantly found, but to inquire how the existing condition of things, in respect of soil and climate, can be most skilfully met and turned to the greatest profit. Now whatever evils in connection with the climate of this Colony may ultimately be insurmountable by the farmer, it is quite clear, I think, that the climate at present is blamed by many for what is only the result of their own ignorance or want of care; and that by more skill and attention, the winter months might in nearly all cases be more profitably employed than they have hitherto been.

As an addition to the materials I have above inserted in regard to the climate of New Brunswick, I append the following Tables, which have been kindly furnished me by the gentlemen whose observations they contain. I could not conveniently introduce them into the body of the Chapter; but as they may prove both interesting and new to the New Brunswick reader of this Report, and useful hereafter to a history of the climate, I have much pleasure in annexing them to this Report:—

No. 1. *Tables shewing the number of Clear Days, &c. in the years* 1847, 1848, *and* 1849.

1847.	Clear and very cold.	Clear.	Snow.	Rain.	Overcast and mild.	
January,	13	4	5	2	7	18 inches of snow fell this month: 22d coldest day, Ther. 24° below 0.
February,	9	6	4	1	8	5 inches of snow fell this month; 3 feet deep in the woods.
March,	15	5	4	3	4	2½ feet snow on the ground; ice in the river three feet thick.
April,	9	8	6	2	5	
May,	..	16	..	4	11	2d May river opened, 60° 3 P. M.; 6th 75°.
June,	..	12	..	8	10	26th Ther. 93°; June potatoes in blossom; apple trees in bloom.
July,	..	18	..	6	7	6th haying commenced—Ther. 90° 3 P. M. in shade; 7th 90°; 8th 95°; 10th 91°; 14th 88°; 20th 92°: 21st 98°.
August,	..	17	..	5	9	11th harvesting commenced—Ther. 11th 92°; 13th 78°; 17th 81°; 19th 83°
September,	..	11	..	5	14	23d first frost.
October,	3	13	..	6	9	26th first fall of snow.
November,	2	11	3	5	10	17th ice in the river: 21st river frozen over; 26th ice run; 28th steamer up.
December,	11	..	7	7	6	15th steamer New Brunswick came up; 22d river frozen over.
	52	121	28	54	100	

No. 2. *Table shewing the number of Clear Days, &c.—Continued.*

1848.	Clear and cold.	Clear and mild.	Snow	Rain.	Overcast.	FLOWERING OF TREES, Red Plum, May 30, Damson, June 2, Wild Cherry, " " Apple, " 6 Cherry, " " RIPE, Sep. 1, " 20, Aug. 5, Sep. 28, " "
January,	15	6	1	4	5	2d 2 feet snow.
February,	10	6	8	..	4	4 inches snow fell this month; very cold from 1st to 20th; Halifax harbour frozen over.
March,	6	12	4	5	4	10th 2 feet snow in the woods.
April,	5	18	2	2	..	10th Ther. 60° in the shade; 6th ice 2½ feet; 11th snow all gone—steamer up; 26th ploughing for first.
May,	..	12	..	11	8	10th garden seeds sown; 17th frost—common beans planted.
June,	..	14	..	7	9	25th sowed oats and peas; 26th ploughing; 20th Ther. 75°; 30th 84°; 24th grass growing fast.
July,	..	17	..	5	9	17th commenced haying; 7th Ther. 87°; 10th 89°; 11th 96°.
August,	..	20	..	9	2	9th potatoes 2s bushel; 10th Ther. 93°; 11th 95°.
September,	..	10	..	13	7	3d frost; 23d corn gathered.
October,	..	9	..	15	7	
November,	16	..	1	3	10	11th ice in the river; 12th full of ice; 13th river frozen over.
December,	..	13	7	5	6	5th river open again; 6th river closed; 31st 2 feet of snow on the ground.
	52	137	24	79	74	

No. 3.

1849.	Clear and cold.	Clear.	Snow.	Rain.	Overcast.	FLOWERING OF TREES, Red Plum, May 30, Damson, June 2, Wild Cherry, " " Apple, " 6, Cherry, " " RIPE, Sep. 1, " 26, Aug. 5, Sep. 28, " "
January,	23	..	2	1	5	Hay $6 per ton—Potatoes 4s.—Oats 1s. 6d.; 2d January 2 feet snow.
February,	15	3	3	..	7	4th 4 inches snow fell this month—very cold.
March,	10	3	3	7	8	10th 2 feet snow in the woods.
April,	7	8	3	4	8	4th Ther. 65° shade; ice moved the 6th; 12th steamer up.
May,	..	18	..	5	8	1st sowed peas and oats; 17th oats up; 18th peas up; 20th Ther. 75°—30th 84° in shade.
June,	..	24	..	3	3	7th light frost.
July,	..	23	..	4	4	2d early grass cut; 7th Ther. 87°—barley in head; 10th Ther. 89°; 11th 96°.
August,	..	19	..	4	8	9th oats cut; 14th barley cut; 26th Ther. 94°.
September,	..	22	..	4	4	16th frost; largest potatoe 7¼oz.; mangel wurtzel 10lb; apple 6oz.; oats 40lb; peas 66lb; beans 63lb; wheat 68lb; squash (raised by Watts) 177lb.

No 4.

Temperatures below zero, observed at Woodstock in the Winters of 1848 *and* 1849, *and the days of observation:—*

1848.			1849.		
December	21, 17°	below 0	February	6, 26°	below 0
"	22, 10	" "	"	9, 15	" "
"	24, 4	" "	"	10, 8	" "
1849.			"	11, 12	" "
January	1, 2	" "	"	12, 28	" "
"	2, 13	" "	"	13, 5	" "
"	3, 8	" "	"	14, 31	" "
"	4, 8	" "	"	15, 25	" "
"	7, 11	" "	"	16, 31½	" "
"	8, 3	" "	"	17, 32	" "
"	10, 6	" "	"	18, 29	" "
"	11, 11	" "	"	19, 13	" "
"	12, 14	" "	"	20, 22	" "
"	19, 20	" "	"	21, 20	" "
"	22, 19	" "	"	22, 2	" "
"	27, 17	" "	March	2, 17	" "
"	30, 15	" "	"	5, 13	" "
February	1, 24	" "	"	12, 8	" "
"	4, 16	" "	"	15, 5	" "

These were the only days in which the Mercury ranged here. At some exposures, however, the range was lower than by my thermometer.

(Signed) CHARLES D. RICE.

CHAPTER IX.

I. *The practice of Lumbering.*

II. *The alleged want of Markets, and of centres of industry—in their relations to the practical Agriculture of the Province.*

I. The practice of Lumbering.

The cutting of timber in the forests of New Brunswick, and the subsequent hauling and floating of the logs and rafts to the mills and harbours, has hitherto been the main resource of the labourers of the Province. The sawing and preparing of this timber has been the chief manufacture of the country; and the lumber thus obtained or produced, in its various forms, has been the staple article of export, and of traffic with foreign markets.

Such a trade as this, it is obvious, can only be carried on permanently in parts of the world which are by nature unfit for agricultural purposes. In all other countries it can continue in a state of vigour only during the transition period—longer or shorter according to circumstances—which is necessary to convert the wide forests into settled farms, and to replace the wild animals and the native timber trees, by civilized tillers of the soil, and nutritious crops of corn.

The decline of the timber trade of New Brunswick, therefore—supposing it not to have been overdone, and the natural forest resources of the Province not to have been injudiciously squandered—is a natural and necessary consequence of the progress of agricultural settlement.

Whatever may be the future fate of the lumber trade and of those engaged in it, there can be no doubt in the mind of any one who candidly considers the economical history of the Province, that it has been of much service, not only in making known and developing the general resources of the Colony, but in especially contributing also to the advancement of its agricultural interest. Thus—

1st. It has provided a more ready market for farm produce in many parts of the Province.

2nd. It has kept up the prices of such produce so that when the lumbering trade has been good the prices have been generally higher than in neighbouring Provinces.

3rd. It has given employment at good wages to idle hands; and to small farmers it has afforded winter work and an opportunity of earning money at a time when they had comparatively little work at home.

4th. It has brought foreign produce and foreign capital into the Province, and has been the chief source of the money by means of which the country has been opened up and improved; by which its roads, bridges and public buildings have been completed; its rivers and harbours made accessible; its natural resources discovered and made available; its Provincial institutions kept up, and its functionaries paid.

These are some of the benefits which the lumber trade has conferred upon the Province. But unfortunately, whether from its own nature, or from the abuse and competition of those who followed it, this trade has also been productive of much evil. Thus—

1st. It has not merely given labour to idle hands who could obtain no employment in farming, but being itself the first and most important pursuit in the Colony, it became the leading or chief employment of the able bodied men of the Province. Farming, which silently grew up after the lumber trade had been already established, was considered altogether secondary and subsidiary to it. The ground was cultivated chiefly to raise supplies for the lumberer. As a more respectable pursuit, and as affording the prospect of excitement and adventure, the occupation of lumbering tempted the young men in great numbers from the more sober and monotonous pursuits of agriculture, and thus greatly retarded its progress in the Province.

2nd. It also unsettled and demoralized the minds of these young men, and gave them extravagant habits of living, which they imparted in some degree to their families and connections, and which still cling prejudicially to the settled population in some parts of the country.

3rd. It acted in a similar way upon the minds of many of the most promising immigrants from the old country, enticing them into the woods, then teaching them thriftless habits, and in fine, making them not only less valuable additions to the productive labour of the Province, but also less able to maintain their families in comfort, and to train up their children to be useful and industrious members of society.

These are the principal evils of a moral and industrial kind which this trade has from time to time inflicted upon the Provincial population. But it has exercised a directly retarding and injurious effect also upon the practical husbandry of the Province generally and especially upon the regular culture, the average productiveness, and economical tillage of the land. Thus—

1st. It has given occasion to the small farmer who engaged in it, to carry off his hay into the woods, and thus to diminish greatly the quantity of manure his land might have been enriched by, had the hay been consumed upon his farm.

2nd. This selling or carrying off the hay, has made it necessary in numerous instances to maintain the cattle on the farm at the starving point during the winter, so that in spring they had become mere skeletons, too weak for their work, if they were labouring oxen, and probably short of provender.

3rd. It has carried him away, not unfrequently half the summer, attending to the sale and delivery of his lumber, to the manifest and ruinous neglect of the operations upon his farm, and of the general tending and welfare of his family.

4th. In many places where water power existed upon his farm, it has tempted the small proprietor to erect mills, to contract debts, and to incur mortgages, to the neglect of the surer though slow gains of husbandry, and to the ruin of himself and his children.

In the County of Albert, in which small streams abound, the number of mills of this inferior kind has been very great, and I am informed, that not only have great numbers of the farmers in that County been seriously injured in their fortunes by the late failure of the lumber trade, but that both the breeds of cattle and the modes of culture have retrograded in that County and in the County of Saint John, in consequence of the exclusive encouragement given to the lumbering.

5th. It has not only carried off the best labourers, and distracted the attention of the farmers, but it has raised the price of labour beyond the general ability of the farmer who gave his whole attention to the land, to employ paid labour profitably in the operations of husbandry. And—

6th. Lastly, the land on which the lumberer had been to cut his lumber, instead of being improved, was deteriorated by his operations, so that it was a more difficult and costly operation to the settler to clear it than when it stood in its original state of nature.

It is unnecessary here to inquire whether the lumber trade has necessarily or only incidentally been the source of so many evils, or whether the evils themselves may not be somewhat exaggerated. It is safe I think, to conclude, that the actually slow progress and backward condition of the agriculture of the Province, and the unprosperous, despondng, I may almost say hopeless condition of many of its cultivators, has arisen from the two eager and universal prosecution of this trade. It is not surprising therefore that the friends of agriculture in the Colony, who have considered it fitted for agricultural operations, and have regarded them as a surer and more permanent source of wealth and general comfort than the occupation of the lumberer, should have looked with regret upon the continuance of the trade, and should have expected ultimate good to the Province from the late depressions and reverses to which it has been subjected.

In so far as regards the general prosperity of the Province, two things I think will be desired by its most disinterested well-wishers: *First*—That the Lumber trade should be prosecuted to that extent, and with that degree of spirit, which shall neither exorbirantly raise the price of labour, injudiciously waste the resources of the Province, nor by awaking too much rivalry and competition, unnecessarily lower the price of lumber in the home markets; and *second*—that a more distinct division of labour should hereafter be introduced; that the farmer should only farm, and the lumberer live by his lumbering only. In this way,

whatever might be the effects of the trade upon the provincial welfare in general, the farmers would be individually exempted from its vicissitudes. When it prospered, the price of produce would improve; when it was depressed, those prices would fall. So far, all would partake of its vicissitudes; but debts and mortgages incurred by sharing in it would not hang like depressing millstones around the necks of industrious men, making their teams walk slower, and their ploughs go less deep, and weeds in sympathy spring up luxuriantly around them.

I do not understand the subject of Timber Berths sufficiently to form a satisfactory opinion on the matter; but it seems to me that the extent to which grants for cutting timber are sold, and the prices demanded for them, might be made to control the individual rivalry, and the too rapid destruction of the finest timber, by which the trade has of late years been injured, and the forest resources of the Colony diminished These are within the control of your Excellency and the Houses of Legislature. And again, dear-bought experience, the local influence of individuals and of Agricultural Societies, and the conviction now gaining strength, (which I hope the present Report will tend to confirm,) that the Province is not inferior in its agricultural capabilities to many neighbouring Provinces and States, and that, as one of the native farmers expressed it to me, "agriculture, if a more slower, is a more surer way to independence"—these influences will, I hope, conspire, not only to tie down existing proprietors more closely and steadily to their farming operations, but will induce the rising generation also to prefer the plough to the axe, the tilled field to the wild forest, and the comfortable fireside of a snug farm-house to the rough abundance of the temporary camp

II. Want of Markets.

The want of good markets is much complained of as an obstacle to agricultural progress in the Province; as well as the way in which farmers are compelled to make their sales at the markets which do exist.

1st. *The absolute want of Markets* can scarcely be said to exist in New Brunswick. This is shewn by two facts:—

a. By the comparatively high prices which, according to the Table of prices already given in this Report. (Tables XIV. and XV.) are usually received by the farmer. Were there a want of markets, absolutely speaking, these which exist would be glutted, and prices would necessarily fall below the rates which the returns give as the average of the several Counties.

b. By the large importations of bread stuffs and salt provisions which are annually made from the United States and from Canada. "In the year 1847, the quantity of wheat, and of flour reduced to its equivalent in wheat,* imported into the Province, was equal to about 62,600 bushels, besides large quantities of other grain and meal, amounting to the estimated value of about £280,000 currency."†

The importation of so large a quantity of foreign food admits of different interpretations, according to the kinds of produce of which we speak, and to the habits and circumstances of the people.

a. In the case of wheat, oats, and other grain, it may mean, either that the quantity produced at home is insufficient for the home demand, or that its quality is inferior to the foreign. But the grain of all kinds grown in the Province in good seasons appears to be of superior quality. The importation, therefore, must be occasioned by a deficiency in the home growth, and where such a deficiency exists there must be a more or less ready sale at one or other seasons of the year.

b. In the case of wheaten flour and oatmeal, the importation may imply either a home scarcity of these articles, or an inferior quality in the flour and meal produced from good grain by the home millers. It would appear that some unfounded prejudice has hitherto existed against the quality of Province-made flour, which prejudice the letters introduced into a previous part of this Report may possibly have a tendency to allay. As to oatmeal, the numerous mills now erected or about to be set up in various parts of the Province, will, if properly conducted, render unnecessary any large future importation of oatmeal, and will provide a readier sale for the excellent oats which so many parts of the Province are naturally fitted to produce.

c. As to salt beef and pork, the importation of these articles at a time when fresh beef in the home markets is selling at 1½d and 2d a pound, shows that the Colony does not produce enough of the quality of beef and pork which, for shipping and curing, is constantly in demand. The defective market, or low prices obtained for the articles of produce, and the large importation, are both to be remedied by an improvement in the system of feeding, and consequently in the kind of meat which the farmer can offer to those who wish to buy. I shall return to this point in a subsequent part of the present Report.

2nd. *The distance of markets and difficulty of access to them*, which are real evils, in many of the newer settlements especially, may be remedied in some degree by each of three methods:—

a. By the general improvement of the means of communication. This is of great importance to the general welfare of the Province, as I have already at some length remarked—and it has given me much satisfaction to find its importance every where so generally acknowledged and understood.

b. By the public establishment of new markets or fairs—quarterly, half yearly, or annual—for corn, cattle, wool, and dairy produce, in central situations. General *meets* or fairs of this kind are eminently adapted to the wants of a young or thinly scattered people. They have been in existence from the most remote periods in almost every country of Europe, and I can speak from my own knowledge of their great value at the present day in Scotland, both to the Scottish and English farmer. They bring buyers and sellers easily together, and thus save time, labour and money to both—they establish a tariff of money prices which serves as a standard for all transactions during three, six, or twelve months—they thus put both buyers and sellers in remote places on a level with each other, and prevent the one from taking an unreasonable advantage over the other—they encourage attention to the production of good samples of grain, cheese, wool or fatted stock, by the ready sale which these are sure to find—while they afford an opportunity to the farmer, if he have good articles to sell, of procuring money on a fixed day, and of thus meeting engagements which, relying on the market, he has not scrupled to make—or if he wish to buy, of bringing upon his farm at the proper time the kind and quantity of stock which the state of his hay and root crops at the different seasons demand.

* 4½ bushels I suppose to the barrel of flour.

† Mr. Wilkinson's concluding Report on the line of Railway between the City of Saint John and the Harbour of Shediac, 1849.

The attention of the Legislature, and of Agricultural Societies, therefore, cannot be too strongly directed to the establishment of such leading, regulating, and central markets in the Province, at proper periods in the year, and in proper situations.

c. By the establishment of agricultural agencies or factorships at the seats of the principal markets. If instead of himself going with his team great distances, which detain him a week or ten days from home, and thus having to seek a buyer for his produce from house to house, or from merchant to merchant—the farmer could transmit his stock or grain to a trustworthy agent in the market town, he might not only realize better prices, but save the money also he used to spend in travelling, while he would be able at the same time to devote a closer attention to the business of his farm. In England and Scotland such agencies are not only very useful to the farmer, especially in the disposal of his stock, but they prove lucrative also to the skilful men who undertake them.

3d. *The custom of paying in kind*, or the want of cash markets, is much complained of in the remoter districts, and especially among the smaller farmers. This is no doubt an inconvenience, and in some respects an evil, but it is almost inseparable from the still youthful condition of things in most parts of the Province. The produce of the farmer must ultimately be converted into the wares of the merchant. Whether this is done by means of one or two transactions—by first selling to one for money, and then with this money, buying from another, is of no consequence to the farmer, provided he obtains as much teas, sugars, or other merchandize for his produce, by the one way as the other. In places where the traffic is small, the merchant is unable to obtain money from his customers, and is obliged to take grain or other farm produce, and with this again to pay his own debts to the wholesale merchant. But he buys his goods at a fixed price, and has to pay for them in articles, the price of which varies very much in different seasons of the year. He is thus compelled in self defence to take the farmer's productions at a very low rate, so as to avoid the risk of loss when he sends them to the varying market. Thus the farmer has often just reason to complain that his market is bad, and prices too low, while the merchant is only doing what prudence dictates, and what, to avoid the risk of bankruptcy, he is bound to do. At the same time it is in the power of the merchant often to take undue advantage of this power, and this no doubt is frequently done. But for such a state of things competition is the most certain cure. Such competition will naturally arise as the local traffic increases, and it is seen that money is made by the merchant—or it may be raised by a combination of the aggrieved parties themselves—or by an improvement in the means of communication with other markets. I have heard many persons in the Province, sometimes unreasonably I thought, complain of such a state of things, and cry loudly for some legislative remedy; but it is difficult to see how the public authorities can interfere with an alleged evil like this in any other way than by rendering easily accessible more distant markets, or by establishing fairs and central markets, which shall in some measure regulate prices in different parts of the Province, and afford a ready means of sale at certain known periods of the year.

It would prove a matter of great moment to the moral welfare of the Province, and to the development of those agricultural capabilities which it appears to possess, could centres of industry, whether manufacturing or mining, be any where established. Such centres would afford new markets for farming produce, and would thus encourage new settlers to clear and cultivate still unopened tracts of land.

From what has been stated in regard to coal in a previous part of this Report, there is no immediate prospect of any great advantage accruing to the Province from its supposed possession of large stores of this mineral. Gypsum does really exist in vast quantities in the Province. Nearly all the parts of the Province coloured brick-red on the Geological Map appended to this Report, contain it in greater or less abundance, and more or less easily accessible. The principal localities where it is known are marked in the Map by light red dots. The mining or quarrying of this gypsum may hereafter become a considerable branch of industry on the whole, but it is not likely to form any centres of industry by which a dense population shall be congregated in one spot, or by which the agriculture of any given neighbourhood be greatly stimulated.

As to mines of lead and copper, none of any certain value have yet been discovered—though the geological structure of the country by no means forbids the hope of hereafter finding veins of those metals, which may be worked with profit.

Ores of iron abound in some localities, and especially the hæmatite variety, now smelted in the neighbourhood of Woodstock. In the absence of coal, this ore may be smelted as somewhat similar ores are in Sweden, so as to form a valuable article of home production for home use, and even for exportation; but it cannot hope to compete in the great iron market of the world with the productions of the numerous quick-working furnaces which are fed with fossil fuel.*

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* That this ore is very abundant, appears from the following remarks of Dr. Gesner, which I extract from his third Report:—

"About two and a half miles from Woodstock, and near the main road leading through Jackson Town, there is a very extensive and valuable bed of iron ore on land belonging to Col. Ketchum. This ore is interstratified with the slate, and like the strata on each side, extends from W.S.W. to N.N.E., in layers nearly pependicular. This deposit of iron had been supposed to exist in one stratum, but upon examination, I found it laid in three separate beds. Measuring across the out-cropping and the strata, it appears at the surface in the following manner:—

XXXVI.	*Clay Slate.*—Ore,	28	feet.
	Slate,	250	"
	Ore,	15	"
	Slate,	100	"
	Ore,	27	"

Total thickness of ore, 70 feet.

"These beds of iron can be traced to the distance of half a mile; they doubtless extend to a great distance, and may hereafter be found crossing the Saint John. The ore itself is distinctly stratified, and conforms to the position of the strata of slate; and the difference of quality in different beds is not such as will materially affect its properties for working in a furnace. The ore is a compact red or reddish-brown hæmatite, or the hydrous peroxide of iron. Wherever it is exposed to the atmosphere its colour becomes changed to black or dark blue. The analysis of a specimen from the middle of the bed gave—

XXXVII.	Peroxide of iron,	78.40
	Silica,	1.20
	Alumina,	5.80
	Water.	12,60
	Peroxide of Manganese, a trace.	
		98.00

"The discovery of this great deposit of iron in the County of Carleton was claimed as late as 1836, but it is well known that specimens of the ore had been sent abroad and examined as early as 1820; and its existence was known to the first inhabitants of Woodstock."

Thus for its markets, the agriculture of New Brunswick must look mainly to the general development of all the resources of the Province generally, and especially to that steady and natural progress of civilization, which shall bring in a more systematic division of labour, by means of which, while every thing required for the comfort of all is better done, each shall be well paid for doing his own part in the general business of the commonwealth.

Chapter X.

The alleged high price of labour in the Province, in its relations to the progress and profits of practical Agriculture.

To be able to discuss this point, it is necessary to know first, what the usual rates of wages are in the several parts of the Province. In answer to my queries as to this matter, I have obtained a series of rates, which I have embodied in the following Tables.

The first (XXXVIII.) shows the rates of wages paid by the day, month and year, in the several parts of the Province from which I have received returns, arranged under the several Counties, as the preceding Tables are.

The second (XXXIX.) shows the average rates of wages in each County; and to this is appended the highest, lowest and average rates of wages for the whole Province. I have added to the former of the two Tables a column which contains the opinion of the parties by whom the data have been communicated to me, as to the question—"whether labour, at the rates mentioned by them respectively, can be profitably employed in the raising of agricultural produce."

XXXVIII. *Wages paid to Agricultural Labourers, in addition to Board, Lodging and Washing, in the different parts of New Brunswick.*

Counties.	No.	Wages per Week.			Wages per Month.			By the Year.		If Wages at these prices can be profitably employed in Agriculture.
		Summer	Harvest	Winter	Summer	Harvest	Winter	£	£	
Saint John, ...	1	..	..	..	40s.	..	..	15 to 24		Yes.
Charlotte, ...	2	..	..	..	60s.	75s.	..	..		No.
	3	..	..	..	35s.	50s.	..	..		No.
	4	..	2s 6d	..	..	..	..	20 to 24		Yes.
	5	..	3s	..	..	70s.	..	20 to 24		No.
	6	2s 3d	2s 6d	..	..	..	..	..		If for settlement, yes. If for sale, no.
Westmorland, ..	7	1s 6d	3s	..	20s.	60s.	..	12 to 18		No.
	8	..	..	..	..	..	..	10 to 30		No.
	9	2s	3s	..	40s.	60s.	..	..		If paid in produce, yes. If paid in cash, no.
	10	..	..	..	..	..	..	20 to 30		No.
	11	..	..	..	..	..	..	10 to 20		Yes, as capital invested.
	12	..	..	..	..	..	..	25		No.
	13	..	..	..	..	..	..	20 to 25		No.
	14	..	..	..	30s.	60s.	..	20 to 24		Yes.
	15	..	..	..	40s.	80s.	..	..		Yes.
	16	..	..	..	..	..	..	18 to 24		Yes.
King's, ...	17	..	..	..	30s.	40s.	..	16 to 20		
	18	..	..	..	40s.	80s.	25s.	15 to 30		
	19	..	..	..	..	..	..	12 to 16		Yes, in Summer.
	20	2s 6d	3s6d to5s	..	..	..	..	18 to 25		No.
	20½	..	..	..	..	80s.	..	18		Yes.
	21	..	..	..	..	..	..	10 to 15		
	22	..	..	..	..	..	..	20 to 30		No.
	23	..	..	..	..	..	..	15 to 20		Yes.
Queen's,.....	24	..	..	..	40s.	..	..	..		No.
	25	..	..	..	..	..	..	20		No.
	27	..	..	..	..	..	..	12 to 18		Yes.
	28	..	..	..	30s.	70s.	..	..		No.
	29	..	..	..	..	..	..	18 to 22		
	30	..	..	..	..	60s.	..	15 to 24		
	31	..	..	..	40s.	60s.	30s to40s	..		No. Yes, in improving.
Sunbury, ...	32	..	..	..	30s.	60s.	..	..		Yes.
	33	..	..	..	..	..	..	20 to 25		No.
	34	..	..	..	30s.	40s.	..	20		No.
	35	..	..	..	..	..	..	18 to 30		No.
York, ...	36	..	..	..	..	..	..	24		Yes. No, if he has to sell produce to pay wages.
	38	..	..	..	30s.	50s.	..	..		
	40	..	..	..	..	..	..	24		Yes.
	41	2s / 3s 6d	2s. 6d. / 5s. and	found, / himself,	50s.	70s.	..	..		Yes.
	43	1s 9d	3s. 6d.	..	..	..	..	..		No.
	44	..	..	..	50s.	..	..	..		No.
	45	..	..	..	..	..	..	24		No.
Carleton, ...	46	..	..	..	40s.	50s.	..	..		
	47	..	..	..	..	..	..	20 to 30		Yes.
Albert, ...	48	..	..	..	45s.	..	..	..		Yes.
	50	..	..	..	..	..	..	20 to 30		Yes.
	51	..	..	..	..	..	..	20 to 30		Yes.
Kent, ...	53	..	..	..	..	..	..	24 to 36		No.
	54	..	..	..	..	..	..	20		Yes.
Northumberland	55	..	..	..	50s.	60s.	..	25 to 30		No.
	58	..	..	..	..	..	..	..		Yes.
Gloucester, ...	60	..	..	..	..	..	..	..		Yes.
Restigouche,....	62	..	..	..	..	..	..	..		Yes.

XXXIX.

Average rate of Wages for Agricultural Labour, in addition to Board, Washing and Lodging, in the several Counties in the Province.

Counties.	By the Day.		By the Month.		For the whole Year.
	Summer.	Hay'g and Hvst.	Summer	Haying and Harvest.	
Saint John,	..	..	40s	..	£19 10 0
Charlotte,	2s 3d	2s 8d	47s 6d	65s	22 0 0
Westmorland,	1s 9d	3s	32s 6d	65s	20 13 9
King's,	2s 6d	4s 3d	35s	66s 8d	18 12 6
Queen's,	..	..	43s 4d	63s 4d	18 17 6
Sunbury,	..	..	30s	50s	22 3 4
York,	1s 10d	3s	43s 4d	60s	24 0 0
Carleton,	..	..	40s	50s	25 0 0
Albert,	..	..	45s	..	25 0 0
Kent,	..	..	..	..	25 0 0
Northumberland,	..	..	50s	60s	27 10 0
Gloucester,	..	..	..	..	..
Restigouche,	..	..	..	..	..

Lowest for the whole Province by the year, £10.
Highest " " £36.
Average " " £21.
Average for the whole Province by the month, £3, Haying and Harvest.
Average " " £2, other Summer months.
Average for the whole Province by the day, 3s. 3d., Haying and Harvest.
Average " " 2s. 1d., other Summer months.

These Tables form an instructive record of the prices of agricultural labour at the present time in the several Counties of New Brunswick, which will not be void of interest as well as use in future years.

1st. In looking at the rates paid by different persons in the same County, it will be seen that No. 10 pays from £10 to £15, and No. 19 from £12 to £16, while No. 18 pays from £15 to £30 a year. The labour employed by these several parties must, one would suppose, be very different in quality, but I have no means of judging of the fact. Similar differences are observed in the returns from other Counties, and especially from Westmorland. These differences disappear from the County averages, which are contained in the second Table, (XXXIX.)

2d. These County averages show what was to be expected, that labour is cheaper in Saint John, where the greater part of the immigrants land, and in King's and Queen's, to which access from Saint John is the most easy. Next comes Westmorland, through which the high road into these latter Counties leads; and this is followed by Charlotte and Sunbury, the former more easy of assess perhaps, but much less inviting and nearer the United States than the latter. In York, Carleton, Albert, and Kent, wages are one fourth higher than in Westmorland and Saint John; and in Northumberland they are highest of all. From Gloucester and Restigouche there are no returns.

The averages of the Counties varies from £18 12 6, the average in King's, to £27 10., the average in Northumberland.*

In the whole Province—

XL.	Currency.		Sterling.
The lowest wages paid are	£10 a year	=	£8
The highest wages paid are	36 "	=	28 16s.
The average of all is	21 "	=	16 16s.

This is exclusive of board, lodging, and generally washing.

* It may be added perhaps, that lumbering prevails more in Charlotte and in Northumberland, than in the other Counties named.

It is not much to our immediate purpose, nor directly connected with the profits of New Brunswick farming, that this average in sterling money barely exceeds the average wages paid to good farm servants, who board in their master's house, in the best farmed districts of Scotland. But from all I have been able to learn, the quality of the labour which this average price will command in most parts of New Brunswick is greatly inferior to that of our best farm servants in Scotland.

The most important question however in regard to this Province is "can labour, at this average price, or at the prices usually paid for it in the several parts of the Province, be profitably employed in the cultivation of the land in New Brunswick."

Some of the more intelligent agriculturalists I have met with in my tour have assured me "that the modes of culture, the implements of husbandry, and the breeds of stock in the Province, are all defective; and that as a consequence, not only have the agricultural capabilities of the Province never been fairly tested, but its ability to return a fair profit upon paid labour employed in tilling it, has never been properly tried." There may be much truth both in the fact thus stated, and in the inference drawn from it; but I have been unwilling in a matter of so much importance to hasten to a rapid and sweeping conclusion. I have therefore consulted the farming community in reference to it, and I have received fifty replies to my questions on the subject. Of the persons from whom these replies come, twenty five are of opinion that paid labour, at the present rate of wages, may be profitably employed in raising agricultural produce, and twenty five are of opinion that it cannot. As these contrary opinions—often from the same neighbourhood, and where the modes of culture, the markets, and the rates of wages are the same—are various in themselves, and as the reasons assigned by their authors are often different, I here subjoin the whole, giving first those which answer in the affirmative, and next those which answer in the negative.

1st. Opinions of those who think that paid labour at the present prices may be profitably employed in cultivating the soil:—

A man who understands his business, and has capital, may employ labour profitably in farming at the present rate of wages.—D. B. Stevens, Saint John.

Servants can be profitably employed on my farm from the advantages I possess of making artificial manure; the servants at the present time are generally of an inferior description.—James Stevenson, Charlotte.

Servants can be very profitably employed after the farm has been brought into good heart. It depends on the nature of the soil whether capital invested in improvement be a good investment or not, and above all, whether it be done with a view to your own occupation, or sale at some future time. In the latter case I imagine the price given for farms in late years will be a sufficient negative answer. If done with a view to settlement, I consider capital could not be more profitably invested, and at the same time so securely as in this country.—John Farmer, Charlotte.

Servants can be profitably employed if paid in produce.—Howard D. Charters, Westmorland.

Servants can be profitably employed in clearing and improving.—R. B. C. Weldon, Westmorland.

I think servants may be employed in improving the farm and raising produce with advantage to the employer at the present rate of wages.—John Trenholm, Westmorland.

Servants can be employed with profit at the present rate of wages.—Alexander Monroe, Westmorland.

I believe, with judicious management and economy, farming can be profitably followed, even at the present rate of wages, although I consider them altogether too high when compared with the price of farm produce and other necessaries.—Joseph Avard, Westmorland.

In the summer season servants can be employed with profit.—Henry Hayward, King's.

Any man who has a capital to start with, even at the present rate of labour, can gain, I should be sorry to say how much, but a great deal, if done with judgment.—Andrew Aiton, King's.

I think servants can be profitably employed in raising produce at the present rate of wages.—William Keith, King's.

Servants can be profitably employed.—Elijah A. Perkins, Queen's.

Servants may be profitable in improving, but not in raising produce.—Robert Smyth, Queen's.

Capitalists may employ farm servants to advantage in improving, clearing and raising produce, at the present rate of wages.—C. L. Hatheway, Sunbury.

If a farmer has a small capital he can employ servants profitably in improving his farm and raising produce.—Edward Simonds, York.

Servants can be profitably employed in raising produce.—William Wilmot, York.

When near a good market I certainly think that servants can be employed with profit in raising produce.—R. D. James, York.

I think that labourers at £20 to £30 a year will pay well.—James L. Picket, Carleton.

Servants can be profitably employed on the farm, though few persons have tried the experiment.—John Smith, Albert.

Taking the improvement of the farm into consideration, it is my opinion that servants can be employed with profit, but the want of ready money prevents many from availing themselves of help, which in time would amply repay them.—John Lewis, Albert.

Taking the improvement of the farm into consideration, it is my opinion servants can be employed with profit.—William Wallace, Albert.

Servants can be usefully and profitably employed at the present wages by those who have means to spare for improvements.—J. G. G. Layton, Kent.

Men servants could not in former years be employed with profit at the wages demanded; perhaps now they might, at the reduced wages of the present time, by employers of judgment and system.—Henry W. Baldwin, Gloucester.

It is thought by many that servants can be profitably employed.—E. Lockhart, Gloucester.

In my own experience servants cannot be employed in raising produce alone, but coupled with the improvement of the farm they can; for the servants of this country are better calculated for winter employment than for raising produce or cultivating the soil.—Dugald Stewart, Restigouche.

2nd. Opinions of those who think that, at the present rate of wages, paid labour cannot be profitably employed in cultivating in New Brunswick:—

I think servants cannot be profitably employed at the present rate of wages—the markets being very poor.—Joseph Walton, Charlotte.

I do not think servants can be employed with profit at the present rate of wages—principally for want of a cash market, the near contiguity of the United States, and the great expense of bringing the land in a fit state for cultivation.—David Mowatt, Charlotte.

Farming altogether by servants we consider unprofitable, owing to the low price of produce.—John Mann, Jr. Charlotte.

I do not think that servants can be employed with profit at the present rate of wages, owing to the failure of the wheat and potato crops, and the present depressed state of the markets.—Mr. ——, Westmorland.

Servants at £20 to £30 a year cannot, I think, be profitably employed, either in improving farms or raising produce, owing to the uncertainty of the markets and the low price of produce.—R. K. Gilbert, Westmorland.

Servants can be profitably employed if paid in produce, but cannot if paid in money; the reason why it will not pay, when the wages are paid in money, is because the produce sells so low, and the crops are so light.—Howard D. Charters, Westmorland.

Servants cannot be employed with profit at the present rate of wages. The reasons are, no certain markets for our produce—the price at best below a remunerative one.—Robert B. Chapman, Westmorland.

If to servants' wages be added the rent of land on which labour may be employed, and taking into consideration the present price of produce, it will be found that capital employed in agricultural pursuits will not yield a fair return.—William Crane, Westmorland.

At the present price of produce it will not pay to employ servants either at £20 or £25 a year.—Charles Dixon, Westmorland.

I consider the greatest, and perhaps the only return to the farmer, is the cutting down the woods and clearing up new land, enabling him to turn his old worn out meadows into pasture, which will bring them to, without the aid of manure. The rate of wages is, and always was, too high in this Province.—Thos. Beer, King's.

Servants cannot be profitably employed at the present rate of wages.—Danl. M'Lauchlan, King's.

Servants cannot be employed with profit, in consequence of the failure of the potato crop.—Danl. S. Smith, Queen's.

Servants cannot be profitably employed—the sale of the produce not realizing sufficient.—Rev. Allan Coster, Queen's.

We cannot hire in consequence of the high wages caused by lumbering—the produce of the farm at present prices will not admit of it.—John Robertson, Queen's.

Labourers cannot be profitably employed during the whole year, owing to the failure of the crops in past years. Money expended in clearing land is not worthy to be considered as capital invested, because many years expire before any remuneration can be obtained save the first crop, and the interest on the sum expended would, before any profits could be received, amount to more than double the value of the land.—William Reed, Queen's.

Servants may be profitable in improving, but not in raising produce.—Robert Smyth, Queen's.

Servants cannot be employed with profit, because we have not a secure cash market to take our produce to, and the winters being long.—Nath. Hubbard, Sunbury.

Servants cannot be profitably employed, on account of the low price of produce, and the competition of the United States.—Chas. H. Clowes, Sunbury.

Servants cannot, I think, be profitably employed on account of the very long winters.—Chas. Harrison, Sunbury.

If a farmer has nothing but his farm, and employs servants in the spring, and is obliged in the autumn to sell some of his produce to pay them, he cannot do it with profit, as the price of produce at that season is generally very low.—Edward Simonds, York.

The cultivation of the land with *men servants* at the present wages, would not be immediately remunerative in the absence of sufficient demand to constitute a market.—Edwin Jacob, D. D., York.

Men cannot be profitably employed at the present wages, produce being so low that it will not pay the wages.—Israel Parent, York.

In consequence of farmers not using compost manure, and the difficulty of procuring stable manure to support large farms, and the want of a ready market, we think labourers cannot be profitably employed.—Wm. Dow, York.

I do not think it possible, because, with the extravagant opinions of our present class of farm labourers, the returns will not meet the outlay.—Jas. Rankin, Carleton.

Hired labour cannot be profitably employed, because the produce of the land is so utterly disproportionate.—Jos. C. Wheten, Kent.

I do not presume to say which of the opinions above given are deserving of more, and which of less consideration. No doubt, as in all such cases, some of the writers from their skill, judgment, and experience, are more trustworthy than others; but of this Your Excellency will be better able to form an opinion than I am.

But taking the testimony as a whole, that of twenty five persons who *affirm* on a practical matter of this kind, ought to outweigh that of an equal number who *deny*. If in circumstances nearly the same as to wages, soil, manures, and markets, one man says he can employ paid labour profitably, and another says he cannot, the natural conclusion is, that on the part of the latter there is some want of skill, industry, or method, possessed and exercised in a superior degree by the former; and the fair conclusion would be, that all might equally employ paid labour with profit, if all could or would, with equal energy and knowledge, direct its use.

But the writers of the above opinions, for the most part, assign their reasons for the conclusion they have come to. To afford an opportunity of contrasting these reasons, I have arranged them opposite to each other in two following columns:—

Why, or circumstances in which paid labour can be employed profitably on the farm.	*Why paid labour cannot profitably be employed on the farm.*
By a man who understands his business.	Failure of the potato crop.
Because I possess the advantage for making artificial manure (of mussel mud.)	Produce too low in price.
After a farm has been brought into good heart, and when it is cultivated with a view to permanent settlement.	Produce too low in price.
If paid in produce.	Failure of the crops in past years.
In clearing and improving.	In improving, but not in raising produce.
In improving and raising produce.	No sure cash markets, and length of winters.
No reason.	Low price of produce, and competition of the U. States.
With judicious management and economy.	The very long winters.
In the summer season.	If paid in autumn, produce too low to allow it to be done with profit.
If a man has capital to start with.	Not sufficient demand to form a market.
No reason.	Produce too low to pay the wages.
No reason.	Because compost manures are not used—the difficulty of procuring stable manure, and want of a ready market.
In improving, not in raising produce.	Returns will not meet the outlay.
In improving, clearing, and raising produce, if the farmer has capital.	Produce of the land utterly disproportionate.
In improving and raising produce, if he have a small capital.	The markets are too poor.
No reason.	Want of a cash market, proximity of the United States, and expense of bringing land into cultivation.
When near a good market.	Low price of produce.
At £20 to £30 a year.	Failure of the wheat and potato crops, and the depressed state of the markets.
It can, though few have tried the experiment.	Uncertainty of the markets and low price of produce.
Want of money prevents many from employing help, which would amply repay them.	Not if paid in money, because prices are low and crops light.
In improving the farm.	No certain markets, and prices at best, not remunerative.
By those who have means to spare for improvement.	Capital so employed, will not yield a fair return.
By employers of judgment and system.	Will not pay.
No reason.	No reason.
Improving and raising produce.	No reason.
Servants in this country better adapted for winter work than for cultivating the soil.	
If paid in produce.	

The sum of the reasons of those who *affirm* is, that with a little money to start with, and ready money to pay the wages when due, without selling his produce when markets are low, with a knowledge of his business, and opportunity of getting or making manure, and of bringing his farm into good heart, with judicious management, economy and system, wages from £20 to £30 a year may be paid by the New Brunswick farmer.

Of those who *deny*, the reasons are in substance, the low prices, the want especially of cash markets, the competition of the United States, the low price of produce in autumn when wages are paid, the neglect of compost and the difficulty of procuring other manures, and the failure of the wheat and potato crops,—one person adds, the expense of bringing land into cultivation in his neighbourhood, (because of stones, I suppose,) and two assign the length of winter as a reason.

The reasons of those who affirm are all valid and sensible; and coming from men who have, I suppose, practised what they recommend, and proved it to be profitable, ought to have great weight with those who are in search of the truth on a matter so important to the Province.

Among the reasons of those who deny, the failure of the crops, were it certain to continue, would itself be conclusive, but these failures, it is to be hoped, will henceforth rarely occur, and the fatal losses they might occasion, may be in some measure guarded against by sowing, (instead of a large breadth of one or two only,) a moderate proportion of each of several crops, as the skilful British farmer does in his more changeful climate, under the assurance that if the seasons should be unpropitious to one or more of them, it will be favourable to the rest.

The proper introduction and use of manures will remove another of the reasons urged against the employment of paid labour. The objection, also, which is derived from the expense of bringing land into cultivation, applies only to limited portions of the settled country, and besides, does not bear upon the question, whether labour can be profitably employed upon land already in a state of cultivation.

As for the low price of produce in autumn, when wages have to be paid, it is not an evil to those who have a little ready money to pay without being obliged to sell; but to persons without means, it is an evil which is not peculiar to this Province, but is shared by them in common with the poorer farmers in every country of Europe. It will disappear in the case of each individual, in proportion as by frugality and industry he can improve his own circumstances, and his consequent command of money.

It cannot be doubted, that if any means could be devised by which farmers without capital in money could be enabled to procure, for a time, such sums as the expense of employing labour make necessary to him, before the yearly crops are brought to market, and by means of which advances he could hold back till the prices of produce attained an average height—a great boon would be conferred upon this class of the agricultural community. Upon this point, a Committee of the King's County Central Agricultural Society, in answering my circular of queries, make the following remarks:—

"We are of opinion that farming can be profitably conducted in this Province, had farmers a small quantity of capital with which to pay labour, &c. Wages must be paid before the year's crop is converted into money, which prevents that employment of labour which is necessary to the proper management of the farm. We would call your attention to the necessity of introducing into your Report, a recommendation of the formation of an Agricultural Bank, or Banks, through the means of which farmers might be enabled to procure money to conduct their farms in a more profitable manner."*

I am fully aware of the gravity and importance of the suggestion made in the above extract. I know also how much the system of Banking in Scotland has in reality, or is generally believed to have promoted the improvement of that country, and the expenditure of money upon its soils. But I am too little acquainted with the practical operations of banking to venture a recommendation upon the subject. The difficulty appears to me to be in offering the banker a readily convertible security for his advances on the part of the farmer, who possesses only his piece of land and his growing crops, in the present state of the land market of the country. I suppose that upon good personal security, cash credits will at present be as readily given by the bankers in New Brunswick as in the mother country. I can only therefore commend the matter to the consideration of those who, with a desire to improve the agriculture of the Province, and the condition of the valuable body of men who are practically engaged in it, possess also a knowledge of monetary affairs, which my own proper pursuits have not led me to acquire.

* Answer of King's County Central Agricultural Society.

The only remaining reasons of those who *deny*—the low prices, the want of cash markets, and the competition of the United States—have been more or less fully discussed in the preceding and in the present Chapters of this Report. I only remark here therefore that they are evils with which those who *affirm* have had to contend as well as those who *deny*. They must have had them in view when they wrote the opinions I have quoted above. In the face of such evils they have made the experiment; they say they have succeeded, and they affirm that others who will act in the same way will succeed as well as themselves.

All this is very hopeful for the Province, and I am willing to adopt, and to encourage others to adopt this hopeful view of the subject—as hope in all undertakings is a main element of success.

I am bound, however, to add, that by far the largest number of those with whom I personally discussed this question, during my tour through the various parts of the Province, were of opinion that labour could not at present prices be profitably employed in cultivating the land. On calmly reviewing all I have heard and seen, however, I am inclined to believe, as one of the answers quoted above states, that comparatively few of those who hold this opinion have fairly tried the use of paid labour; with another, that the labourers to be had in this country are generally very inferior, very troublesome, and often very vexatious to the farmer—but that on the whole, when good labourers can be got, they may be profitably employed in rural operations.*

I would only observe in conclusion, that female labour, in nearly all parts of Europe, is employed in the lighter operations of husbandry. Especially in the dairy and turnip husbandry, the assistance of female helpers is considered indispensable to proper economy and success. The extension of the turnip culture, so desirable at present for many reasons, will afford light and easy field labour, upon which the females of the farmers, or of the farm labourers' families, might be usefully and profitably employed. Such labour in the field cannot surely be less becoming in a female, or less healthful, than labour in the cotton and weaving factories, to which so many of the females, both of this Province and of the New England States, now eagerly devote themselves.

*Since the above was written, I have received from my friend Mr. Brown, of Charlotte County, the following remarks, generally in accordance with my own conclusions, but giving another and very probable reason for the belief that paid labour is not profitable, which my own knowledge of the subject had not suggested to me:—"A very general opinion prevails in the "Province that hired labourers cannot be profitably employed "on a farm at the present rate of wages, and many reasons "have been urged as causes why this cannot be done. That "many who have made farming their principal business, have "often found themselves in straitened circumstances, is very "true. Such farmers, however, seldom keep accounts of pro- "fits or losses, receipts or expenditures. The whole family, "consisting in part of non-producing or unprofitable members, "is maintained in the style and manner customary in the coun- "try; the produce of the farm is sold or consumed just to meet "existing family wants and demands; and in this loose way "of managing, when the farmer finds himself behind hand, he "at once concludes that his business is unprofitable, and that "hired labour will not pay. Whereas, had he applied his la- "bour in a proper manner, and kept a fair debtor and creditor "account with the farm, he would probably have found at the "year's end a handsome profit on that very hired labour, and "that the whole of that profit had been expended in the support "of his family, or laid out in some other way."

Chapter XI.

I. *The Emigration from the Province.*
II. *The Wheat Midge, the Rust, and the Potato Disease.*
III. *The want of protection from Foreign competition.*
Their influence on the productiveness of the Province, and the profits of the Farmer.

I. The Emigration from the Province.

Another circumstance which has hitherto exercised an unfavourable influence upon the agricultural progress of the Province, and especially upon the opinion entertained as to its agricultural capabilities, is the tide of emigration from New Brunswick, which constantly sets more or less strongly towards the United States. During the last two or three years, this emigration has been more frequent and general than for some years previously, and has been supposed by some to indicate that no remunerative employment was to be found in the Province, and that its agricultural resources are insufficient to afford a comfortable livelihood to the family of an industrious settler. Such an impression as this, however unfounded, is productive of much evil. it not only disheartens those who remain on their farms, and makes them more ready to complain—a tendency which all farmers in all countries, and in the most favourable circumstances, exhibit in sufficient strength—but it makes them feel as if exertion would be hopeless, and that they had better quit too; while it deters others from settling upon the land, and devoting themselves to agricultural pursuits.

Few things in the United States strike a stranger so much as the apparently unsettled and restless character of its population. Every one is on the move, or is ready to desert his home by the offer of advantage in a more westerly region. Of this migratory tendency they are themselves aware. Thus the President of the New York State Agricultural Society, in his Annual Address delivered in January last, lamenting the bad effects of this instability of character among the farming population, remarks—

"We as a population have few, scarcely any, local attach- "ments. * * * The fact is so, and it is a defect in our "national character. How many among us but will, with a "slightly tempting offer, sell his homestead without remorse— "break up the cherished associations of his life—turn his back "upon the graves of his kindred and of his children—his birth "spot—the old hearthstone of his boyhood—his family altar— "even the brave old trees which have, life-long, waved their "branches over his childish sports, and shadowed his innocent "slumbers when weary of his play—all, all pass out of his "hands like a plaything of yesterday, unwept and unregretted, "for the fancied advantages of a fresh spot in a strange and a "newer land."*

It is a natural consequence of the comparatively recent settlement of this Province, that the attachment of its inhabitants to its soil should be much less strong than in old countries, to which families are bound by many connecting links—by the associations of many years—and by habits which are stronger than all associations; and that lighter inducements should incline them to leave it. But it can be no matter of reproach to its people, nor a just reason for depreciating the character of its soil, if this tendency to move be equally strong among the inhabitants of the older States of the Union, as the above extract implies, and as my own observation has satisfied me, is really the case. The tide of emigration sets westward from prosperous New England, and from rich New York, quite as strongly

*Transactions of the New York State Agricultural Society for 1848, p. 172.

as from the Province of New Brunswick. Why should it be a special lamentation then among the inhabitants of New Brunswick, or be held to throw a suspicion upon its agricultural capabilities? The Colony only partakes in what is common to the Continent of which it forms a part. The impulse which sent the fathers across the Atlantic, survives in their sons, and is every where urging them farther west, whither the main destiny of the Saxon race seems to point, and whither it tends.

But in addition to those who move in obedience to this secret tendency, it is alleged, truly I believe, that a large number of additional emigrants have, during the last two years, forsaken the Colony, whose departure many lament. It is interesting to inquire to what class these men belong, why they have left the Province, and what evil is likely to result from their emigration.

From the best information I have been able to gather, these additional emigrants appear to have been either—

1. Persons formerly engaged in lumbering, whom the failure of the trade during the past two years had deprived of their usual employment. Without immediate resource, and unwilling, often unfit, to commence a new mode of life, these persons have naturally gone elsewhere in quest of that kind of work they like or understand the best. They resemble in this respect the many thousands of the floating population known in England by the name of *navigators*, who are employed on our rail roads, and who shift from place to place, and from one Island to the other, or even to the Continent of Europe, or to America, when work fails them, rather than seek for employment at a less rude and unsettled occupation.

2. Or persons already deeply in debt, whose farms were mortgaged to their full value, and who having lost hope and heart here, were desirous of beginning the world anew in a new region. Such persons, also, we have at home, and their departure by emigration is considered to be a double good—to the country, that it should in this way be relieved of depressed and despairing families—and to the individuals themselves, that from new scenes and circumstances they may gather fresh energy, and be able, by renewed exertions, to rebuild their ruined fortunes.

3. Or persons who, though wholly devoted to farming, have applied little skill or steady industry to their calling, or have neglected that frugal economy which hard times require. To such farmers the partial failures of the corn and potato crops, during the last three years, have proved doubly severe; while their more prudent or more patient neighbours struggled through equal difficulties, they felt themselves forced to give way; and regarding the country they lived in as the special seat of inflictions, which were common to half a continent, they have gone to seek in a new land—what they never will find—a soil which will as generously open its fertile bosom to the unsteady and impatient as to the industrious and persevering.

4. Or lastly, persons who have friends or relations in one or other of the Western States, who have allured them thither by pictures always one sided and highly coloured—or whom the love of excitement and change inclines readily to give up a comfortable competence for the prospect of greater and more rapid, though more uncertain gains.

In the departure of such classes of men the Province has nothing either to regret or to fear—as if either its progress were about to be stayed, or as if, instead of continuing to go forward, its fortunes were now about to retrograde. Such parties are the weeding of the population, which will not only cease henceforth to shed an evil influence around them, but whose places will be occupied by more useful plants.

But the ordinary emigration of good men, whom mere restlessness moves in this as in other parts of America, it may be desirable to stay or to turn in another direction. The set of this tide in America, as in Europe, is generally from poorer, to what are known, or supposed to be, richer districts or countries. Ireland overflows into Great Britain; Switzerland into France; Piedmont into Lombardy, and the Italian plains; and the heaths and uplands of Germany into the rich towns and marshes of Holland. So the New Englander hears of the far West; the New Brunswicker of prosperous Boston and thriving Maine; the Nova Scotian of the marsh lands of Sackville, and the beauteous fertility of Sussex Vale, or the rich red soils of the Restigouche—and each forgets the surer prospects which might await him were he with patient industry to remain quietly at home.

In reference to this tendency to move to richer districts, it is of much consequence, I think, that the natural and comparative capabilities of their own soil should be made known to the inhabitants of this Province. That there are many inhospitable tracts of land within its borders, nobody who has travelled extensively along its roads will venture to deny. The Maps appended to this Report show both their situation and extent, as far as they are at present known. There are other tracts also, which from being fully settled, do not afford sufficient space for the natural expansion of the large families of sons, in whom the prolific parents of this Colony rejoice. But the previous pages of this Report have shewn that the Province includes great breadths of valuable land still untouched by the hand of man, over which the natural increase of the population may diffuse itself for many years to come, and upon which the labours of the industrious *mover* may be expended with the reasonable hope of a fair return.

It is of much consequence, I think, that the existence, the extent, and the exact localities of such provincial lands, should be made generally known, wherever natural increase or natural restlessness inclines the farming population of the Province to move; and that easy access to such lands, and a ready means of obtaining possession of them, should be provided by the Legislature of the Province. Thus good men might be kept at home, goods lands settled, and steady habits, and a love of the Province as their birth-place and the home of their fathers, encouraged and promoted.

II. The Wheat Midge, the Rust, and the Potato Disease.

Among the circumstances which have, during the last few years most seriously affected the produce of the Province, and the comfort of the farmers, the midge and rust which have attacked the wheat, and the disease by which the potato has been affected, have been exceedingly influential.

1. The *Wheat Midge* has been known for a great many years in Northern America, and has extended its ravages more or less severely over the two Canadas, and over many of the States of the American Union. It has already appeared in most of the Counties of New Brunswick, and in some districts has almost banished the wheat crop from the farmer's fields. It is generally distinguished by the name of the *Weevil*, an erroneous designation however, as that insect, of which at least

two species are known, attacks the perfect grain in the granaries of the corn factor. Indeed "the term Weevil is applied in New England (and New Brunswick) to at least six different kinds of insects, two of which are moths, two are flies, and two are beetles."* The little insect which has lately in a more especial manner ravaged the wheat crops of North America, is one of the two flies to which the name of weevil has been applied. The course and progress of its ravages in this Province are detailed in the following paragraphs, for which I am indebted to my fellow traveller, Mr. Brown:—

"In the year 1841 or 1842 the wheat in this Province began to be injured by destructive insects, having the appearance of very small yellow coloured maggots. Five or six of them were usually found within the outside covering of a single grain at the time when the crop was beginning to ripen. This single grain they entirely destroyed, without appearing to meddle with any of the other grains in the same ear. Hence in many ears a number of the grains escaped, and thus the quantity of produce was diminished without at all affecting the quality of what was left.

"This insect, by some improperly called the 'Hessian Fly,' and by others the 'Weevil,' appears to be the 'Wheat Midge,' it having been observed that swarms of small flies alight on the fields of wheat about the time that the milky substance is forming in the ear, and in the manner of the horse bot flies, impregnate the grains separately, and that the small maggots thus produced, are 'Midges' in the first stage of their existence.

"These insects first appeared in Sussex Vale, in King's County, and seem to have spread from that fertile district, as from a common centre, all over the Province. In 1844 they destroyed nearly all the wheat in the low grounds in that valley; on the high grounds in the vicinity their ravages were chiefly confined to the outsides of the fields, and to a comparatively small number of grains in each ear. Traces of them that year extended through the Parishes of Norton, Hampton, Upham, and Kingston, but did not cross the River St. John. In the other direction they extended to Butternut Ridge, through the Parish of Salisbury, and into Coverdale, in the County of Westmorland. During the two next years they spread all over the eastern part of the Province, and extended up the whole way through the Valley of the Saint John. In 1847 the sowing of wheat was in a great measure discontinued, and oats were generally substituted in its stead. The insects in some instances, appeared among the oats, but did no essential damage. Up to 1847 the counties of Charlotte, Northumberland, Gloucester and Restigouche had escaped, and good crops of wheat had been raised; in that year they began to appear in Charlotte and Northumberland. In 1848 what little wheat was sown, when it grew up, was so much injured by the rust, that their ravages could not so well be ascertained. This present year, 1849, some traces of them were found in the northern parts of the Province, but in all other places they have for the most part disappeared, and have left the wheat of this season almost entirely uninjured."

It would appear as if the peculiarity of the seasons during the last twelve months—the severe cold of the winter, and the heat and drought of the summer—had arrested for the time the ravages of this insect. It is to be hoped that its appearance in future years may have been prevented also. The only special precautions to which we can reasonably look for benefit, in addition to a general more skilful treatment of the land, are—

a. Late sowing, by which the development of the young grain is retarded until the season has passed at which the fly usually deposits its eggs.

b. The use of varieties of grain and seed brought from districts in which the insect has hitherto been unknown. The use of seed from affected localities has no doubt been one of the causes which has contributed to its rapid spread over this Continent; while on the other hand, the introduction of the variety called Black Sea wheat, is said to have in many places saved the wheat crop from the midge, and in many more from the rust.

c. The floating of the seed, immersing it and stirring it in water, so as to separate the light affected grains from the heavy and sound ones; and

d. The steeping of this heavier grain in salt and water, or in water containing in solution certain quantities of nitrate of soda, or saltpetre, or sulphate of copper, (blue vitriol,) and afterwards drying the steeped seed with slaked lime or burned gypsum.

2. The *Rust* is complained of as having been very destructive to the wheat crop in many parts of this Province, as well as in the Canadies and in the States. Along the shores of the Bay of Fundy, where fogs and mists prevail, especially in the latter periods of the plant's growth, when it is most subject to the attacks of this pest—upon the river islands, and along the intervals which skirt so many of the North American streams—in the neighbourhood of cedar swamps, and around the borders of boggy carriboo plains, and the edges of marshy lakes,—the rust most frequently appears, is most feared, and is most destructive. It is considered a worse foe to the farmer even than the midge, because while the insect destroys only the grain, the fungus injures or destroys both straw and grain together. The only known remedies or palliations are—

a. Early sowing, with the view of having the wheat nearly ripe before the season of the most fatal mists and fogs arrives.

b. General arterial drainage of swamps and marshes, and special thorough drainage of low and wet lands upon which water rests, or where mists in the summer evenings are prone to settle. Such draining, even on the margins of rivers, will often be found efficient; but I cannot from experience say how far the injurious action of mists from the Bay of Fundy would be mollified by such improvements. I can only infer, that as in all circumstances mists collect and settle most heavily and most frequently on the coldest, and comparatively wettest spots, the probability is that such treatment of the land along the Bay shores would be attended with like good effects.

c. The introduction of more hardy varieties of wheat, or such as from some peculiarity are less subject to be rusted. Of this kind is the Black Sea wheat, which has been found to escape where other varieties were almost destroyed.

This question of the wide failure of the wheat crop throughout North America, and the consequent gradual retrocession of the wheat exporting regions to the shores of the great western lakes, and to the western territories of the United States, is important enough to merit a much more lengthened discussion than I should be justified in introducing here. There is one phase of this question however which it is important to this Province briefly to consider. I shall draw my illustration of it from the Province of Lower Canada.

In this Province the produce of wheat, oats, Indian corn, and buckwheat and barley, was as follows, in each of the three years 1827, 1831, and 1844 respectively:—

	1827.	1831.	1844.
Wheat,	2,931,240	3,404,756	942,835
Oats,	2,341,529	3,142,874	7,238,753
Indian Corn,	383,150	339,633	141,008
Buckwheat,	121,397	106,050	374,809
Barley,	363,117	394,795	1,195,456

From this Table it will be seen—

* Mr. Harris' *Report on the Insects of Massachusetts injurious to vegetation.*

a. That from 1827 to 1831 a gradual increase of the wheat and oat crops took place, more in proportion in the oats than in the wheat however, while the Indian corn, buckwheat and barley were nearly stationary. That of buckwheat had even diminished one sixth. This implies that during those years the wheat and oat crops were the most profitable, but that some unpublished influence was already at work, inclining the French Canadians to turn their attention to oats, in comparison with wheat, somewhat more than formerly.

b. But that from 1831 to 1844 a remarkable revolution took place in the kind of cropping found most profitable in Lower Canada. The growth of oats increased from 3 to 7 millions of bushels, while that of wheat diminished from 34 to 9 hundred thousand bushels. The growth of Indian corn also underwent a diminution similar to that of wheat—falling off from 339 to 141 thousand bushels. In the same period, buckwheat and barley both increased to three times their former growth.

I am not aware of the publication of any agricultural statistics of the States of the Union which exhibit so interesting a series of changes as this. How much agricultural distress—how much disappointment and loss of crops—how many disheartened men and starving families—how many mortgages, sales, and transfers of property—must have preceded and accompanied so entire an alteration in the general direction of agricultural industry, and in the kinds of produce the growers were able to send into the market?

What is the cause of this great change? Is it the wheat midge and the rust which have almost driven the wheat plant from Canada? Is it the ruinous husbandry of the French Canadian which has so exhausted his land that it can no longer supply the wants of the wheat crop, and minister to its healthy growth? Or is it some unobserved alteration in the climate which has rendered the country unpropitious at once to the wheat, and to the Indian corn? Has the culture of wheat been expelled forever from the shores of the Saint Lawrence, or can it again be brought back?

I do not dwell on these topics, but I return to the wheat crop of New Brunswick.

In Mr. Wilkinson's concluding Report on the Railway between Saint John and Shediac, it is stated that, "the wheat crop was formerly certain and abundant in the valley of the Kennebeccasis. It was sufficient not merely for the producers, but a large surplus was annually sent to market, in appearance and quality surpassing the best descriptions imported. The soil now refuses to bring this crop to maturity, just as it is found to do in the older parts of the United States, where similar exhaustion has taken place."

It is certain that the banks of the Kennebeccasis do not now produce so much wheat as formerly, and that the raising of wheat has ceased to be certain or profitable in many of the older States of the American Union. So far the above extract is correct. But the crops of 1849 have shown that the soil of the Kennebeccasis still posseses the power of "bringing this crop to maturity." Whatever may be the case in lower Canada, therefore, (if the midge and the rust can be conquered,) there is still hope, when seasons favour and the husbandry is properly adapted to the soils, that New Brunswick may recover from the depression under which its wheat crop has during the last few years been labouring. What the agricultural adaptations are, which the present conditions of the soils demand, will be adverted to in a subsequent part of this Report.

3. The *Potato Disease* here, as elsewhere, has confessedly paralyzed the rural industry of many districts, greatly added to the other distresses, especially of the new settlers, and very much retarded the agricultural progress of the Province. But like the wheat midge and the rust, this infection has not been special to New Brunswick, among the American Provinces, and States; nor can it be considered a valid cause for dissatisfaction with his own homestead, or a reason why the New Brunswick farmer should forsake it, and flee to other countries in search of more fertile fields.

My own persuasion has long been, that this disease, in its most grievous form, would be only limited in its duration. Its severity has now, it is to be hoped, in a great measure been allayed, and the produce of the potato crop this year in New Brunswick seems to hold out the promise of a well-founded renewal of that confidence in this root, which has hitherto formed the basis of many of the farmer's most important plans and calculations.

In regard to these various maladies of the wheat and potato crops, it is to be observed, that the reason why they have so seriously affected New Brunswick, has been that so many of its inhabitants were new to the country, were still more or less steeped in their original poverty, and were unable therefore to endure the cruel vicissitudes of three or four successive years of visitation. —With the new hopes and new energies now awakening, better days are coming even to the poorest of these suffering settlers.

III. The want of protection from foreign competition.

I allude to this as an alleged cause of depression to New Brunswick agriculture, in consequence of my attention having been specially called to it by one or two of my numerous correspondents. Thus Mr. R. K. Gilbert, of Dorchester, writes—

"If our farmers had the supplying of our home markets with meats, bread stuffs, and home produce, without the prospect of competition with the United States, they could then calculate on increased sales, so as to pay labourers; but as it is now, they are paralyzed, and the circulating medium of the country is constantly drained, and sent abroad to purchase articles which can be produced at home; and our lumberers eat foreign produce, and are induced to do so by free trade legislation."

In regard to the imports of provisions, so far as I have been able to learn, they are owing—

1. *In the case of salt provisions*, to the fact that the beef and pork now raised in the Colony is of inferior quality, will scarcely bear the salt, and cannot compete in quality for shipping purposes with the beef and pork produced in certain parts of the United States. The remedy for this importation is to improve the quality of the fat stock which are intended for the purposes of curing.

2. *In the case of wheat*, to the failure of this grain in New Brunswick, owing to the attacks of the midge and rust. If these evils be overcome, enough of spring wheat at least may be grown to supply the home market.

3. *In the case of wheaten flour*, to the extravagant habits of the lumberers, who have been always accustomed to superfine flour, and to the prejudice among other parties against flour manufactured in the Provincial mills. The cure for this importation is to encourage more the consumption of oatmeal and of buckwheat, until the growth of home wheat increases again, and to patronize the Provincial mills in preference to those of Rochester and Oswego.

I do not advert to the political part of this question. But if the comparative productiveness of the soil of New Brunswick, as represented in a preceding part of

this Report (Tables IV. and V.) be correct, and if the rates of wages given in Tables XXXVIII and XXXIX are to be depended upon, this Province ought to be able to compete successfully with the United States farmers, and to drive them from its home markets. I believe that a little more skill, energy and determination among the landholders of this Province, combined with a more hopeful spirit, would render unnecessary the discussion even of restrictive fiscal regulations, the adoption of which could not fail to produce an effort very unfavourable to the North American Colonies, at a time when they are complaining so loudly of the illiberal tariff of the United States, and of the twenty per cent. duty levied by them on the agricultural productions of Canada, New Brunswick and Nova Scotia.

Of the various circumstances I have considered in the present and the preceding Chapters, several have no doubt had much influence in rendering the agricultural body less prosperous, the agricultural interest less influential, and the agricultural capabilities of the soil less appreciated in New Brunswick, than under more favourable conditions they would undoubtedly have been. But it will be seen that all these circumstances are independent of and extrinsic to the natural capabilities of the soil itself, and that they do not in reality determine or permanently interfere with the natural adaptation of the Province as a field for agricultural exertion.

The lumber trade may be put under proper restraints—the produce markets may be improved—labour may be profitably employed by all who desire to farm more largely—emigration from the Province, so far as it is to be regretted, may cease—the wheat midge, the rust, and the potato disease may all disappear: The circumstances of the farmer would no doubt be improved by such changes, but the natural capabilities of the soil and Province would be still intrinsically the same.

Now whilst these varied circumstances have been acting, as I have said, more or less injuriously upon the interests of the farmer, it has been very satisfactory to my own mind, and has disposed me perhaps to take upon the whole a less unfavourable view of their evil influences—that the unanimous reply to all my inquiries in every part of the Province has been '*that those who have confined themselves to their farming operations alone, and have been ordinarily skilful, industrious and prudent, have in no case failed to do well.*' In the midst, and in spite of these evils therefore, there is still hope for the Province—remove them in whole or in part, and the farmers of New Brunswick must do better than before.

Chapter XII.

The actual condition of the practical Agriculture of the Province.

A. Modes of Culture.

In a preceding Chapter I gave the result of a calculation as to the agricultural capabilities, or rather the population-supporting power of the 600,000 acres of land now supposed to be under culture, which has a closer relation to the actual condition of agriculture in New Brunswick.

It had been shown by a previous calculation, that to support the entire present population of the Colony, would require 631,875 acres of land of the average productive quality of 1½ tons of oats per acre. From this it might be inferred either that the land actually in cultivation is of superior quality, or that it is farmed in a superior manner, inasmuch as the population, with the exception of certain importations, is supported by the produce of 600,000 acres, supposed to be at present under culture.

But any thing which might be concluded in favour of the practical agriculture of the Province, from this kind of reasoning, is entirely reversed, when we add to the above data the additional fact, that the quantity of live stock in the Province, and annually available for food, adds about one third to its capabilities for supporting a human population. So that instead of 210,000, the cultivated land and stock of the Colony ought now to be supporting 280,000 people.

The inference from this is, that if any weight is to be given to our averages regarding the natural productiveness of its soils, the practical farming of New Brunswick is in a very backward condition: and that it really is so I have already remarked in introductory observations to this Report. I have at the same time observed that its condition is a natural one, arising out of the circumstances of the Colony, and of the early settlers, and ought not therefore to be a subject of severe reprobation. What these circumstances in the condition of the Colony, and of the settlers are, which have given the practical agriculture of the Province its present character, appears from the following description of the progress of a settler, for which I am indebted to Mr. Brown:—

"The soil of New Brunswick, in its natural state, is covered with a heavy growth of wood; the first process in farming it therefore is—

"To heave the dark old woods away."

"This, to one unacquainted with it, would appear a herculean task. It is however comparatively easy, and in its performance very little either of skill or capital is required.

"A piece of ground is first marked out in the forest, all the bushes and small trees are cut down as close to the ground as possible, the large trees are next cut down, the upper branches cut off, and sometimes the trunks are cut up into logs of fifteen or twenty feet long. The 'Chopping,' as it is called, is then left to dry for some time, and at noon in some dry warm day in August or September it is set on fire, the bushes and branches are commonly consumed, and the logs that are left are rolled, carried or hauled together into heaps, and burned up; the ashes are then spread, and the ground is ready to receive the seed. Land thus prepared will commonly produce wheat, barley, oats, rye, buckwheat, Indian corn, potatoes, or turnips.

"Wheat is sown among the stumps of the trees, and either harrowed with a triangular harrow made for the purpose, or hacked in by hand with a common hoe. Barley, oats, rye and buckwheat, are sown and covered in the same way. If the ground be intended for mowing or pasture, and not for a second crop, grass seeds are sown with the grain.

"Indian corn is planted by merely raising a portion of the soil about two or three inches deep, and throwing in five or six kernels at intervals of three feet.

"Potatoes are planted by laying three or four setts or cuttings in a place, at intervals of two and a half or three feet, and covering them over with a hoe. Turnips are sown broadcast on the ground. Abundant crops are raised in this simple way, the 'new land' in many parts of the Province being very productive. The crop of grass after the grain is often coarse and heavy—the clover frequently flat on the ground. Land planted with Indian corn, potatoes or turnips the first year, is sown with grain and grass seed the second year. In this way field is annually added to field, until frequently, the new settler who entered the forest with only his axe on his shoulder, and his pack of provisions on his back, is owner of a productive farm, living with his family in a comfortable house, with comparative plenty all around him.

"This success of the new settler depends a good deal not only on the quality and productiveness of the soil, but also upon the kind of wood with which it is covered. If the land is covered with hard wood, or with a growth where hard wood predominates, it will generally, if properly burnt and cleared, yield good first crops. The annual falling and rotting of the leaves seems to add much to the fertility of the soil. On the contrary, if the growth be pine, spruce, larch, fir, cedar, hemlock, or a mixture of these, the wood is not only more difficult

to burn and clear off, but the soil itself is commonly covered with a scurf, being an accumulation of unrotted remains of the leaves of those trees, which often resists the fire, and hinders the crop from growing. Such lands, although they may prove productive after they are ploughed, are not good for first crops, and by new settlers therefore as far as possible avoided.

"Within ten or twelve years after the trees are cut down, the most of the roots are so much decayed that many of the stumps are easily removed. There is however a difference in the liability of the roots to decay. The roots of the pine will last in the ground undecayed for an age. Those of the hemlock and the red birch, will sometimes remain sound for a quarter of a century; but ten years will so far enable the settler to clear them away, as to be able to put in the plough. During the first ten or twelve years therefore no plough is required, no manure needed to enrich the virgin soil. Little practical agricultural knowledge is wanted beyond the use of the axe, the hue, the scythe, and the ox goad. This kind of knowledge, with a great deal more peculiar to their position, the new settlers of the Province abundantly possess, still with all this they are very ill prepared to become skilful and successful farmers."

The consequences of this system of husbandry—thus in some measure imposed upon the new land farmer—upon the state of agriculture in the Province, are thus described by Mr. Brown:—

"Generally speaking, agriculture may therefore be yet considered as only in its infancy. The whole of the process of obtaining crops from new land is well understood: in the art of mowing, curing and securing the hay, they are perhaps not excelled by any people in the world; but beyond this, their practical knowledge does not generally extend. Many of them are very unskilful ploughmen, indeed many of the ploughs are clumsy, ill-constructed, and inefficient. Strong ploughs are required to break up the ground in the first place; but in old districts, where the most improved implements might be introduced and used to great advantage, it is no uncommon sight to see a man following the plough with only one handle, and that standing in an upright position, with a pin stuck through it to hold on by. In the practice of the accumulation, preservation, and application of manures, they are equally unskilful. Many of them have not the least idea of the rotation of crops, or the art of keeping the land in proper condition; on the contrary, it has been and still is the practice to take one crop of grain after another, year after year from the same ground, until the soil is completely worn out, or to mow the same field annually, sometimes for more than twenty years, or until the hay will not pay for mowing. There are exceptions to this exhausting system, but it is extensively practised throughout the Province."

But, as it is to be expected, the above remarks do not apply equally at the present moment to all parts of the Province. Differences of soil, skill and energy, and even diversities of blood, have gradually introduced marked differences also in the practice and produce of different districts. On this point also I introduce some observations handed to me by Mr. Brown, in preference to any of my own. They relate chiefly, it may be seen, to what may be called the externals of agriculture:—

"At the present time, the degree of skill manifested in farming, and the extent of progress made, are more owing to casual or accidental circumstances, than to the relative advantages or natural capabilities of the land in the different counties. Foremost in agricultural improvement stands the County of Northumberland, where thirty years ago it was confidently affirmed, that as soon as the pine timber disappeared the inhabitants would disappear also. In Newcastle, Douglastown, Chatham, and Napan, in particular, the appearance of the fields, the ploughing, the implements of husbandry, stock, buildings, fences, &c., all indicate an advancement in agricultural skill beyond what is to be found in any other part of the Province.

"In the year 1846 fifteen thousand bushels of wheat were ground in the Chatham Mills, which had been grown in that quarter. These improvements have chiefly arisen from the labour and skill of men bred to farming in the mother country and from the beneficial effect which their example has wrought in a portion of the native population.

"Next in advancement, and with a soil, capabilities and advantages superior to Northumberland, stands about equally the two Counties of Gloucester and Restigouche, flanked by the Bay of Chaleurs and the Restigouche River, and forty years ago deemed only a fit habitation for wild geese and beasts of prey. In agricultural skill and improvements the inhabitants are very little behind those of Northumberland; and the farm of Mr. Ferguson, at Bathurst, is one of the best managed in the Province. In these two counties, as well as in Northumberland, the success has undoubtedly arisen from the skill, experience and example of old country farmers. There are many settlements of Acadian French in the County of Gloucester, and although they occupy some of the finest lands, and have held them for a long time, they are very far behind their fellow subjects of British origin in agricultural improvement.

"The soil, capabilities and agricultural advancement in the Counties of Charlotte and Saint John, may be ranked together. The town plat of Saint Andrews, and several of the farms within that Parish, with several others in the other Parishes, are not much behind those of Newcastle and Douglastown. The same may be said of many farms in the vicinity of Saint John, and a few in the other parts of the County. The soil of these two Counties is not generally so well adapted to farming pursuits as that of the other Counties. In Charlotte the progress of improvement is mainly attributable to the exertions of the Agricultural Society. In agricultural advancement, as indicated by the ploughing, the implements of husbandry, stock, fences, buildings, &c., Carleton, King's and York may all be put in one class. Carleton has the best soil, King's the best market. The natural capabilities of the soil of both of these Counties are very great. The buildings and fences in the Counties of King's and York, taken together, are rather better than those in the County of Carleton. In all three are to be found excellent farms, well managed, and well cultivated and productive—in all three of them settlers pursuing the exhausting system of their fathers, and deeming every attempted improvement an innovation.

"The other five Counties, viz: Sunbury, Queen's, Kent, Westmorland and Albert, do not differ materially in their state of agricultural progress. Kent possesses extensive resources, and contains many good farms, and some good farmers; a considerable portion of the inhabitants are Acadian French, who, like their brethren in other parts of the Country are slow to adopt any of the modern improvements.

"Sunbury and Queen's possess very fine productive and extensive tracts of island and intervale land. This gives many of the inhabitants a decided advantage over those who in other places have no such privilege; and although there are in both these Counties many well conducted and well cultivated farms, the bulk of the people are more indebted for their success in farming to the natural fertility of the soil, and to the overflowing of the River Saint John, than to their own advancement in agricultural knowledge. Westmorland and Albert possess in like manner, very extensive and valuable marshes, made by the tides of the Bay of Fundy, which, besides other produce, yield annually vast quantities of hay. This enables the inhabitants to keep large herds of cattle, and flocks of sheep, by means of which they have obtained the name of being the richest farmers in the country. Unconnected with those marshes there are some good farms; but like the people of Sunbury and Queen's, though some of them possess beautiful and well cultivated farms, the greater part of them are more indebted to the natural fertility of the soil, and to the tide waters of the Bay of Fundy, for their wealth and success, than to their own skill and progress in agricultural improvement."

After these details of Mr. Brown, both as to the general mode of husbandry practised in the Colony, and as to the differences in skill and advancement which are visible in the practice and in the implements of the different Counties, in which I generally agree, I s ail add only a few brief observations on the more essential defects visible in the mode of managing and manuring the land, and in the kind of crops grown upon it in successive years.

1st. *The mode of managing and manuring the land.*

a. Shallow ploughing.—It is a consequence of the want of sufficient strength upon a farm that the work in general is slightly done. The ploughing especially is shallow, because it is in this way most quickly performed.

This observation is true of all countries.

In New Brunswick, according to Mr. Simonds of York County, the ploughing seldom exceeds three or four inches

From the observations of Mr. Brown it will be seen that the system of husbandry followed in the Province is essentially an exhausting system; but the practice of shallow ploughing makes the exhaustion of the surface more rapid and more complete.

In very many cases a deeper ploughing, by bringing up three or four inches of new soil, would renovate and restore the worn out surface, and put the farmer in a condition for beginning a new and less exhausting mode of culture, with the prospect of permanently retaining his land in good condition.

The trench plough is deserving the attention of Agricultural Societies, as applicable to the improvement of deep loams, according to this principle. In many other cases where it would be unsafe at once to bring up the under soil, because of its noxious qualities the use of the sub-soil plough, made light so as to follow in the furrow of the common plough, would be eminently beneficial both to the root and corn crops.

b. Autumn ploughing—From the experience I have had of the New Brunswick *Fall*, might be advantageously and perfectly performed to a much greater extent than at present is generally the case. This autumn ploughing not only lessens the labours of the ensuing spring, and thus forwards the work at a pressing season, but it buries again the manure of the potato fields, which the digging of the roots brings to the surface: it also exposes to the ameliorating action of the frost and of the winter air, the under soil which the plough has brought up.

c. Draining, by means of leading drains, called French drains in this Province, or by smaller drains, open or covered, is in many localities much required before deeper ploughing or sub-soiling can be advantageously or economically introduced.

The want of drainage, so universal over many of the old countries of Europe, cannot be a matter of special reproach to the farmers of the New World. It is rather to be recommended to them as a practice which all experience has shown to be productive of profit, wherever it has been tried, and which has also been found, and for this reason is, deserving of their special consideration. I shall have occasion to return to this point hereafter.

d. Imperfect cleaning of the land is another defect which the stranger remarks in New Brunswick farming. If double labour applied to the cleaning and preparation of one acre make it produce a double crop, it must not only be pleasanter to look upon than two acres half filled with weeds, but must on the whole be more economically farmed.

e. Neglect of shelter, I have already alluded to, as starving the fields and crops, as injurious to the stock, and as lessening the comfort of the farmer, and increasing his consumption of fuel.

f. Waste of manure—How this waste, originating at first in the ready growth of crops without manure, becomes a habit of the farmer and his children, as appears from the history of the prevailing mode of clearing and settling land which I have quoted from Mr. Brown.

This habit affects the practice of the farmer in two ways: *First*, by making him believe that manure may be safely wasted, and that it is the fault of the land if it does not produce good crops without manure; and, *Secondly*, after his mind is disabused by instruction or experience upon this point, and he has begun to return something to his land, by causing him to overlook or intentionally to pass by many opportunities of collecting or saving manuring substances, which though individually small in quantity, are large in the aggregate, and in the course of the year would add considerably to his means of enriching his fields—thus, his liquid manure runs to waste; the rains wash his dung heaps in his stable yard, and too often the lesser heaps, after they are laid out in the fields, and before they are ploughed in; his straw is not carefully saved and converted into manure; and animal and vegetable matters of various kinds, such as potato and turnip tops, the straw of buckwheat and Indian corn, the bones of his stock, the scouring of his ditches, &c., are made comparatively little use of, if not entirely neglected.

2d. *The kind of crops grown upon his land.* As regards his crops, the New Brunswick farmer follows a system which, even where regular manuring is practised, would injure the land, and which is therefore condemned and avoided by all good farmers; but which, combined with the waste of manures, and neglect of manuring, is certain to entail an early exhaustion.

I mention particularly—

a. The repeated successive crops of hay which are taken year after year from the same fields.

This custom, which is characteristic of these North American Provinces, and has been naturally fallen into in consequence of the necessity of providing a large supply of winter food for the stock, is very injurious to the land. This I believe is generally acknowledged; but the plea of necessity is urged as an excuse. It is not necessary however to cut hay off the same land year after year, without returning to it any manure; neither is it necessary to feed the stock altogether upon hay. To these points I have already adverted, when considering the effects of the New Brunswick winter upon stock, and the means of employing the winter season profitably to the farmer. I shall in a subsequent Chapter return to the subject of feeding.

I infer that the land of this Province, when fairly treated, must be prone to produce abundantly from the large returns which the farmers expect and actually rob the soil of, after once manuring. I visited the farm of a most intelligent gentleman, one of the best farmers of his neighbourhood, and I believe most desirous to improve, who informed me that after one dressing with mussel-mud from the sea bank, not far from his farm, he had taken one crop of potatoes or turnips, one of wheat, and eight successive crops of hay, and he seemed to think the land had used him ill in not having given him more. For the first four crops from such an application, a British rent paying farmer would have been thankful and content, and in taking these he would have been thought rather hard upon his land too.

b. The repeated succession of crops of grain is open to similar reprobation. In remote districts of Scotland and England the practice may be found still lingering, but it brings on ultimately a species of exhaustion which is exceedingly difficult and expensive to repair.

c. The want of a rotation of crops is evident wherever the above mentioned practices of taking successive hay or grain crops prevail. But generally throughout the Province the neglect of a proper and profitable rotation must be reckoned among the defects of the prevailing husbandry. Wherever the system of regular and copious manuring takes root as an indispensable means of melioration, a well considered rotation of crops must accompany it, if the full benefits of good manuring are to reward the farmer's labours.

d. The small extent to which green crops are cultivated may be mentioned as a special defect in the agri-

culture of a country, which by its climate and soils, seems so well adapted to their growth. I believe that recent experience is gradually spreading the conviction, that the cultivation of green crops is not only likely to succeed, but likely to be profitable also to the farmer and to the country in a variety of ways. To raise them the farmer must prepare, must save, and must husband his manures; he must feed his cattle better, and will thus be led to improve his breeds of stock; while the better harvests of grain he obtains after the green crops, will make these grain crops themselves more profitable, and therefore objects of more useful attention. The spread of green crops in England and Scotland has been invariably the prelude to agricultural improvement, and to an amelioration, not only in the practice but in the circumstances also of the farmers; and it can hardly fail to be followed by similar results in New Brunswick.

c. Allowing the grain to become too ripe before it is cut, is a minor defect which this country shares with many others, but which, nevertheless is productive every year of a large aggregate loss to the Province. This over-ripeness not only causes the grain to shed so much as at times to make oats and buckwheat sow themselves thick enough to give a second year's crop, but it renders the quality of wheat and other grain inferior, by thickening the husk, and causing it to give a smaller yield of flour. Experience has shown that in these, and other respects, it is the interest of the farmer to cut his grain a week at least before it is fully ripe.

Such are a few of the defects which, apart from implements and their use, of which Mr. Brown has spoken, strike the observing agriculturalist as he passes through the farming districts of New Brunswick, and examines the prevailing modes of cultivating and cropping the land. The main defects in the treatment and feeding of Stock I shall treat of in a separate Chapter.

Chapter XIII.

The actual condition of the practical Agriculture of the Province.—Continued.

B. The Cattle and Dairy Husbandry.

The experience of pratical men in all countries has led to the general persuasion that the possession of what are generally distinguished as improved breeds of stock, forms the most certain basis of profitable farming. And this is so. *First*, because such stock yield a large return of flesh meat, or of milk, from the same quantity of vegetable food; and, *second*, because by the manure they produce, they enable the same breadth of land to yield a heavier return of grain.

The quality of the stock in a country therefore must be a matter of much importance in connection with the profit and progress of its rural industry.

The traveller in New Brunswick, who possesses an eye for stock, will see much room for improvement in the starved and boney cattle which crop the often stinted pastures, and in the long-legged and long-snouted pigs which cross his path everywhere, from the valley of the Madawaska to the oyster banks of Shediac.

This defective quality in the live stock of the Province is very generally acknowledged by the practical farmers. I quote some of the opinions on the subject, which I have received in answer to my queries :—

In this County are to be found specimens of the very best breeds of cows, sheep, and pigs. In the same county are plenty of swine running at large—these long-snouted, long-legged, ravenous looking brutes,—and cows equalled only by those which the King of Egypt dreamed of three thousand years ago.—James Brown, M. P. P., Charlotte.

The stock of cattle is almost run out, the sheep and swine also require to be improved.—Joseph Walton, Charlotte.

It might be profitable to the farming interest of this district to improve the breed of cattle.—John Trenholm, Westmorland.

I may state at once that the present mode of culture, implements, and breeds of cattle, &c., are all defective.—Daniel M'Lauchlan, King's.

Too far behind the age.—Daniel S. Smith, Queen's.

The stock may be improved by judicious importation.—Allan Coster, Queen's.

The breeds of cattle here have ample room for improvement.—John Robertson, Queen's.

Improvement of stock much required in this district.—Elijah A. Perkins, Queen's.

There are some individuals who have taken some pride in improving their stock, while after a length of time others have been benefited thereby; but as a general thing, the present stock are principally natives with a mixture of foreign breeds.—Wm. Reed, Queen's.

The breeds of cattle are very inferior in quality.—William Pindar, Queen's.

The breed of our hogs and sheep, more than other sort of stock, needs improving.—Samuel Mahood, Queen's.

There are undoubtedly a great many defects in the breeds of cattle.—Charles H. Clowes, Sunbury.

I think that an improvement in the breed of horned cattle would be of great benefit to this settlement.—Jas. L. Pickett Carleton.

The breed of cattle for some years past has retrograded in consequence of the encouragement given to lumbering.—John Smith, Albert.

There has as yet been scarcely anything done to improve the breed of stock.—William Wallace, Albert.

But to be sensible of a defect is an important step towards the removal of it; and I have had the pleasure of seeing in nearly every district of the Province, both cattle and pigs of excellent quality, which have been either imported for the purpose of improving the existing breeds, or are the produce of such as have been imported. The following extracts add nothing to this statement, but they indicate a few of the special circumstances by which existing improvements have been brought about, and by which future ameliorations are likely to be promoted or retarded :—

The breed of domestic animals has been improved of late years, principally through the instrumentality of the Agricultural Societies; still there are many interior ones in the country.—James Brown, M. P. P., Charlotte.

There are in some situations improved breeds of stock from imported sires, though very few will go to any expense to benefit themselves by them, and when they do attempt it, it is not systematically carried out, from breeding in and in.—Andrew Aiton, King's.

As to cattle, we have much improved of late years, and through the exertions of the different Agricultural Societies, are constantly improving.—Thomas Beer, King's.

The breeds of cattle are generally a mixture of those imported, and vary in excellence according to the care bestowed upon them, and some have been made to excel the original stock.—C. L. Hatheway, Sunbury.

The late importation of an approved breed of stock has been found a very valuable acquisition to the farmer, and none more so than sheep, as every farmer requires them for food and clothing. The horned cattle have not been found so hardy through our long northern winter as our own native breed, neither have the cows in some instances been better milkers than our own; though the breed when crossed has been found very valuable, particularly for beef cattle, on account of their increased weight. There is one discount upon their value among the middling class of farmers, that is, they require one third more hay, and the oxen have not performed in proportion to their expense. The owners of large grass farms derive the most advantage from the English breed of horned cattle, and on that account the importation of them is very necessary.—William Wilmot, York.

There has as yet been scarcely anything done to improve the breeds of stock, but measures are being taken to improve the breed of cattle.—John Lewis, Albert.

The improvements which have taken place, it appears from the extracts, have been chiefly owing to the exertions of Agricultural Societies. Though, with the exception of that of Charlotte County, all the existing Societies are comparatively young, and are not so well supported by the rural communities as might be desired; yet, so far as I have myself seen, they are generally conducted by a few intelligent and zealous individuals, whose exertions it is very desirable to encourage, and who, it is to be hoped, will not abate in their endeavours for the welfare and improvement of the districts in which they respectively live.

Connected with the desire, and with the progress of improvement in this branch of husbandry, is the inquiry as to the breeds of cattle and sheep which it will be most profitable in this climate to introduce. To this point Mr. Wilmot has adverted in his remarks above given, and there can be no doubt whatever, that, as he says, the improved breeds introduced into the Province will scarcely rival in hardiness the stunted and scantily nurtured native stock. But for the profitable prosecution of stock husbandry, this degree of hardiness, which even our sturdy West Highlanders will scarcely reach, is by no means a necessary condition. If the better breeds are less hardy, the treatment and nurture must be adapted to their greater constitutional delicacy. Warm housing and more generous feeding in Scotland and England always accompany the introduction or purchase of more valuable animals; and it is because the farmer finds this change profitable, that the custom of buying and rearing better classes of live stock has in these countries so widely extended.

The experience of the New Brunswick improvers is in favour of the opinions: *First*, that by good treatment the more delicate English and Scotch breeds of cattle may be well kept during the winter of these northern Provinces; and, *second*, that a greater profit will be derived from them after allowing for the greater attention, and for the larger amount and better quality of the food they require, than for the native cattle kept in the ordinary way. Some have tried Ayrshires, some short-horns, some Herefords, and some Devons; and there is, as we find in every other country, a diversity of opinion as to which ought to be preferred by the Provincial farmer. From the opinions I have received on these points, I quote the following:—

We have a very mixed breed of cattle here, in which the Jersey bears a considerable proportion. We are now trying the Ayrshire breed, which promises to answer the circumstances of the country very well. The points to attain are dairy produce, ease of keeping through the winter, and to carry plenty of flesh on small bone. To bring about an improvement in these particulars, would be attended with the most beneficial results—first, as it enables the farmer to place his produce in the most disposable form, in a convenient manner, and at the least expense—and secondly, that a due attention to breed of cattle must necessarily be accompanied with an improved mode of cultivating the soil.—John Farmer, Charlotte.

The neat stock best adapted for this country is small in size. Hardy Canadian horses suit us best. Blood horses are useless.—Robert B. Chapman, Westmorland.

As to cattle, I think your attention may be profitably drawn to the Ayrshire breed for dairy cows and fattening cattle.—Robert Smyth, Queen's.

The best breeds of cattle for high land farms in this Province are I think the Devonshire and Ayrshire, they keep in better condition on common pasture than any other breed, and are good both for the dairy and fattening.—Edward Simonds, York.

Give the high bred cattle the same chance of feed and care in this Province as they do at home, and they will vie with them, (as far as Sheep, Pigs, Durhams, Devons, Herefords, or Ayrshires, are concerned). There is one point relative to horned cattle I wish to draw your attention to. No cattle will answer us that do not include milk and beef qualities combined in the one animal; and from personal knowledge, and from what I can read, no breed comes to this perfection but the short horned Durham. Take this year when hay is scarce, what are milk cattle worth to turn off as beef, and what will they bring at the low price? If they combine both qualities, butter is high and they will pay their feed, and turn off the young stock as prime beef; this still keeps up your dairy to its strength. Then on the other hand, when beef is high, butter is cheap, owing to the large quantity of inferior cattle kept for dairy purposes that cannot be turned off. By having cattle on hand that will yield both ways, you are sure to have animals of profit to meet any market. I know a breeder in the upper country, that got Herefords as beef; they turned in very well, but he says if he had his Durham grades, his dairy would be worth more at the high prices of butter, than the Herefords are worth altogether, and he thinks equal to them in beef. The Ayrshire stock is good for milk but lacks fat meat. When any other breeder of any kind of stock challenges the Durhams, they do not challenge them for both qualities, but only one, therefore you will have to keep two distinct breeds to compete with the short horned Durhams.—John H. Reid, York.

As for stock, I have had and seen some very good imported, and some that were bad; a change of stock is very essential to the farmer, but the same care and attention given to the natives of the climate will perhaps be as profitable.—Israel Parent, York.

Our cattle are of various breeds, a preference however is given to the Ayrshire breed, as being the best adapted to our climate and circumstances. The prevailing desire seems to be to improve the quality of our cattle, horses, &c., not as formerly by the aid of animals imported from the Mother Country or the United States, but by the exercise of greater care in rearing stock, and in selecting in infancy the very choicest specimens for that purpose.—James Caie, Northumberland.

A good breed of stock is highly essential, and the Ayrshires have been found the best adapted to this climate.—John Porter, Northumberland.

To the old stock of Alderneys that have been in the country since the conquest of Quebec, have been added the West Highland, Ayrshire, and short-horned Durham breeds, and also the Southdown, Cheviot, Leicester, and Teerwater sheep, all which have succeeded well.—Dugald Stewart, Restigouche.

Among the above opinions there is a preponderance in favour of the Ayrshires, as best suited to the climate of New Brunswick, and the circumstances of the Provincial farmer. There are some families of Ayrshires which are constitutionally adapted both for the dairy and for fattening purposes. The same is the case also with certain families of short-horns, so that the combination of qualities insisted upon by Mr. Reid, may with care be secured in either breed.

For early maturity and a speedy manufacture of beef for the butcher, my own experience has lain chiefly among the short-horns, and I am inclined to recommend this breed. At the same time, where the production of human food only is concerned, the *milk yielding* is a much more valuable and productive than the *beef-making* quality. A good cow will give from the same quantity of vegetable food a much larger amount of food for man, in the form of milk, than a fat beast in the form of beef, however early he may arrive at maturity. In respect to this quality the Ayrshire generally exceeds the short horn, so that where milk is wanted, experience is in favour of the former breed. For profitable use among small farmers, therefore, and as a manufacturer of food for his family, the Ayrshire is the more sure; for the beef raiser and rich manure maker, the short-horn is the more generally useful. It is at the same time true, that some strains of blood in either breed combine both of these qualities or kinds of fitness in the same animal.

Besides the methods of personal observation and of inquiries made of individual farmers, there is another way of arriving at the tolerable accurate opinion as to the condition of the stock and dairy husbandry of a

country. This is by ascertaining the average quantities of milk and other dairy produce yielded annually by a single cow; and the average weights of different kinds of stock, and the prices obtained for them when sold to the farmer or butcher.

The Tables (A. & B.) inserted on pages 37 and 38, are somewhat defective as respects these points, but they contain all the information I have been able to collect, and will not be without their use both as a record of the branch of husbandry to which they refer, and as a point of comparison for the future.

The *first* contains the prices obtained in the different Counties for cattle of various kinds, and for sheep. The gaps in this Table show how defective our present information upon this point is.

The *second* represents the average yield of butter and cheese from the milk of a single cow. It is a great defect in this Table that the average yield of milk is not also given.

1. *Remarks on the first Table*, (Prices obtained for Cattle, &c.)

On the Table exhibiting the prices of cattle I have few remarks to make. Of the qualities and prices of yoke oxen I have little experience, and I doubt the profit of using them in what may be called pure farming. For ploughing among stumps and stones, and for hauling timber in the woods, they may be superior to the less patient and quicker horse; but the farmer who owns an extent of cleared and stumped land, and attends only to his farming business, will not find time in the short seasons of New Brunswick to wait on the laggard footsteps of such oxen as I have seen at work in the Province. I have been told in the State of New York that oxen are to be had with a step nearly as quick as that of ordinary farm horses, and which will do nearly as much work. But such cattle, to do the work, require to be fed nearly as well as the horse, so that the alleged economy in feeding oxen, in comparison with horses, in this case disappears; and the advantage of feeding them into bad beef at the end of eight or nine years, and selling them for six or eight pounds to the butcher, is nearly all that remains to compensate for the loss of time which, with the best of them, the farmer must always experience. Where wages are complained of as being high, a very small amount of this time will exceed in value the price obtained, after a series of years, for the worn out ox.

The prices of fat cattle obtained from the butcher are unfortunately not accompanied in this Table by the weights of the beasts when sold, so that they do not alone indicate very satisfactorily their condition or quality. There are three circumstances however which, independent of observation, enable us to form a very correct estimate of the stock feeding, or fatting branch of husbandry in the Province. These are—

1st. The very wide limits within which the prices of beef and mutton range in the market of Saint John, as shewn by Table XVI. Two meat markets exist; one, the farmer's market, in which beef and mutton sell at 1d. to 2d. a pound; another, the butcher's market, in which it sells at 2d. to 5d. a pound.

2nd. That the best of the beef raised stands the salt badly, and that the greater part cannot be converted into palatable salt meat at all.

3rd. That salt beef for the shipping, and which will stand long voyages, is nearly all imported—and that much of the highest priced beef and mutton sold in Saint John is brought across the Bay of Fundy, from Digby and Annapolis.

These facts indicate very clearly, either that the mode of raising good beef and mutton is not understood, or if understood, that it is not generally practised.

The same state of things as now exists in New Brunswick, existed in Scotland, in connection with this branch of husbandry, about a hundred years ago. Cattle were killed at the end of summer and salted for winter use, because the stock of hay at the farmer's command was not sufficient to keep them through the winter months. The beef these cattle gave was so poor that it took the salt badly, was hard and indigestible, and kept badly in the brine. The best beef for the larger markets was brought from the English borders, and nearly all the salt provisions for sea voyages were obtained at English or foreign ports.

Now, the cattle are not killed in the autumn more than at other seasons. The present modes of husbandry provide winter food for all the stock the farmer finds it convenient to keep. When killed, the beef and mutton are now of excellent quality; large quantities of both are forwarded, all the year through, to the southern markets, and it can be cured for the naval service, or for any other use.

This improvement is important in itself, and as it regards the comfort of those who are to consume the butcher meat now raised; but to the agriculturist it is of greater interest to be assured that the new methods are more profitable than the old—that the system of feeding three sheep or cattle well, leaves more money in the farmer's pocket at the end of the year, than that of half starving six on the same food—and that the produce of his milch cows and the yield of his corn fields are augmented in an equally profitable degree.

The main alterations, as it appears to me, that the New Brunswick farmer has to make, in order to advance towards the more remunerative system of the modern Scottish farmer, in his stock husbandry, are the following: To give—

1st. *Greater care to the selection and raising of the existing stock of the country—or to an improvement of the stock by judicious crossing with imported sires of purer breeds.* Either of these methods will be followed in the course of a few years by a marked improvement in the character of the cattle, and of their fitness either for dairy or for feeding purposes.

2d. *Greater attention to the bodily comfort of the cattle during the winter.* I have already alluded to the badly sheltered cow houses, with open crevices and apertures that admit cold winds and currents, to which the cattle are exposed during the cold winters of this climate. These are not only a cause of discomfort to the stock, but of a waste of fodder to the farmer. A warm, but well ventilated byre, or cow house, will make the same quantity of food go further, or if consumed by the same number of beasts, will keep them in better condition.

3d. *To adopt a more generous and profitable system of feeding.* To effect this important alteration, several changes in existing practices ought to be more or less generally introduced.

a. The number of stock kept ought always to be somewhat less than the farmer can abundantly feed. In this Province, as in Scotland formerly, the opposite rule has very generally prevailed. The number of cattle kept over winter has usually been greater than the fodder in the farmer's barn could comfortably sustain. This is a false economy, and profitable farming requires that it should be abandoned.

b. The cultivation of the turnip succeeds admirably in New Brunswick. In temperate and well ventilated pits or cellars, it is readily kept through the winter. An acre of turnips of good quality and weight will generally go much further in sustaining or adding to the weight of an animal than the same acre under hay. Especially this is the case when mixed food—of turnips and hay, or chopped straw and tail or light corn—is given to the stock. Without cultivating more land therefore—at least as regards the same surface of land which now yields the winter's hay—a sufficient supply of food in the form of turnips may be raised to enable the farmer to adopt the more generous system of feeding I recommend; and instead of diminishing the number of stock, the general introduction of green crops, as winter food, will enable the Province both to enlarge the existing numbers upon every farm, and to feed them more abundantly also.

c. The use of what is called prepared food, is also a means of improvement which deserves the serious consideration of the New Brunswick farmer. The oily seeds, such as linseed, are a most valuable food for animals, and an admixture of them with the other fodder, is not only beneficial in itself, but enables the farmer also to use up easily and profitably the straw of his grain crops in sustaining his cattle, and to convert it at the same time into more profitable manure.

In the present condition of agriculture in New Brunswick, I do not recommend the Provincial farmer to purchase linseed as the British farmer does for the purposes of feeding or fattening his stock, and for the production of a rich manure for his corn fields. But the growth of a small proportion of flax upon his farm, besides yielding the fibre upon which in the winter season the members of his household may employ their leisure hours—will furnish him with a quantity of seed which will greatly benefit his stock, and which will enable him to adopt with profit the more artificial system of feeding to which I am now referring. To give an idea of this method, and of the practical results obtained from the adoption of it, I make the following extracts from my published Lectures on Agricultural Chemistry:—

"The method adopted is to crush the linseed, to boil it by a steam heat for three hours with two gallons of water to each pound of the seed, and then to mix the hot liquid with chopped straw and tail corn in the following proportions—

Linseed, ...	2lbs.
Cut straw, ...	10lbs.
Ground corn, ...	5lbs.

This quantity is given to each full-grown beast per day in two messes. The liquid is poured upon the mixed corn and straw on the floor of the boiling house, is turned over three times at intervals, and at the end of two hours is given to the cattle. They have two hot messes a day, and are fed punctually at the same hour.

The times of feeding are, turnips at 6 in the morning, prepared food at 10, turnips at 1, and prepared food again at 4 in the afternoon. The allowance of turnips is 60lbs. of Swedes per day, or 75lbs. of Hybrids, or 112 of Globes.

Under this system the cattle thrive remarkably, are still and quiet, lie down the greater part of the day, and though they cause a large outlay at first in the purchase of linseed, they amply repay it in the value of the dung, and in the higher price they return for the turnips and for the tail corn, than could be obtained in any other manner.

Turnips when employed alone are by practical men in the southern part of the Island seldom valued at more than $5 to $8 a ton for feeding sheep or cattle. But by feeding his sheep in sheds, and pulling the turnips for them, Mr. Huxtable finds that a week's food, consisting of—

119lbs. of Swedes
7 pints of Oats
7 lbs. of Oat straw } give 2lbs. 4oz. of Mutton, (dead weight,)

from which he calculates, at the average price of mutton, that his turnips used in this way pay him $17 6d. a ton, exclusive of the value of the dung. He states also that similar results by his methods may be always obtained.

The admixture of corn therefore, and feeding under cover, seem in his hands to have largely added to the value possessed by the turnip when used alone and eaten off in the field."—(*Lec.* p. 1051-2.)

It is not necessary, in adopting this method, that the precise details above given should be followed out—that the same quantity or proportions of the several kinds of food should be employed—or that the crushed linseed should be boiled by a steam heat. The principle of adding turnips to the hay usually given to the cattle and sheep, and to both a certain quantity of linseed boiled long enough to form a jelly when it cools, mixed up with chopped straw, and brought to the stock either cold or hot,—this is what the farmer may in nearly all circumstances profitably adopt.

The use of oil cake—the cake which remains after the linseed is crushed and deprived of its oil in the mill—is attended by benefits to the stock, similar in kind to those which follow the use of the linseed itself. For this purpose it is employed to a very large extent in England. It fattens fast, it enriches the manure, it causes the milk to yield more butter, and it only requires to be broken in small pieces before it is given to the oxen, to the milch cows, or to the sheep. It is not so rich in oil however as the original seed, and cannot be made into a jelly for the purpose of mixing with the chopped straw, rendering it thus palatable to the cattle, and converting it more easily into manure. Nevertheless, should flaxseed ever be grown in the Province, or imported in sufficient quantity to keep an oil mill in operation for the manufacture of oil for Provincial use, the oil cake produced might be advantageously employed by the raiser of beef or butter.

From what I have already said, it will be gathered that the use of linseed will promote not only the growth of young stock and of calves which are to be reared, and the fattening of full grown beasts, and of sheep, but will add also to the produce of dairy stock in milk, in butter, and in cheese.

2. *Remarks on the second Table.* (yield of Butter, &c.)

In regard to this Table, it is to be regretted that the annual produce of milk is not included in the returns. It appears however, that when the cows are kept altogether for dairy purposes, the annual produce of cheese or butter does not exceed, from a single cow, 120 pounds of butter or 160 pounds of cheese; while the average of all the returns is, 90 pounds of butter and 140 pounds of cheese. The average weekly yield in summer is greater, amounting, as the Table shows, to about 6 pounds of butter and 11 pounds of cheese. Were the cattle properly fed therefore, they ought to afford a much larger annual supply of dairy products. The winter feed in the Province has hitherto been too scanty and too little adapted to the production of milk, so that after supplying the wants of the farmer's family little has usually remained over for the manufacture of butter or cheese. Coming as they are said to do in a great measure from the old Alderney and Jersey stock, the now native breeds ought to retain still good milking propensities.

The following Table exhibits the quantity of milk actually yielded by a single cow in a year in the different Countries of Europe, and the quantities of whole milk cheese and butter which the several quantities of milk ought to yield:—

Country.	Actual produce in a year.		These ought to yield of	
	Pounds.	Imperial gal. of 10 pounds.	Butter.	Or whole Milk Cheese.
Holstein, average,	2800	280	140 lbs.	280 lbs.
Holstein, better land,	4380	438	219	438
Hamburg, low land,	7800	780	390	780
Hamburg, high land,	3080	308	154	308
Holland,	4200	420	210	420
Belgium,	4900	490	245	490
Prussia,	3272	327	163	327
Saxony,	3780	378	189	378
Switzerland,	4560	456	228	456
Wurtemberg,	3844	384	192	384
England, good cows,	6 to 8000	600 to 800	300 to 400	600 to 800

The last two columns are calculated on the results of English and Scotch experience—that an imperial gallon of milk yields, on an average, one pound of whole milk cheese, or half a pound of butter. They show what the dairy produce of the cattle of New Brunswick might become, and what the farmers of the country ought at least to aim at.

Cheese.—The average yield of whole milk cheese in Cheshire is about 3 cwt. (336 lbs.) a year. This it will be seen is greatly less than the 600 or 800 pounds which the entire milk of good cows ought to be able to yield. But this is accounted for by the making of butter to a considerable extent instead of cheese, during the cooler part of the year. In the State of New York in 1844 about a million of cows was milked, and the average yield of cheese was estimated at 110, and of butter 79½ pounds for each cow. The former weight is 30, and the latter exactly 10lbs. less than the average yield of cheese and butter in New Brunswick, according to the Table on page 97. In this branch of husbandry therefore, as in the production of grain, New Brunswick as a whole, notwithstanding its obvious deficiencies, is still not so far behind as New York on the whole.

There are however evidences of improvement, and of a desire to push the dairy husbandry in New York, which are worthy of imitation in New Brunswick. Among the returns contained in the Table representing the yield of butter and cheese in this Province, there is only one—that of Mr. John Smith of Westmorland—which estimates the annual yield of dairy produce (cheese I suppose,) as sometimes amounting to 224 lbs. (2 cwt.) from a single cow. But according to a paper by Mr. Benjamin Johnson, then President and now Secretary of the New York State Agricultural Society, contained in the transactions of that body for 1846, the average produce of cheese for the whole County of Herkimer, in that State, amounts to 226 lbs. —for the Town of Fairfield, in that County, 350 lbs.— and in some single dairies in the same County even to 680 lbs. per cow. The annual average in the dairy of Mr. Alonzo L. Fish, for example, was for three successive years 680 lbs. per cow, and in one of these years 714 lbs. of cheese from each cow.*

Butter.—In the transactions of the same Society for 1848, an account is given of the dairy of Mr. Holbert, in Chemung County, which consists of forty cows, from the milk of which he made 6500 lbs. of butter in 1847 —being an average of 160 lbs. from each cow. This is greatly above the average of 79½ lbs. obtained for the whole State in 1844. Still it is very far from the weight which a good cow, well treated, ought to yield, as the Table above inserted shows.

'In Ayrshire it is common for a good cow to give 260 lbs. of butter, and cows of superior quality yield still larger returns.—Very much of his profit indeed depends upon the selection of the dairyman's stock, as some cows will consume far more food than the value of the milk they yield, while others will pay for their keep, and leave a large profit besides. This fact is brought out very strikingly by a statement of Mr. Holbert, whose produce of butter I have quoted, "*that one of his best cows will make as much butter as three of his poorest, giving the same quantity of milk;*" and "*that one hundred pounds of milk drawn from his best cows will yield one pound more butter than one hundred pounds taken from the whole herd.*"*

The quality of her milk, therefore, is of as much consequence as its quantity, in judging of the dairy qualities of a cow. But this quality depends much upon the feeding, in regard to which, as well as to the quality of the stock, there is great room for improvement in New Brunswick. To this point I shall return.

Chapter XIV.

Suggestions in regard to improvements in the practical Agriculture and the general productiveness of the several parts of the Province, which may be promoted by Legislative interference.

From what has been stated in various parts of this Report, and especially in the two preceding chapters, it will be understood that the Agriculture of New Brunswick is far from being in that state of advancement, which the progress of knowledge makes attainable and the interests of the Province require.

But improvements in the existing condition of agricultural practice are not to be attained unless two circumstances coexist—unless the farmers of the country know how to make these improvements, and are satisfied also that by making them, more profit will be derived from their land than it is found to yield them at present.

Now to improve any art, it is necessary to apply more knowledge to the practice of it. That a community therefore may know how to make improvements, it is necessary that the further knowledge be imparted to them. The profit of proposed improvements can only be rightly judged of, after a knowledge has been acquired of the way in which they can be most economically carried out, and the principles on which they depend. This knowledge therefore it is the interest of the Province to place within the reach of all its farmers.

The easiest and surest way of leavening the whole mass of the community with a fair share of this higher knowledge, is to make provision for its introduction among the ordinary branches of school education usually taught to the rural classes.

It is unnecessary to enter into details upon this subject, but I take the liberty to suggest—

1st. *The introduction of a certain amount of agricultural instruction into the elementary and other Schools of the Province.* This should be done at an early period, but at the same time gradually, and as the teachers become qualified to give the required instruction.

This instruction given in the elementary Schools ought to be upon the principles of agriculture, rather than upon the mode of performing the manual operations of the farm, as some have recommended, upon a piece of land attached to the School. The latter would involve more expense in the outset in providing the materials for teaching, more expenditure of time in teaching the new branch, a greater interference consequently with the ordinary branches of school instruction; and besides, a knowledge of the practical operations of farming on the part of the teacher, which it would be difficult for him easily to acquire, and which it would be attended with risk to him in a rural district to attempt to practise. Such an appropriation and cultivation of a School farm or garden, also implies the constant residence of a settled teacher to look after it; a condition which in the present state of the Provincial Schools exists only in a comparatively small number of localities.

* Mr. Johnson informs me there are now about 80 dairies in Herkimer County, in which the average produce of cheese from each cow reaches 500 lbs. Feeding them with the whey of their own milk adds 100 lbs. to the yield of cheese.

* Transactions of the New York State Agricultural Society for 1848, p. 273.

2d. But in the larger Schools—the Grammar Schools of the County Towns—to which settled teachers of a higher order are attached, such practical teaching upon a small farm, where it suited the taste, knowledge and habits of the master, might be given in addition to that instruction in the principles of agriculture of which I have already spoken. This however ought not to be compulsory, but should be left to the teacher himself or to the trustees of the School to regulate and determine, the Assembly giving such encouragement in the shape of additional salary or otherwise, as may seem to them expedient.

3d. But it is desirable nevertheless—necessary I ought perhaps to say—that practical agriculture should be taught in the Province on a scale sufficiently large to embrace all the ordinary operations of the Provincial farmer, and under the direction of a person of acknowledged practical skill, in whom the public would have confidence, and whose opinions and practice the pupils might safely adopt and follow.

Two such School Farms might be established, beneficially for this large Province, in districts remote from each other, where the soils are of unlike qualities, and where the establishment of them would be attended with comparatively little expense. In connection with these farms a more extended course of instruction should be given in the various branches of science which are related to agriculture.

At Sackville an Academy exists, well situated, well arranged, well provided with instructed teachers, established by one public spirited individual, and apparently well conducted by those who preside over it. To this School an agricultural department might easily be attached. If a farm were connected with it, and a skilful practical person provided to manage this farm and to give practical instruction to the pupils, the present staff of teachers, and the apparatus and other instruments of tuition already provided for that institution, would in a great measure meet the necessities of this new department. The purely agricultural training would interfere little with the branches of education already taught in this Academy to the ordinary pupils. For the agricultural pupils a little of what is usually given might be left out, to admit of the introduction of purely professional matter, and of that practical instruction which would require their presence upon the farm. But the adjustment of such details will readily suggest itself to persons accustomed to tuition.

The City of Fredericton I would suggest as another locality, chiefly because of the facilities which there exist, both for procuring land and for obtaining a well appointed staff of teachers at a comparatively moderate expense to the Province. There the principal Agricultural School and Farm of the Province might be fixed, immediately under the eye and direction of the Provincial authorities, and open to the yearly inspection of the assembled Legislative bodies. It cannot be doubted that if a Farm and School were well conducted in this locality, it would exercise over the numerous visitors from other parts of the Province an influence very salutary to its general agricultural interests

From what I have learned regarding the existing position of the College of Fredericton in general estimation at the present time, it would I think be a hindrance in the way of the prosperity of the Agricultural School, to attach it too closely at first as a separate department to this College. With its own organization and board of management, with a staff of officers selected from the various scholastic institutions in the City, and with its own cheaply erected farm buildings, and boarding house if necessary, measures would be more readily taken for efficiently carrying out its own special objects, than if it were in any way trammelled by the rules or customs of an already existing School, literary or scientific.

I do not enter into details as to the course of instruction which ought to be followed in these institutions—or the number of separate teachers or professors it would be necessary to appoint—I only mention as points which appear to me worthy of consideration in regard to the whole subject—

First. That the elementary Schools which reach the masses, which teach the children at little expense, and without taking them from home or interfering materially with their domestic comforts, and which through the children teach the fathers, ought to be objects of special solicitude in reference to agricultural teaching.

Second. That the training of future School masters to teach this branch, is of great importance to the Province. The existence of a Normal School in Fredericton, is one of the circumstances which renders the locality desirable for an Agricultural School. Part of the special instruction given in this latter School might be made to enter into the course of study prescribed to the pupils of the former, and thus, without additional expense to the Province, prepare them for being more extensively useful in the rural districts in which they may afterwards be located.

Third. In establishing the School at Fredericton, provision should be made at first only for a small number of special pupils, who should board upon the farm. Pupils might be allowed to beard elsewhere if they preferred it, and yet avail themselves of all the advantages of the institution at a moderate cost. An enlargement of the boarding establishment might take place as it came to be required.

Fourth. In determining the number of teachers to be engaged, it ought to be borne in mind as a principle not lightly to be neglected—in reference to the reputation and good working of an institution—that the more numerous the branches a man has to teach, the less likely he is to know them accurately, to teach them well, or to be respected in teaching them. The more therefore circumstances admit of the labours of tuition being divided, the more perfectly and usefully they are likely to be performed.

I have not entered into any discussion of the propriety of introducing such instruction into the Schools of the Province, as a means of advancing the general prosperity of the whole country, and the individual profits of the farmers who till it; nor of the cordial support which such a proposal ought to receive from the agricultural body as a means of elevating them intellectually as a class, and of placing them in that position in the eyes of other professions which they have not hitherto occupied. These points have of late years been so much discussed that I could not hope to introduce any thing regarding them into the pages of this Report which should be more convincing than what has been often elsewhere said by others as well as by myself.

I may remark however that in a country which, as it becomes cleared, is destined, according to present appearances, to become more and more dependent upon agriculture, a knowledge of the principles upon which all sound and profitable cultivation depends, cannot be a useless acquirement to any class of society. Especially to the clergyman and the physician, whose professions and superior general knowledge make them the natural advisers of the people among whom they are placed, such knowledge would be a great acquisition, both as respects themselves individually, and as respects the community at large. They possess many opportunities of conveying instruction to willing ears, even beyond the proper sphere of their own professions, and in benefiting the state by taking such opportunities for diffusing agricultural information, they would also be increasing their own influence, and elevating their position in the eyes of a rural population.

2nd. Next in importance to the Province, I consider a survey of the coal fields of New Brunswick, in reference to its *economical* extent and value. I have in a preceding chapter shown how the real workable value of the coal fields has an important relation to the agricultural capabilities of the Province, and to the measures which may hereafter be taken by individuals, or by the Legislature, for the purpose of preserving to each locality a sufficient and readily accessible supply of winter fuel. Every pound spent at this early period may, in reference to this one point only, save hundreds to the future occupiers of the country, while it may also to the present generation save thousands which might be unprofitably spent in borings and sinkings in search of coal.

In selecting a person for this duty, familiarity with the general economies of coal fields and coal workings, combined with a knowledge of theoretical Geology and a special personal knowledge of the Geology of North America, above all with a sober judgment which will exclude and reject all conjectures, and will gravely weigh the consequences of creating unfounded expectations—these are the qualifications which would be sought for, and if possible obtained, with a view to the good of the Province, without reference either to personal feeling and favour, or to party considerations.

3rd. I have had occasion to observe in many parts of the Province, that the best portions of the land which are made accessible by means of the existing roads, are held by persons who have no intention to cultivate or improve them. However much it may be for the advantage of individuals to invest money in land, which though it yield no present revenue, is daily rising in value as the population increases and settlements extend, it cannot be for the general welfare of the Province that such should be the case. Two things therefore deserve the consideration of the Legislature: First, whether in all future sales it should not be prescribed as a condition, that within a stated period a certain proportion of the land sold should be cultivated or improved; and second, whether some means might not be devised, consistent with the principles of equity, by which the owners of unimproved or wild lands

might be stimulated to improve them, or to dispose of them to those who would. The rights of private property must of course be respected, but the general interests of the country are paramount, and its steady progress ought not to be hindered with the view of promoting or securing individual gain.

In Canada West, where the evils of large unimproved grants were more felt even than in New Brunswick. they have been met by the imposition of a tax, fixed in amount, and apportioned by the inhabitants of the municipal district in which the land lies, and applied by them, I believe, to the general support of schools, roads, &c., for which municipal taxes are usually levied. It has been proposed to levy a similar tax in New Brunswick; and though few can reasonably object to the principle of taxing such property for the good of the state, yet objection may fairly be taken to the purpose for which the money when levied ought to be applied.

It is the imposition of the tax which is to create the stimulus, and to produce the good result wished for. The way in which the money so raised is to be applied, if not inconsistent with the general welfare, is of less consequence to the Province. In order to secure the levying of the tax therefore, the purpose to which the proceeds are to be applied might fairly be made a matter of compromise with the opponents of the measure.

It has been proposed to apply the produce of the tax to the support of the common schools of the district in which it is levied, or to the making and upholding the bye roads of the neighbourhood. To either of these most important objects it might fairly, equitably and beneficially be applied. But there is another object to which I am anxious to draw the attention of your Excellency, as deserving of the serious attention of the Provincial authorities, and as one upon which the proceeds of such a tax might be expended, with a view at once to the general welfare of the Province, the health and prosperity of the localities in which the unimproved land is situated, and the individual interests of those to whom it rightfully belongs.

4th. Like all countries situated in northern latitudes, and covered with natural forests, New Brunswick has its share of swamps, morasses, beaver dams, boggy lakes, sluggish streams, rivulets arrested by windfalls, and hollows void of natural outlets, in which the rains and melted snows linger till the summer sun sucks them up from the unproductive soil. Every one knows the influence of such swampy and moist places upon the general climate of a neighbourhood—how they chill the air, produce fogs and mists, and more frequent rains,—and how they are not only useless for agricultural purposes themselves, but subject to early frosts and to rust and mildew the drier lands which lie around them.

But New Brunswick possesses another physical character which subjects it more extensively than other countries to this species of agricultural evil. Its surface is generally of little elevation, and it possesses extensive flats on which the rain water lodges, or from which it runs off with difficulty, slowly, and after long delay.

The injurious consequences of this stagnant condition of the surface water are not so great in this Province as in some other parts of North America. The singular healthiness of the climate prevents it from producing the fevers and agues and affections of the lungs to which it gives rise in Great Britain, and in parts of the American Continent which lie more towards the west. But the land upon these flat districts is made difficult, or altogether incapable, of cultivation—the crops of the adjoining more elevated, sloping and drier lands are injuriously affected—and the climate is rendered colder, moister, and more subject to fogs and mists than it would otherwise be.

It is true, that if the country were once generally cleared, the increased evaporation from the surface which would necessarily ensue, would render many tracts of land dry, which are now incapable of profitable tillage in consequence of superabundant water. But there are many others, already almost bare of wood, on which rains linger and mists settle down, capable in some cases of being themselves reclaimed, in others of being so dried by arterial drainage as singularly to benefit the neighbourhood in which they lie.

In the coloured Map attached to this Report, in which the qualities of the soils of the Province are represented, spots shaded with Indian ink will be here and there observed. These dark spots represent flat bogs, swamps, and carriboo plains, more or less destitute of wood, full of water, and the sources of much evil to the regions in which they lie. These dark spots might have been made more numerous had the information at my command been precise enough to have enabled me to fix their localities.

In the course of my own tour through the Province, I have among other places personally noted the carriboo plain north of Little Tracady—the swamps in Sussex Vale and on the North River—the elevated swamps on the Saint Andrews road, through which the Dead Water Brook flows—the deep, narrow, swampy vallies of the County Charlotte, and those which intersect the Harvey Settlement—the pine swamps behind the Harvey Settlement—and others, I might name. Those who live near the head waters of the feeders of the Saint John and Miramichi Rivers are familiar with marshes and bogs like those which lie at the head of the Penniack branch of the Naswaak, and about the head waters of the Washademoak and Cocagne Rivers. The drainage of such tracts would be a benefit of no small value to the localities in which they lie. It would greatly improve lands already granted—would render worthless land saleable and fit for settlement—and would gradually prepare the way for those further improvements to which I purpose to advert in the two succeeding Chapters.

I will mention another locality somewhat different in its character from the absolute swamps of which I have above chiefly spoken, in which, as it appears to me, the introduction of arterial drainage would be of manifest advantage. The district of New Bandon, which stretches along the southern shore of the Bay de Chaleurs, comprehends towards its eastern part a considerable extent of rich red land, the quality of which, in my judgment, is such as in favourable circumstances to be capable of producing as large crops as any other soil I have seen in the Province. But it is flat and wet. Though presenting to the sea a bold cliff of from 50 to 120 feet, the rains and melted snows spread themselves over the flat table land, and for want of a sufficient natural slope, remains in the soil, and either render it unremunerative, difficult, and inhospitable to the settler, or cause it to be covered with a stunted forest of worthless softwood timber.

The traveller who proceeds eastward towards Grand Aunce, and who takes a glance at the country as it is seen from that elevation, will form a very good idea of what I have attempted to describe.

Relieve this valuable land from stagnant or superabundant water, by large arterial cuts—which, crossing it in judiciously selected places, shall convey to the cliff what naturally flows into them—and the whole tract will at once assume a new agricultural character, and new capabilities. Were it so relieved, this fringe of red land would fall to be coloured light-red in my Map of the soils. I should reckon it among the first class uplands, and after they shall have been respectively tilled for half a century, as scarcely less valuable than any other land in the Province.

I have spoken thus fully of New Bandon, not because it is the only case of the kind I have seen in the Province, but because there are many such cases—many localities in which arterial drainage would act, as I believe it would in New Bandon—improving the natural condition of the soil in the first instance, and enabling the skilful farmer to avail himself hereafter of the further advantages attendant upon thorough drainage, by ploughing main outlets into which his smaller conduits might deliver their watery burden.

I therefore recommend this subject of arterial drainage to the attention of Your Excellency, of the Houses of Legislature, and especially of the proprietors and surveyors of the several Counties of the Province. I believe there is no County of the Province in which much money might not be profitably spent in improving the outlets and channels of brooks, in draining marshes and bogs, and in providing main outlets for the water upon flat districts where it injuriously lodges.

The proceeds of a tax upon the unimproved lands of each County might form a fund to be expended in works of this description. The expenditure, while it benefited the country generally, would also increase the value of the estates of those who paid the tax, so that no reasonable objection on their part ought to be made to this mode of applying it. By forming a single fund of the tax levied in each County, and assigning the collection and expenditure of it to some existing County board or district committee, no new machinery would be required, little new expense would be incurred, and both the levying of the tax and the expenditure of the proceeds in drainage improvements could be commenced without delay.

5th. In the Chapter upon the Roads of the Province, I have inserted a tabular view of the new roads which have been recommended by the local surveyors, as likely to facilitate new clearings by opening up the better classes of land to the settler. These roads are coloured red in the maps of the soils attached to this Report. In a country where so large an effort has already been made for the formation of roads, and where their value must be so well understood, it is unnecessary for me to insist upon the benefits which the opening of some of the wilderness lands would confer upon the Counties in which they

are situated. I would only remark that to open up the best lands of the Province, must be followed by the most immediate and most beneficial consequences. The colours of the map indicate where these better lands are situated in the several parts of the Province. It will therefore be easy to select for the first additions to the existing roads, those proposed lines or openings which are likely at the least expense to make accessible the largest proportion of the most valuable land.

6th. An evil complained of very generally is the want of markets, and the control which the thinly scattered merchants are supposed to exercise over the farmer, in fixing the prices both of what he buys and of what he sells. This *alleged* evil will be in some measure obviated by the establishment of fixed fairs or markets—annual, biennial, &c.—for corn, cattle, sheep, cheese, and wool, in certain central and easily accessible parts of the Province. Such fairs would indicate to the seller where he was likely to meet with a purchaser—to the buyers where they would be sure of obtaining a choice of the kinds of produce or stock they desired to meet with, while the prices given and received at each of these markets would influence the prices obtained and the transactions carried on between merchant and farmer in all parts of the Province.

7th. There are two classes of hinderances to immigration and settlement which have struck me as of serious weight, and as deserving the attention of the Legislature. The first is, the want of a sufficiently copious register of information in regard not merely to the ungranted wild lands belonging to the Province, but to the lands and farms belonging to individuals, which are to be sold or which may be more or less easily obtained by those who are desirous of purchasing. I am not sufficiently acquainted with the duties of the Immigrant Agent in Saint John to know what amount or kind of information he is expected to afford to Immigrants who arrive at that Port. But in the country districts I have often heard a strong desire expressed, that farmers from the Mother Country possessed of money enough to purchase old cleared farms, could be induced to emigrate to New Brunswick, in order that a better system of husbandry might through their means be introduced into the Province. I have upon inquiry, however, usually found that if a home farmer were to come into those districts in search of a farm, he could in general find more difficulty in ascertaining where good or desirable farms were to be had, and in procuring them at reasonable prices, than he would in any part of England. It has, therefore, occurred to me, that if local registers, containing the description of all lands for sale in the neighbourhood—their quality, and the price asked for them—could be established in convenient places, it would greatly facilitate the procedure and settlement of such immigrants as would prefer to buy cleared land in a peopled neighbourhood to hewing out farms for themselves from the forest wilderness.

Again, for the class of poor immigrants who desire to locate themselves on new land, it is a great hinderance that they must first seek out a spot they would like to settle upon—next have it surveyed—then sold at public auction,—when, after all their trouble and loss of time, they may be out-bid by a third party, who has taken no previous concern in the matter. It seems to me that if a survey and plan of a district, which it is desirable to settle, were made out at the expense of the Province, and the price of land in the several parts of the district fixed by competent parties, the inconveniences felt by the new settler would be greatly diminished, and the anxieties and delays he complains of for the most part removed. Such a system, while it would secure accurate surveys, made upon a uniform and more correct system than hitherto, would occasion no pecuniary loss to the Province, as a small charge per acre upon new lands, when sold, would defray all the necessary expenses. It is a recommendation also to the adoption of the plan, that it is in substance the same which long experience, on a larger scale, has pointed out in the United States as the best fitted to promote the interests at once of the State and of intending settlers.

8th. Connected with the more accurate surveys of new lands, which ought in future to be made, are the numerous sources of litigation which exist in the ill-defined boundaries of existing farms. This is an evil which is almost inseparable from the first settlement of new countries, and is only prevented among the later settlers after much loss and difficulty has already resulted to the successors of those who first made farms for themselves in the wilderness. In the State of New York the boundaries of many of the older settled farms have been defined only by expensive litigation; and so it will probably be in New Brunswick, unless some steps are taken to prevent the numerous evils which arise from such a mode of procedure. It is beyond my province to suggest any definite measure by which so desirable an end as the avoidance of litigation may be secured, but I take the liberty of recommending it to the wisdom of the Provincial Legislature.

9th. As connected with economical considerations of an important, positive, and material character, I would recommend,

First, the completion of the Geological Survey and of the Geological Map of the Province at as early a period as it can conveniently be effected; and

Second, an analysis of the various limestones of the Province, in reference especially to their economical values for building and agricultural purposes,*—and that of the iron ores which are known or are stated to occur in many parts of the Province, which are still ungranted.

The only other points connected with the agricultural improvement of the Province, which occur to me as deserving of the direct attention of Your Excellency and the Legislature, are—the establishment of a Provincial Agricultural Society or Board of Agriculture—the employment of one or more peripatetic practical Agriculturists,—and the offering of premiums for certain specific forms of improvement, the introduction and trial of which are likely to be best promoted by such general encouragement on the part of the Province. These topics, however, will be more naturally discussed in the following Chapter.

Chapter XV.

Suggestions as to Improvements which may be promoted by the exertions of Agricultural Societies.

In several parts of the Province Agricultural Societies exist, headed in general by active, zealous, and intelligent men, whom I have had much pleasure in meeting, and from whom I have received much information. There is nothing uncommon or peculiar to the country in the complaints I have heard expressed by the heads of these Societies, that they are inadequately supported by the general mass of the farming population. The same complaints are made, more or less loudly, in nearly all parts of the world—the cause of advancing Agriculture being almost every where supported and promoted by the few. As the value of knowledge to the practical farmer becomes more generally understood, probably this indifference in the masses will be overcome.

That Agricultural Societies are capable of doing much good, no one will deny who has attended to the results which have followed from their exertions in some of the countries of Europe. That they are often ill supported, ill directed, and are sometimes found asleep at their posts, is not more true in the agricultural than in other walks of life, and is no argument against their establishment, or their claim to the general support of the country.

But it has in most countries been found desirable to unite the best heads, the warmest zeal and the soundest discretion of the whole agricultural community in a Central, National or Political Council, capable at once

* I append the annalysis of three limestones collected by myself during my tour through the Province, and since examined under my direction :—

	Butternut Ridge.	Falls of Saint John River, at Saint John	Jos. Blakely's farm at North River.*
Carbonate of Lime,	91.28	98.25	94.08
Carbonate of Magnesia,	0.78	0.17	0.63
Alumina and Oxides of Iron,	0.54	0.33	0.68
Insoluble Siliceous matter,	7.27	0.22	4.57
	99.87	99.67	99.96

These limestones are all excellent for agricultural purposes,—That of Saint John especially so.

*Three miles from Steves', on the Petitcodiac River.

of embracing those large views which comprehend the good of the whole, and of descending to, and minutely discussing the small details on which the special culture of each district, and the profits of its farmers depends. Through such a central council, board or society, an impulse may be given, and a general direction to the proceedings of County and Local Societies—an example is set, and advice given, and the general wisdom and discretion of the whole solves the doubts and removes the difficulties which lie in the way of those who preside over the agricultural improvement of the several parts of the country. The languid in remote districts are stimulated, the discouraged are cheered up to new efforts, and a unity and fixedness of purpose is imparted to the little knots of willing men, who by council and example, are labouring in remote places to improve the art by which they live, and to elevate in the social scale the class to which they belong.

It would therefore, I think, promote the general advance of scientific agriculture throughout the Province were a Provincial Agricultural Society to be established—with such a constitution, and such a staff of officers as exhibiting no party bias of any kind, and regarding agricultural improvement only as a means of promoting the good of *all*, should command the general confidence and support of the entire community.

In regard to such a Society, I take the liberty of observing—

First.—That it ought to be an entirely voluntary society, supported mainly by its own funds, and having full power to elect all its officers.

Second.—All topics of discussion should be prohibited at all its meetings, which are in any degree of a political or party character, or are likely to become subjects of party discussion before the Provincial Legislature.

Third.—It may fairly claim from the Legislature an annual grant in promotion of its general objects—and so long as the managing council possesses the confidence of the Legislature, the grants which are now annually made to each of the County Societies ought to pass through the hands of the Central Society, and be subject to a certain extent to their control.

Fourth.—In the event of a Central Agricultural School or College being established in the neighbourhood of Fredericton, or elsewhere, it might be directed in part or in whole by the Council of this Provincial Society.

Fifth.—In return for these privileges, the Society should be bound to report every year to the Assembly how the money granted to themselves had been expended—how that apportioned to each of the County Societies had been applied—what had been done in the College—what exertions they had themselves made during the past year for the progress of the Province—what the County Societies had done—what they would recommend in aid of a more rapid progress—what new means they would desire—what hinderances stood in their way, and how they were to be removed. Such a report could not fail to be valuable, generally acceptable, and generally useful. It should therefore be annually published at the expense of the Assembly, and widely diffused throughout the Province.

But two things are indispensable to the beneficial working of this Society.

First.—It must have the general confidence of the Legislature and of the Province, and must exhibit no party bias. Among other means by which, in consistency with our representative institutions, it might be made to combine the wisdom, zeal, and *opinions* of all, it might be provided that the President and Secretary of each County Society should be ex-officio members of the governing body or General Council of the Provincial Society.

Second—It must be provided with a zealous, energetic, skilful, experienced and discreet Secretary. The whole life and efficiency of the Society will depend upon this officer—knowing what the Agriculture of the Province is, what it may become, and how this improvement is to be brought about. If a man possessing this knowledge, free from prejudice, open to conviction, ready to comprehend the influence of circumstances in modifying principles and rendering inexpedient generally useful modes of procedure—if such a man could be found, who would willingly throw his heart into this matter—no reasonable sum which the Province could pay would approach the great value of the services which in a few years he might render to the best interests of the agricultural community.

Besides this central Society, the formation and support of local Societies in every County should be encouraged. As at present, they should receive grants in aid of their funds from the Province as they do now, only through the Provincial, to the Council of which they should report, as the central Society does to the Legislature. In more limited districts, Farmers' Clubs with Agricultural Libraries attached, would be eminently useful; and in encouraging and aiding these a portion of the funds both of the Provincial and of the County Societies, might be very usefully expended.

Supposing these Societies to be organized something after the manner above described, there are numerous points to which for the benefit of the Province, their attention might be especially directed; such as—

1st. The encouragement of a system of thorough drainage, especially on the heavier soils of the Province.

I have already spoken of arterial drainage, by which main outlets are provided—the system of thorough drainage is a perfecting of the means for carrying off the surface water which this primary drainage has begun. It consists essentially in establishing a system of ditches about 3 feet deep and 18 feet apart, over the entire field to be dried, at the bottom of which ditches a passage for water is left either by putting in 6 or 9 inches of stones broken of the size of road metal, or hollow tiles of burned clay, and filling them up again to the level of the soil.

On my first arrival in the Province, I was doubtful how far it would be safe to recommend the introduction of this method of improvement which has proved so successful in England. A careful consideration however of the nature of many of its heavier soils—of the climatic conditions of this part of the Continent—especially the mean annual fall of rain, and the baking and parching effects of the severe draughts of summer, which render a deeper available soil necessary to the verdant growth of plants—together with the results of actual trials made in different parts of the Province; these considerations have satisfied me that in North America, as well as in Great Britain and Ireland, much good is to be expected from the judicious introduction of a system of thorough drainage.

Thorough drainage such as I have described, has not hitherto been much practised in New Brunswick. Mr. Henry Cunard, upon his farm near Chatham, on

the Miramichi, has skilfully and completely dried some of his fields by this method, and as he assured me, with a reasonable expectation of profit. Others I believe in the same neighbourhood,—for there are upon that river and its tributaries, many excellent and zealous farmers,—have, I believe, drained to a small extent; but generally throughout the Province, very little has been done in making trials upon the efficiency or profit of this means of improvement.

The following quotations comprise all the information tendered to me in answer to my queries regarding the experience of practical men in New Brunswick as to the practice, benefits and profits of thorough drainage:—

My land is composed of various soils, all of which require draining—my drains are made 4 feet wide at the top and 3 feet at the bottom, and 4 feet deep. I fill the drain with the stones taken from the land, choosing round stones 1 foot in diameter for the sides, and stones a size larger for the cover, and then fill in with 18 inches of the top, covering with brushes or straw, and leveling the soil over all. The cost is one dollar per rod for labour, the stones are free. The previous year to digging my land, I dig a drain across the head of the slope 6 feet wide at the top and 4 feet at the bottom, and make a vent on to the river; while digging I find out the sprouts, cutting a drain just above, and run it into the main drain, I then level and plough the land three times, which makes it in good order for a green crop.—John H. Reid, York.

Our principal drains are open, the shorter ones are dug about 3 feet deep, 2 of which are filled with small stones and then covered over; we have covered some with broad flags extending across the ditch, to prevent the earth getting through and obstructing the water current at the bottom. The result has been so highly satisfactory that we consider ourselves only *beginning* in this branch of good husbandry.—Wm. Wilmot.

I have taken off surface water by open drains with great success where there was a great flow of water. I have made underground drains through a swamp, having cut off the springs that fed the swamp, and have succeeded well. I cut drains 3 feet deep, no wider than necessary for the workman to use his tools freely in. I piped the drains with stones drawn from the field in this form ⅄ and filled smaller stones over the piping to within 18 inches of the surface, I covered the stones with a light layer of straw and filled in the earth; cost 2s. 9d. per rod.—Robert D. James, York.

I have had a good deal of experience in what is called French drainage, both for the purpose of cutting off springs and removal of surface water, and consider it to be a very profitable improvement where there are many small stones to be taken off the land, (which is generally the case in wet high lands in this country). I have the drains dug three feet deep, one foot wide at the bottom, the small stones put in the bottom, the larger ones on top, the whole of the stones being about 18 inches deep, cover with fir bushes or straw about 6 inches, then fill in and plough over.—Edward Simonds, York.

I drain wet land for the purpose of removing surface water. I take the course of my drain with a little descent across my field, ploughing it 4 feet wide, making the drain very slanting on each side until it comes to the pan, I then dig from 6 to 12 inches deep, which is sufficient to carry off the water—open drains are best to carry off surface water, springs may be drained with deep narrow drains filled with stones part way, and then with earth; but the frost going so deep in this country disturbs the earth and stones, so that in a few years covered drains are apt to get stopped.—Israel Parent, York.

The above opinions are all in favour of drainage, but none of the writers adopt methods such as our best English and Scotch farmers would approve of.

Mr. Reid's drains are too large and expensive, and are intended partly to drain the springs which show themselves on his sloping fields, and partly to bury the numerous stones which overspread it. The same is the case with the drains put in by Mr. James. They are such as may fitly be used to lay swamps dry, but could not profitably be inserted for the purpose of carrying off the surface or rain water only.

Mr. Wilmot and Mr. Simonds both bring the stones too near the surface. The ground cannot safely be stirred to a greater depth than ten inches, when the stones come within twelve inches of the surface. Twenty four inches is the smallest distance, where stones are employed, which ought to intervene between the upper surface of the stones in the drain and the surface of the soil. Indeed if Mr. Parent be correct as to the depth to which the frost will penetrate and disturb the materials of which the drain is made, the upper surface of the stones ought to be still further below that of the soil.

I have heard from many persons in conversation, the objection to covered drains which is put by Mr. Parent, and it is one which is not without an apparently good foundation. The frost, when the land is uncovered with snow, is observed in severe winters to harden the soil to a depth even greater than three feet; but it does not follow from this that the materials of a drain laid at that depth should be displaced so as when the thaw returns to render the drain inefficient. I have been told on the contrary, that drains only one foot in depth have continued unimpaired even after the severest frosts. It is not unreasonable to suppose however, that accidents from the frost will occasionally happen, and therefore, it is desirable for the avoiding of this inconvenience, not less than to enable the land to be deeper tilled, that the surface of the draining materials should be at least two feet under ground—where tiles are used they can readily be covered with nearly three feet of earth.

The benefits or consequences of thorough drainage, as they have been experienced in Great Britain, may be enumerated under the following heads:—

1st. It carries off all stagnant water and gives a ready escape to the excess of what falls in rain.

2nd. It arrests the ascent of water from beneath, whether by capillary action or by the force of springs.

3rd. It allows the water of the rains, instead of merely running over and often injuriously washing the surface, to make its way easily through the soil where it falls.

4th. By this descent fresh air is sucked in after the water of every shower, and thus the roots and the subsoil are both benefited.

5th. Clay soils after being drained, bake less in hot weather, crumble more freely, offer less resistance to the plough, and are in consequence more easily and more economically worked with less force of men and horses.

6th. The soil is warmed by the removal of superfluous water, and plants and animals thrive better upon it in consequence.

7th. The permanent coldness, as it is correctly called, of many wet soils, also rapidly disappears. The backwardness of the crops in spring also, and the lateness of the harvests in autumn upon such soils, are less frequently complained of.

8th. It carries off the water so rapidly as to bring the land into a workable state after the rain has ceased.

9th. It is equivalent to an actual deepening of the soil, because the roots of plants are able to descend deeper into the dried subsoil.

10th. It makes manures subsequently applied go further and give a better return.

11th. It confers a benefit upon the neighbouring land, in ceasing to attract moisture from the air and to spread fogs around.

12th. In light and sandy soils, noxious matters which are apt to ascend by capillary action from the under soil will be arrested by the drains, while that which

descends from above will escape with the water which washes them down.

13th. It gives larger and surer crops on wet lands equally, and on such as are liable to be burned up in summer.

14th. It prevents the loss of crops so often sustained from want of drainage—as when a whole crop of wheat is thrown out and killed from the want of drainage in a wet spring.

15th. It renders the farmer's home more salubrious and his fields more fruitful by one and the same operation. Fever and ague, and pulmonary diseases become less frequent, as the fogs and mists and cold moist airs diminish.*

Some of the benefits above enumerated may be reasonably looked for in New Brunswick from the introduction of thorough drainage.

I do not of course mean by this to recommend the hasty, indiscriminate, or universal adoption, or on a large scale, of this method of improvement. I mean only to recommend the consideration of the subject to the Agricultural Societies, as a method deserving of trial and of encouragement on their part, especially, and first of all, on the heaviest or stiffest soils of the Province.

Among the localities in which it has struck me from personal observation, that thorough drainage would produce beneficial effects, I may mention the clays of the Napan and Black River—the clays and red marls of New Bandon—the clays of the Salmon and Petitcodiac River, and those of the County of Charlotte. When the upper more open soil rest upon a clay or otherwise impervious subsoil, a system of thorough drainage is often no less beneficial than where the surface soil is itself heavy, stiff and impervious. Such clay subsoils which retain and throw up water, are frequent in Charlotte County, and occur around Fredericton. Indurated subsoils also, often called pans, which produce a similar effect, have a tendency to be formed beneath the surface of all the red lands. In these, as in the former cases, drainage is the most effectual improver.

2nd. This kind of drainage, as I have already stated, may be performed either by means of broken stones, of open stone conduits, or of tiles of baked clay. In Great Britain where labour is less expensive than in New Brunswick, the use of tiles is usually found to be the most economical. It would no doubt prove to be so also in New Brunswick. The introduction at present, and by and bye the home manufacture of machines for the production of tiles, is therefore a point to which the attention of Societies will naturally be drawn in connection with the encouragement of thorough drainage. I saw one in operation in September last at Montreal, producing excellent tiles, the effects of which in improving certain localities in the neighbourhood of that city were considered very favourable. One has lately been imported into Seneca County, in the State of New York; and I am happy to learn that the Agricultural Society of Saint John have ordered a similar machine, and have made arrangements for the manufacture of tiles in the vicinity of Saint John. The establishment of tile works up the River Saint John, and at convenient places on the eastern shores, and towards the mouths of the Miramichi and Restigouche Rivers, would place within the reach of all the means of testing this form of agricultural improvement.

3rd. After drying and thoroughly cleaning the land, which is also deserving of more attention than it has hitherto received in the Province, the subject of deeper ploughing and of subsoil ploughing may be recommended and patronized by the Agricultural Societies. To deepen the available soil, if it be previously laid dry, is to add proportionably to the capability of the land to produce and nourish crops. If the roots are unable to descend, the riches of the earth lie buried as truly as the golds of California do in the unwashed sands of the still undisturbed vallies of that promising country.

4th. Next comes the manuring of the soil, when dried, cleaned, and deeply ploughed. In regard to this there are a few general points which Societies may usefully bear in mind.

a. The Geological Map attached to this Report, and the Chapter I have devoted to the explanation of its Agricultural relations, have shown that there are certain geological formations occurring in New Brunswick, the soils resting upon and formed from which, are especially poor in lime. In the districts where these occur, the use of lime as an improver of the soil, is indicated by its absence from the rocks. In these districts, therefore, trials with lime in various states, applied in various ways to different crops, and at various seasons, ought to be recommended and encouraged.

To show the general chemical character of such of the soils as I considered it desirable to collect during my tour, I subjoin the composition of five specimens which have been since analysed under my direction. They were collected respectively—

No. 1, from Scotch Corner near Woodstock.

No. 2, from Mr. Gray's island farm in the Saint John River.

No. 3, from the lower intervale beside the bridge at the mouth of the Keswick.

No. 4, from burnt land on which a second growth had come up, consisting of scrub pine, red pine, and white pine with sweet fern. A poor sandy soil in many places bleached on the surface by the acid of the vegetable matter. Taken 3 or 4 miles from Steves' towards Saint John, on the right side of the Petitcodiac. It is apparently the debris of the red sandstone.

No. 5, from the stiff clay soils of the Napan Settlement, near the Miramichi River.

A. The proportions of fine and coarse sand were found by washing, to be as follows:—

	1	2	3	4	5
Fell down first 5 minutes,	68.95	52.75	63.51	93 32	47.15
Do. second do.	1.43	2.77	2.49	0.42	2.22
Do. third do.	1.47	1.07	1.66	0.35	3.69
Clay, fine Sand & Organic matter,	28.15	43.41	32.34	5.91	46.94
	100.00	100 00	100.00	100.00	100.00

B. The composition as found by analysis, was as follows:—

1st. *By washing*, as above—

	1	2	3	4	5
Clay, fine Sand & Organic matter,	28 15	43.41	32.34	5.91	46.94
Coarser Sand,	71.85	56.59	67.66	94.09	53.06
	100.00	100.00	100.00	100.00	100.00

* For further details regarding thorough drainage, see my published "*Lectures on Agricultural Chemistry and Geology*," p. 550, of the second English edition. The *so called fifth* edition of the New York publishers is only a reprint from the stereotype plates of the first English editions of 1843 & 4.

2d, *By analysis*—	1	2	3	4	5
Organic matter,	4.75	4.20	4.16	3.38	3.99
Oxides of Iron,	10.98	6.09	5.43	2.81	7.11
Alumina,	3.46	4.42	4.78	5.04	7.58
Carbonate of Lime,	0.31	0.33	0.41	0.39	2.33
Sulphate of Lime,(Gypsum)	—	0.32	—	trace	trace
Carbonate of Magnesia,	0.21	0.53	0.73	0.73	2.93
Salts of Potash and Soda,	1.98	1.02	0.96	0.19	0.24
Phosphoric Acid,	0.27	0.17	0.12	—	0.14
Insoluble Siliceous matter,	78.29	83.26	83.49	88.23	75·70
	100.25	100.34	100.08	100.77	100.02

An inspection of this latter Table shows that with the exception of the one from Napan, the proportion of lime present in these soils is very small, and therefore that the judicious application of lime to them would be likely to produce profitable results. It would be out of place here to consider the other suggestions as to means of improvement which the above analysis will offer to the experienced agricultural chemist.

From all the information I have been able to obtain, lime has not hitherto been very generally or extensively employed for agricultural purposes in the Province of New Brunswick. The following are all the Reports of experiments in liming which I have received in answer to my queries circulated throughout the Province:

I can answer but to one application on an acre and a half of my own land. The land is a gravelly loam, under-drained. I put the lime in heaps of three bushels, covering it with good soil from a foot ridge; after remaining a week I mixed the soil and lime thoroughly; I applied thirty bushels to the acre—raised thirty six bushels of wheat to the acre—the grass greater in quantity and better in quality for four years following than from any dressing I had previously applied.—David Mowatt, Charlotte.

I have tried shell lime at the rate of sixty imperial bushels to the acre, spreading in the spring on a piece of land I was preparing to manure for potatoes, the ground being previously well pulverized; the lime and manure I ploughed in lightly, then furrowed out for potatoes. I could see no difference in the potatoes from those along side that got no lime; but the rot prevented a proper trial. I could perceive however, a loamy friable cast given to the soil which it did not naturally possess, and the wheat was excellent. I could not but observe the remarkable difference of the straw, not to speak of the grain, from that which had no lime. While the one was soft and falling through *feebleness*, the other was much taller, standing upright, retaining its freshness till the grain was fully ripe. The hay crop was also much better, especially the clover. I believe that the application of lime in proper quantities, in all soils properly drained, (except very light sandy soils) will conduce to the prosperity of the farmers of New Brunswick.—Daniel M'Lachlan.

This year I used twenty two hogsheads of lime; each cask will slake fifteen bushels. I used four casks or sixty bushels to the acre. I never had such crops as I had this year. I used it on clay siliceous bog, and alluvial soils; it did well on all except the alluvial, it made it dry and pack. After my land is ready ploughed I deposit my casks of lime along one side of the field; empty them in heaps, one cask in each pile, cover them over eight or ten inches deep with the surrounding clay, and allow them to stand for three days. A man can spread one acre per day with a barrow—the horses give the land a single round with harrow before spreading, and cover the lime with two rounds of the harrow immediately. I then drill, and put the manure in the drill, or spread the manure on the surface, and harrow before furrowing.—John H. Reid, York.

As most of our land is a strong, heavy mould, with a clay subsoil, we have applied lime to great advantage for some years, and have ever found it a hand-maid to draining. We generally use it in making compost with mud or vegetable substance, and apply it the following year by spreading, and ploughing it in, or as a top dressing to our light meadow land. We do this as soon after mowing as we can find time, which greatly increases the latter growth, and prepares it to resist the winter frosts, and presents the earliest growth in the spring.—Wm. Wilmot, York,

Lime has been applied to all soils in this District with good effect to every description of crop, from 25 to 40 bushels per acre.—John Porter, Northmuberland,

Lime has been profitably applied to the heavy clayey soils of the northern part of the Parish of Bathurst, as well as the light sandy land in the southern part. It is sometimes spread unmixed upon grass land in the fall, and potatoes, after they appear above ground, but principally mixed with marsh or sea mud, and ploughed in in the Spring. Compost of one-third lime and two-thirds salt mud, with occasionally a portion of common earth, are now very generally made in the fall, and applied to the land in the spring following, to every crop except potatoes—to the latter, green stable manure is principally applied.—Henry W. Baldwin, Gloucester.

The six reports above given are in favour of the use of lime, as a profitable application to the land in five Counties of the Province, and no doubt similar benefits would be derived from its uses in other Counties also.

Mr. Mowatt obtained a larger wheat crop and better and more abundant hay for four years after.* Mr. Maclachlan's land became more friable, and while the grain of his wheat was improved, the straw was remarkably strengthened, and the clover hay was especially benefited. Mr. Reid's were larger in all the varieties of soil he cultivates. Mr. Wilmot on his heavy soils, and especially applied as a compost to his grass land, after the first cutting, finds the use of lime very advantageous upon drained land. In Northumberland it does good to all kinds of crop, and in Gloucester on all kinds of land.

I cannot enter into details as to the time, mode, quantity, crop, soil, &c.. which the farmer will select as most likely to be profitable in his part of the Province. These I have fully explained in a work specially devoted to this subject.—(The use of Lime in Agriculture, Blackwood, 1849.)—But I commend the subject to the Agricultural Societies of New Brunswick, as one, by the judicious consideration and encouragement of which, they may very considerably increase the productiveness of their country.

4th. Next in importance and in universality of application, is the use of bones. In very few cases, so far as I have been able to learn, have bones been employed as a manure in the Province. Such as are collected, are exported to England and elsewhere. In general, however, they are allowed to go to waste.

As a manure, bones are largely and profitably employed in Great Britain, and they are especially adapted to the restoration of soils which have been exhausted by frequent cropping with grain crops and with hay. In encouraging the collection of bones, their use as a fertalizing substance, the erection of mills to crush them, and the preparation of them by means of sulphuric acid so as to facilitate their action—Agricultural Societies have another important means of benefiting the districts in which they are situated.

5th. I may notice also the sowing of crops for the purpose of being ploughed in, as a means of improving the light worn out lands, poor in vegetable matter, which I have seen in numerous parts of the Province—the use of composts made of lime and bog earth, (muck as it is called in some of the States)—of marsh, sea, and mussel-mud, and of various refuse substances, such as the husk or bran of buckwheat—the more careful preservation of farm yard and barn manure from the

* Mr. Mowatt's farm is on the old red sand-stone near Saint Andrews. The red sand-stones of Sussex Vale, and on the North River, are sometimes rich in lime. In a specimen collected by myself in that neighbourhood, and analyzed under my direction, there was found of carbonate of lime, 17.31 per cent., sulphate of lime, 0.49 per cent. This accounts in part for the good soils which are formed by the decay of these rocks, and intimates that they may often be found to remunerate the farmer less for the application of lime because of the quantity which they naturally contain.

washing action of the snows and rains both in the yard and in the field—a greater attention to autumn ploughing—an abandonment of the system of selling hay and straw off the farm unless an equivalent in manure be brought back in its place—a more early cutting of the grain crops than is generally practised—these and many similar points which I might mention, offer many opportunities for the beneficial exercise of that local influence which the leaders of Agricultural Societies are supposed to possess.

6th. The improvement of breeds of stock is universally recognized as a legitimate object of Agricultural Societies; but the care and tending of cattle in winter is no less necessary a subject of attention, as the more improved the breed, the greater the care in feeding and housing they require.

The building of warmer and closer, though at the same time well ventilated, cattle houses, ought therefore to be encouraged. The custom of turning or allowing cattle to roam out among the snow in the winter months, should be discouraged—the growth of root crops to supply more suitable and more profitable nourishment for the stock, should be urged forward more rapidly—the use of oil cake or of linseed in the form of prepared food—the introduction of linseed crushers, of chaff cutters, and of corn shellers and crushers, should be stimulated and facilitated as means by which the necessity for selling or killing so much of the stock on the approach of winter would be avoided, and a supply of good meat for the town markets would be secured in the early months of spring and summer.

7th. The anticipations of many Provincial farmers, that the profitable culture of wheat has finally forsaken the Province, may not prove true when the proper draining, liming, boning, and other forms of treating the land, are properly understood and practised. But as a whole, I think the oat may be considered as the most natural—the staple grain crop of the Province. Good varieties of the grain therefore should be sedulously sought for, regular change of seed supplied, and means provided for converting it into a palatable article of food. The supply of oats which the Province can raise, may be considered, in comparison with the population, to be unbounded, and no fears of scarcity need be entertained, as soon as the use of oatmeal as food has become more general among the people. In aid of this end, the bounty offered by the Legislature for the erection of kilns and mills for drying and grinding oats, appears to me to have been very judicious and salutary.

It is exceedingly interesting to observe from the statistical returns how much the failure of the wheat crop has been gradually changing the diet of the inhabitants of the North American Colonies. In Lower Canada, the growth and consumption of oats has greatly extended during the last ten years, and during the last five or six years the same has been the case in New Brunswick. This is very strikingly shown in regard to the upper district of Gloucester County, by the following returns of the quantity of oats and oatmeal, imported into Bathurst during the last five years, which have been obligingly furnished to me by Mr. W. Napier, the acting Controller of Customs at that Port:—

"*Statement of Wheat and Rye Flour, Corn Meal, Oats (including manufactured) imported into the Port of Bathurst, N. B., and consumed in the Upper District of the County of Gloucester in the years* 1845, '46, '47, '48 *and* '49

Year.	Wheat and rye Flour	Corn Meal.	Oats.		
			in Meal.	Raw.	Total.
1845, ...	1206 bus.	400 bus.	nil	6239 bus	6239 bu
1846, ...	1419 "	580 "	1700 bus.	5303 "	7003 "
1847, ...	1574 "	542 "	880 "	8611 "	9491 "
1848, ...	2587 "	1180 "	1550 "	8691 "	10241 "
1849, ...	2088 "	1163 "	3830 "	12100 "	15930 "
Increase from 1845 to '49	882 "	763 "	3830 "	5861 "	9691 "

"The increased importation of flour and corn meal in 1848 is caused by the failure of the wheat crops in that and the preceding year by rust and weevil; and the large increase in oat (manufactured particularly) is in fact more than double the quantity of that grain being cultivated in this district—this can alone be ascribed to the increased and rapidly increasing use of oatmeal as an article of household food. Twenty years ago oatmeal was scarcely used at all in this country. A gentleman informs me that a few years previous to that period, he imported a limited quantity of oatmeal from Scotland, which after retaining on hand some time, he had to tranship to another place—parties would not buy it; now there is scarcely a family, even among the French, but what uses it, and many in preference to wheat flour. This improvement in taste has been brought about by the failure of the potatoe crop, and still appears to continue, the improvement of the potatoe crop notwithstanding.

(Signed) WILLIAM NAPIER,
Acting Controller of Customs

Custom House, Bathurst, N.B., 17th Oct. 1849."

One of those wide and more rational ends to which Agricultural Societies should look, is the direction of the rural community generally, to the production of those articles of food which shall best meet the necessary wants of the population, and make it most independent of foreign countries, and most fearless of the attack of famine. In this point of view the culture and consumption of the oat in the Province generally ought to be sedulously promoted and encouraged by them.

8th. In favour of buckwheat also much might be said, for though it is not so nutricious as the oat, I find by analysis that it is equally so with the finer varieties of wheaten flour. The importation for seed, and the growth of those varieties of this crop which are least liable to be injured by the early autumn frosts, ought therefore to be a care of Agricultural Societies.

9th. The manufacture of agricultural implements, such as are required for the improved methods of culture, and for the abridging of manual labour, is deserving of the attention and encouragement of Societies. The Royal Agricultural Society of England has of late years expended much of its force in encouraging this branch. By the united exertions of the Provincial and County Societies, such a manufactory might be established in a central part of the Province, and by their judicious patronage it might be sustained profitably.

10th. I only add further, that an Agricultural Journal, specially adapted to the wants of the Province, and edited and published within the Province, is a means of internal improvement which patriotic Societies will delight in encouraging, and by every means in their power liberally supporting. District Agricultural Libraries also, would be instruments of much good, and the distribution of books as premiums among the rural population.

These, and many kindred objects, Societies will promote and advance with more efficiency than they can be either by legislative or by individual interference.

Premiums, among other means, may be advantageously offered for the purpose of promoting them. In the summary of recommendations which forms the concluding Chapter of this Report, I have mentioned some other kindred objects not adverted to in the present Chapter, and I have added also a list of prize subjects from which Societies can select such as appear most suitable to their own districts, or most likely to excite emulation among their own practical men.

Chapter XVI.

Suggestions as to improvements in the practice of individual farmers.

After what has been said in the preceding Chapters on the subject of individual practice, it will be unnecessary for me now to touch upon many things which would otherwise have naturally found a place in the present Chapter.

By an improvement in practical agriculture, I understand a change in practice which shall enable the farmer to raise larger or more valuable crops from the same extent of land than before, or to produce equal crops at a cheaper rate without permanent injury to his land. To the practical man therefore, I wish to recommend nothing, which if rightly performed, will not in my opinion be the means of putting more money in his pocket.

What I have said in my suggestions to Agricultural Societies in regard to draining—deep and subsoil ploughing—green manuring—the use of bones—the saving of waste materials for the manufacture of manure—the covering of manure from the action of the rains and snows in the fold yard, and from the washing of the rains when laid upon the field—of the use of lime—of an earlier cutting of the grain crops—of improving the breeds of stock—of a better housing of the cattle—of the growth and use of green crops, linseed, and prepared food during the winter months—of more diligent and more extended fall ploughing—of the value of agricultural journals and books—all this is intended as special advice also to the individual farmer. Each man can exercise a far more direct and beneficial influence—beneficial to himself and to the Province—over his own practice, than Societies, however zealous they may be, can be expected to do over that of the district in which they are placed. The improving farmer indeed does good in two ways. He not only puts more money immediately into his own pocket, but by the influence of his prudent and successful example, he induces others around him to follow in his steps, and to put more money into theirs also. Thus the agricultural improver—the judicious, not the hasty and imprudent one—is a most valuable member of society, and it is for the best interests of every country to support, encourage, and honor him.

There are only a very few additional topics on which I think it necessary to address a few observations to the practical farmers of New Brunswick.

1st. I would recommend the abandonment of the system of cropping with grain or cutting for hay till the land is exhausted—a system hitherto so much followed in the Province. If while the stumps are still in the ground, the land cannot be ploughed, and must be left in pasture—the manure made by means of the hay and other produce of the farm, should be collected, husbanded, and applied as a top dressing in Spring to the early grass. But where the stumps are already up, and grain and root crops have been raised upon the land, the barbarous custom of cutting for hay, year after year, without manure, ought to be for ever abandoned. Such land, when in grass, may be pastured, if thought desirable, for three or four years—it may even be allowed to be in permanent pasture with an occasional top dressing—but not more than one year's hay ought to be cut, as a general rule, without the application of some fertilizing substance to its surface. When land has already been exhausted by such treatment, the use of bones is deserving of a careful trial.

2nd. The custom of leaving the land to cover itself with poor natural grass after the grain crop has been taken off, should also be abandoned. It ought always to be laid down with grass seeds where a naked fallow is not intended. I have indeed seen many cases where naked fields have shown the neglect of this most profitable practice of seeding, but it has generally been upon farms held by the poorest and most ignorant portion of the rural population of the Province.

3rd. The adoption of a system of experimenting, prudently, cautiously, and on such a scale as—if all his experiments should fail—would not seriously affect his pocket, is the next point I would urge upon the practical man. It is a line of activity upon which he cannot too soon enter. There is a broad intervening space between the actual condition of New Brunswick agriculture and the condition to which it might be brought by the judicious application of existing knowledge. But that knowledge cannot be diffused among—cannot be acquired by the farmers of the Province all at once. What they do learn also they will naturally doubt, until they have seen it actually applied to, and actually causing more profitable crops to grow upon the land. It is therefore by a system of trials that general confidence will be obtained in this or that method of improvement. The distinction between the man who desires to improve—to advance, which is a sort of condition affecting all material things in North America at the present time—and the man who is content to sit still, is that the first endeavours to acquire information, and having obtained an inkling of new knowledge—perfect or imperfect—shews a disposition to make use of it—to make trials of the methods of advancement in his own walk, which the knowledge suggests. The maker of agricultural experiments, therefore, is the man who is acquiring knowledge—is thinking how he can apply it most usefully to himself, and is testing the opinions and recommendations he may have heard or read, by the practical means which his farm places in his hands. It is a favourable sign of the diffusion of knowledge, and of the awakening of thought and dormant intellect among the agricultural community of a country when the habit of experimenting prudently and economically, is seen to diffuse itself among them.

The use of *lime* is recommended by many in the Province of New Brunswick, and I think with reason. The advancing man will therefore try lime in a small piece of his land, if he doubt its efficacy and his means are small. He will try it in various ways, applied at different times, to different crops, and in different soils, and the results will determine him as to whether it would be proper or profitable to use it on a larger scale. Again, in many parts of North America, gypsum is extensively applied to the land. Will it pay to use it on your farm in New Brunswick? It has been occasionally so used, as the following replies to my queries show:—

Some years ago gypsum was employed to some extent as a top dressing for grass land, and with good effect, but from some unexplained reason it is now laid aside.—Robert Gray, York.

I obtained ten tons of plaster of Paris and sowed it in the green crop fields. I find the oats and wheat raised on the potato land after this manure so far surpass our other crops, that passers bye remark the difference and inquire the cause. The plaster abounds on the Tobique, and can be had in Fredericton for 15s. a ton. On the turnip land we sowed the plaster broad cast, and then drilled it. For potatoes we made the drill, sowed some guano or plaster in the bottom, covered it over with a layer of earth, then planted the potatoes, covered them up, and then the plaster again. For the last ten years we regularly use the plaster.—James Rankin, Carleton.

I have used gypsum, and have found it beneficial. I sow one bushel per acre the first of June; I apply it to gravelly or light soils. I think it generally improves the crops to which it is applied about one third.—Henry Hayward, King's.

This substance, therefore, which is so abundant in New Brunswick, is also deserving of trial at the hands of the progressing agriculturist. It fails in many cases to produce good effects, though it as certainly does good in others. According to the practical man of Virginia and Pennsylvania, it succeeds best on land that has been previously limed, or is naturally somewhat rich in lime.

With bones, likewise, in various forms, small beginnings may be made by way of experiment. And so with all the improved practices I have directly recommended or indirectly alluded to, the really good and zealous farmer—the man who loves his art, and wishes to advance it, if only for his own benefit, and on his own farm—will from time to time try them, honestly, fairly, and prudently, yet fully, and will thus keep constantly advancing in experience, and in the profitable culture of his land. There is indeed now scarcely any field so wide as that of the experimental farmer—none so full of endless novelties, which the active mind may investigate experimentally, and always with a view to profit. Unlike the old stagnant art of farming, of which the principles were not understood, the art of this present time is guided by clear principles—is full of ever new interest—is in a constant state of progression—and affords full employment for highly intellectual and active minds.*

4th. In the preceding Chapters I have recommended the growth of flax to a certain extent for the purpose of procuring linseed as a food for the stock, and fibre for the winter's employment of the farmer's household. There are other crops which in particular localities the farmer may find it profitable to cultivate. The poppy and the sunflower, which demand considerable heat to ripen them, are cultivated in French Flanders and elsewhere for the sake of their seed, which are first crushed for oil, and the cake then used either for enriching the manure or feeding stock. Hemp also is cultivated both for fibre and for the seed, which is also crushed and used as the seeds of the flax, the sunflower and the poppy are. It is worthy of trial whether in some parts of the Province these crops could not be profitably grown.

But among plants, the success of which in some parts of the Province is less doubtful, I would particularly mention the broom corn.† This crop is extensively cultivated, among other localities, in the Valley of the Mohawk, in North Western New York, and is said to be a profitable crop. This valley is celebrated also for its growth of Indian corn. It is distinguished as a corn region in contrast with the rich wheat bearing country farther west. I infer therefore that those parts of New Brunswick which, like the County of Sunbury, are most adapted to the culture of Indian corn, would be likely to grow also good crops of broom corn. It is therefore deserving of more extensive trials than I believe have yet been made in New Brunswick. The tops of the seed stalks, which are gathered, are made into brooms, and from these the farmer's profit has hitherto

* As a help and guide to Agricultural Societies and others in undertaking, recommending or offering premiums for experiments, a work of mine recently published under the title of "EXPERIMENTAL AGRICULTURE, being the *results of past experiments in Practical Agriculture, and suggestions for new ones*," will be found especially useful.

† Of the *sorghum saccharatum* (or *holcus saccharatus)* broom-corn, there are several varieties raised in Hampshire County, Massachusetts, in the valley of the Connecticut River, principally in the broad meadows of Northampton, Hadley, and Hatfield. The pine tree kind is regarded as the poorest kind, or the least advantageous for cultivation; yet, as it is the earliest (being three weeks earlier than the large kind,) in a short season, when its seed will ripen, while the seeds of the other kind fail to ripen, this may prove the most profitable crop. The North River crop is ordinarily the best crop; it is ten days earlier than the large kind, and yields about 720lb of the brush per acre—the brush, meaning the dried panicles, cleaned of the seed, with 8 or 12 inches of the stalk. The New Jersey, or large kind, yields a thousand or eleven hundred pounds of brush per acre. The stalks and seed are large. In good seasons, this is the most profitable crop. But in the present season, (1842,) owing to an early frost, (about September 23,) much of the seed of this kind will fail to ripen. There is also the shirley, or black brush.

Soil.—Rich, alluvial lands are best adapted for the broom-corn, more especially if warmly situated, protected by hills, and well manured.

Method of planting.—The broom-corn is planted in rows, about 2½ or 3 feet apart, so that a horse may pass between them with a plough, or cultivator, or harrow. The hills in each row are from 18 inches to 2 feet apart, or farther, according to the quality of the soil. The quantity of seed to be planted is estimated very differently by different farmers. Some say that half a peck is enough per acre, while others plant half a bushel, and some a bushel, in order to make it sure that the land shall be well stocked. The rule with some is to cast a tea spoonful, or 30 or 40 seeds, in a hill; the manure at the time of planting should be put into the hill, and old manure or compost is preferred, as being most free from worms.

Cultivation.—The broom-corn should be ploughed and hoed three times—the last time, when about three feet high, though some hoe it when it is six feet high, and when they are concealed by it as they are toiling in the field. The number of stalks in a hill should be from seven to ten. If there are only five or six stalks, they will be larger and coarser; if there are about eight, the brush will be finer and more valuable. In the first hoeing, the supernumerary stalks should be pulled up.

Harvesting.—As the frost kills the seed, the broom-corn is harvested at the commencement of the first frost. The long stalks are bent down at 2 or 2½ feet from the ground; and by laying those of two rows across each other obliquely, a kind of table is made by every two rows, with a passage between each table, for the convenience of harvesting. After drying for a few days, the brush is cut, leaving of the stalks from 6 to 12 inches. The longer it is cut, of course, the more it will weigh; and, if the purchaser does not object, the benefit will accrue to the farmer. However, the dry stalk weighs but little; if its weight is excessive, the purchaser sometimes requires a deduction from the weight. As it is cut it is spread on the table still farther to dry. As it is carried into the barn, some bind it in sheaves, and this is a great convenience for the further operation of extracting the seed. Others throw the brush into the cart or waggon, unbound.

Produce.—A common crop is 700 to 800lb per acre. There have been raised 1000 and 1100lb per acre, with 80 to 100 bushels of seed. The large kind grows eleven feet high.

Value of the crop,—About the year 1836 or 1837, the brush sold for 12½ cents a pound; and one farmer in Northampton sold his crop standing, unharvested, at $100 per acre. Since then the price has been decreasing. This year it has been 4 and 5 cents. At 6 cents, the farmer for 800lb, gets $48 an acre, besides 60 or 70 bushels of seed, worth a third of a dollar a bushel—so that he receives $70 or upwards from an acre.

Good farmers regard the seed alone as equal to a crop of oats from the same land. Some land owners have rented their land for broom-corn, at $25 per acre, they putting on five or six loads of manure.—*Farmer's Encyclopedia by C. W. Johnson, American Edition pp.* 351—52.

almost altogether been derived; but the seeds which are usually thrown away, may also be employed with advantage in the feeding of stock.

5th. To one other topic I advert, because of its great practical importance, though already frequently noticed in this Report.

The improvement of the breed of stock is in one point of view the basis of the entire agricultural improvement of a district. Good stock necessitates good feeding. Much stock and good feeding produces much and rich manure. Ample manuring enriches the soil, and causes it to produce good crops; and these large crops again, whether of corn, hay or roots, afford the materials for abundant feeding, and for fold yards full of manure.

But in some parts of the Province there is a prejudice against improved breeds of stock. Thus Mr. Hubbard, of Burton, writes me—"The stock of the country will do better on what we farmers call stock hay and no shelter, than the English breed will on merchantable hay with shelter, and horses the same." I infer from these words of Mr. Hubbard, however, that he looks for the profit of his farming, not to the stock he can keep, but to the hay he can sell off his farm. If so, he may continue to rear the hardy animals—which after all, are only old country stock degenerated under the treatment they have received in the Provinces—and to make a profit by his good hay; but his land, like his stock, will degenerate in time, and it will cost his successors both skill and capital to bring it back again to its original productive condition. I am informed that even the periodically flooded lands on the Saint John River no longer yield the crops of hay they are known formerly to have produced. The profit of good stock consists, not only in the early maturity which they attain, and the larger produce of beef they yield from the same amount of vegetable food, but in their furnishing also the means by which the land can be maintained in good condition, and be compelled to produce abundant crops for an indefinite period of time.

As to the benefits of shelter, there is now no question among the most experienced breeders and fatteners of stock, as well as among theoretical writers, that an animal which is kept warm thrives better on the same quantity of food, in fact can be kept in condition upon less food than one which is exposed to the inclemency of the weather. In regard to this point, there is not one law for New Brunswick and another for the rest of the world.

On this point, Mr. Goodfellow, of Miramichi, writes me as follows:—

"*Fredericton, 29th November*, 1849.

"SIR,—Having been requested to give you my opinion on the treatment of live stock in this country during the winter months, I beg to submit the following remarks:—

"When I first engaged in farming operations, I kept my cattle in a building similar to those used throughout this Province at the present time; but, about five years ago, I built a new barn on a side hill; I excavated an under story for my cattle. One side, and part of the ends, are under the ordinary level of the ground. The side facing the hollow is where the cattle enter the building, which is of frame work, boarded and shingled. The building above is also boarded and shingled on the roof and sides. There is a yard in front of the under story of 45 feet square. A shed is built on the north and west of the yard to break off the wind, the south side being left open.

"Since I kept my cattle in this building, they appear much more comfortable (being entirely free from the cold) than they were in the former building, while a saving of 20 per cent. is effected in the food. My cattle are always in better condition in the Spring than those of my neighbours who keep their stock in the ordinary buildings of the country; and much less subject to the various distempers to which cattle are liable. No inconvenience is experienced from the building becoming too warm in mild weather, as there is sufficient means for ventilation.

"I have the honor to be, Sir,

"Your obedient servant,

(Signed) "ALEXANDER GOODFELLOW.

To Professor Johnston, &c. &c. &c., Fredericton."

I cannot but recommend practical men to put faith in Mr. Goodfellow, and to follow his example. And while they provide better stables for their cattle, they should also aim at sheltering the fields which the cattle graze in, and the grain crops which grow upon their farms, by those thicker fences and belts of screening plantations, to which I have adverted in a previous part of this Report.

6th.—On the method of constructing and repairing ordinary fences in the climate of New Brunswick, I do not feel myself competent to offer an opinion; but the suggestions I have thought it right to offer upon shelter for the purpose of warmth, remind me of some remarks upon fencing, with which I have been favoured by Mr. W. Wilmot, of Saint Mary's, and which I venture to insert in this place:—

"It has been the practice from time immemorial to make all repairs early in the spring, as soon as the snow leaves the ground. We wish here to reverse the order as to *time*, making all repairs in the autumn, after the crop is gathered, and when the farmer has most leisure time. We shall now assign our reason for adopting this *novel* period: It is well known that after the harvest we pasture all our fields, and are then careless in keeping up our fences so late in the season; and it is not uncommon to see bars left down, gates out of order, and fences broken down.

"The evil consequences of such neglect is seen to follow in the spring. The stock after living upon dry food for near seven months, show a great anxiety to seek for green food. The choice of fields are open to them, and as the surface, even of meadow land, when the frost draws out, is very soft, their foot prints are often seen from two to four inches deep, which is a loss to all meadows, particularly new meadows; and then the holes remain as a lasting reproof to the owner till it is ploughed up again years after.

"After drawing this true position, our novel mode of repair will present itself to the best advantage, as it would effectually prevent any damage done to the soil, as the fields at that early season would be as secure as at any other time, and the repairs more effectually done, as there is no frost at that season to hinder setting stakes. We have heard but one objection made to this season of the year, which we shall now state and answer, closing our remarks at this time. It is this: 'We have no rails in the fall to make those repairs.' We reply, that such an objection will apply to the objector as a reproof for not exercising sufficient forethought, that is so essentially necessary in every department through life; as every good farmer will always take care to provide the previous winter sufficient rails to meet any contingency of the kind, as a temporary fence is often wanted in large fields to give them the advantage of the after grass where a green crop is growing."

CHAPTER XVII.

Summary of the recommendations above given.

The following Summary comprehends nearly all the recommendations which have been adverted to and explained in the three preceding Chapters:—

I. Points to which the attention of the Legislature may be beneficially directed—

1st. Arterial drainage of wet lands, swamps, and marshes.

2d. Register of information for Emigrants, under the direction of each local Society or in each town or district. This Register to contain information regarding both the public lands and private farms which are for sale.

3d. The introduction of a certain amount of Agricultural instruction into the Elementary and Grammar Schools.

4th. Into the Normal Schools of Fredericton and Saint John.

5th. Into the Academy of Sackville and the College at Fredericton.

6th. An Educational Farm at Sackville, in connexion with the Academy and the agricultural instruction given there.

7th. An Agricultural High School or College at Fredericton connected with a School Farm. In this High School a full course of agricultural instruction should be provided, and it may or may not be connected with the existing College at Fredericton.

8th. The establishment of District Corn and Cattle Markets to be held in stated places at stated periods, for the convenience of buyers and sellers, and the fixing of prices.

9th. To tax all granted and unimproved lands above a certain number of acres, the proceeds to form a fund for the arterial drainage and other general improvements of the surface in the Parish, Township, District, or County.

10th. The establishment of a Central Agricultural Society, to whom the grants of money to local Societies should be entrusted.

11th. To open up some of the new roads through or into the ungranted lands of superior quality which are coloured red in Maps II. and III. attached to this Report.

12th. A removal of the difficulties which at present stand in the way of the selection, survey and purchase of land. These difficulties are a great hinderance to the emigrant, and have no doubt greatly diminished the inducements to settle in the Province.

13th. To lessen if possible the causes for litigation which at present arises so often out of the unsettled boundaries of farms.

14th. By township or district surveys to make it more easy for an emigrant to settle himself, and so to define the boundaries of farms as to leave no cause for such litigation among future settlers.

15th. By small special grants of money to aid in the formation of Agricultural Libraries.

16th. The employment of a peripatetic practical Agriculturist to visit the different settlements, at the application and under the direction of the local Societies, to instruct the settlers in the husbandry of manure, turnips, and other practical branches.

17th. To obtain an economical and practical Survey of the Coal Fields of New Brunswick, with the view of setting at rest the question as to the supply of fossil fuel in the Province.

18th. As less urgent than this, a continuation of the Geological Survey.

19th. An analysis of the various limestones found in the Province, in reference to their fitness for agricultural and other purposes.

20th. An analysis of the iron ores of the Province, and an economical Survey and Report as to their extent, would also be an important work for the Colony.

II. Points to which *Agricultural Societies* are recommended to direct their attention:—

1st. Encouragement of thorough drainage by premiums, and by the introduction of machines for the home manufacture of draining tiles at a cheap rate.

2d. Of deeper and sub-soil ploughing by premiums, and by the purchase of sub-soil ploughs for the use of the locality.

3d. Of the establishment of Agricultural factorships at each of the principal market towns, and local or district fairs or markets.

4th. Of the improvement of native breeds of Stock by judicious selection, or by the importation from adjoining districts, or from abroad, of better or purer breeds.

5th. The opening up of roads through ungranted lands of good quality.

6th. Providing local registers of wild lands to sell—their quality, locality, price, &c.;—of partly improved farms which an emigrant may buy—their localities, extent, qualities and prices;—and of farmers, who are in want of servants—the wages they offer, &c, &c.

7th. To discourage the system of selling off hay from the farm, and of otherwise robbing it, without laying something upon it which shall be equivalent to what it has lost.

8th. A trial of the use of lime, judiciously applied to land rich in vegetable matter, naturally poor in lime, or on which crops grow too rank.

9th. The formation of Agricultural Libraries in each limited district—within which the books will be readily accessible—and the circulation of Agricultural Periodicals.

10th. To encourage trials in growing flax generally—hemp, where the soil is specially adapted to it—broom-corn, in warm and early situations—hops, for home use and exportation—the sun-flower and poppy, for the manufacture of oil.

11th. The establishment of one or more Agricultural Implement manufactories, and to encourage the use of home made tools.

12th. The more general preparation and use of composts of all kinds, and of green manures as a means of restoring worn out land.

13th. The erection of warmer, well ventilated cow houses for the cattle in winter.

14th. The adoption of a more generous and careful mode of rearing young stock.

15th. A better feeding of the whole cattle during winter.

16th. The use of linseed or of linseed cake, and of prepared food in the feeding of cattle.

17th. The growth and use of turnips and cabbage as additions to the usual winter's food of the cattle—and as a means of raising food for a larger number of stock from the same extent of land.

18th. A more generous feeding of milch cows in winter and spring, with the use of oil cake, linseed jelly, and the whey of their own milk, as additions to their ordinary food.

19th. The introduction of chaff cutters, linseed and bean crushers, cob cleaners, horse rakes, &c.

20th. Attention to the curing of beef, pork and butter.

21st. Collection of waste bones, the erection of bone mills, and the use of crushed bones as a manure.

22d. Experiments with gypsum, wood ashes, sulphate of ammonia, &c., as manures.

23d. More extended fall ploughing.

24th. Encourage the growth and consumption of oats as an article of ordinary diet among the people.

25th. The importation of changes of seed, and the sale of it in the district at reasonable prices.

26th. The encouragement of the home growth of grass, turnip, clover and other small seeds, of a pure and unmixed quality.

27th. The covering of manure heaps, so as to pro-

tect them from the greatest heats of summer, and from washing of the rains and melting snows of spring.

28th. Attention to the growth of wool, either as an article of export or as a means of employment for the members of the farmers' family in winter.

29th. A more frequent use of marsh, swamp, sea and mussel mud, as a means of fertilizing the land.

30th. It would be important also to promote the keeping of Meteorological Registers in each County, by which the fall of rain, the temperature, the prevailing winds, &c., in different localities, may be accurately ascertained.

As one way of promoting the objects above adverted to—Agricultural Societies may recommend, encourage and offer premiums for or on such subjects as the following:—

1st. On the clearing of land without burning.

2d. On the drainage of swampy places by leading cuts or outfalls.

3d. On the thorough drainage of clays, of soils resting on clay sub-soils, and of land liable to be baked or burned up in summer, or on which crops are *winter-killed* by the frosts of spring.

4th. For rolling and draining grass lands liable to be winter-killed.

5th. For experiments on deep and sub-soil ploughing.

6th. For the growth of winter grain.

7th. For wheat grown on old land.

8th. For the earlier cutting down of oats and other grain.

9th. For the best or most skilful rotation of crops.

10th. Experiments with other kinds of grasses besides clover and Timothy, commonly used. Native grasses might probably be found that would be equally nutritive, productive, hardy and lasting in the ground, as these, or more so. Rye grass does not suit the land or climate, as it is usually thrown out or winter killed. After the Timothy dies out other native grasses come up which are almost always poorer than the Timothy, but if a good selection of native grasses were sown, and allowed to get hold of the land while it is in good heart, they might form a thick sole of grass, which if properly pastured would not for many years become poor or mossy.

11th. For the raising of grass seeds, and on the best way of laying down to grass.

12th. On the growth of flax, hemp, poppy and sunflower.

13th. On the use of bones as a manure generally.

14th. For special trials with dissolved bones and ammoniacal salts in promoting the growth of wheat.

15th. On the saving of liquid manure by tanks or otherwise.

16th. With lime, and with gypsum, or gypsum and salt, or lime and salt.

17th. On the use of nitrate of soda, common salt, ashes leached and unleached, ammoniacal salts, and other similar fertilizing substances.

18th. With swamp, sea, mussel, and other varieties of mud, either alone or in the form of compost.

19th. In ploughing in manure in autumn.

20th. On top dressing the young clovers with earthy compost in autumn as a preservative against being winter killed.

21st. For the leaving or planting of trees for the purpose of shelter from cold, injurious, or prevailing winds.

22d. For the planting of maple groves and manufacture of sugar.

23d. For the best samples of home made flour and oatmeal.

24th. In improving stock from native as well as from imported animals.

25th. For cattle which give the richest milk.

26th. For the largest produce of milk, cheese and butter from a single cow, or from a dairy of cows.

27th. For the best arranged and most comfortable cow houses.

28th. On the superior profit of warm well ventilated stables in saving food.

29th. On the comparative profit of sparing and plentiful feeding in winter.

30th. On the use of the straw of Indian corn in feeding cattle.

31st. For the manufacture, importation, and use of oil-cake in feeding.

32d. On the feeding of milch cows with the whey of their own milk.

33d. On the curing of beef, pork, and butter.

34th. On the comparative profit of horses and cattle in the cultivation of arable farms—especially in reference to the shortness of the season.

35th. For the introduction and use of any implements which save labour profitably.

36th. For the introduction of any new and profitable employment for winter.

37th. For the cleanest and best fenced farm—the best cultivated on the whole—the largest crops on the whole—the largest and finest crops of particular kinds—the finest and best treated stock of cattle, or pigs, or sheep—the largest, best managed, or most productive dairy, the most profitably managed, &c. &c.

III. Points to which *individual farmers* are recommended to direct their attention:—

1st. Thorough drainage of clay soils, wet slopes and bottoms, and marsh or dyked lands, where the fall is sufficient to admit of a ready outlet, and a sufficient depth of drain.

2d. Better cleaning and deeper ploughing of the soil.

3d. More care in saving, collecting and applying manures of all kinds—liquid and solid.

4th. An abandonment of the system of cutting repeated crops of hay off the same land, till it is exhausted.

5th. An abandonment also of the custom of taking repeated successive crops of corn off the same land, without alternation with other crops, and without manure.

6th. Cutting down grain of all kinds before it is fully ripe, and grass before it runs to seed.

7th. Cutting down Indian corn with a knife as is done in New York, and use of the stalks in feeding milch cows and other stock.

8th. Sowing buckwheat or rye to plough in green, and use of bone dust to renovate exhausted and worn out lands.

9th. Ploughing deeper in all cases than has hitherto been usual, but especially such land as has ceased to be productive as formerly.

10th. Taking advantage of every open day in the fall to plough and prepare the land for the spring sowing.

11th. Selecting good stock of cattle, pigs and sheep for keeping through the winter.

12th Providing warm but well ventilated housing for them.

13th. Feeding them plentifully, that they may be in good condition when spring arrives.

14th. Growing turnips and linseed with the view of adding to the quantity and enriching the quality of the food he has at his disposal.

15th. Collecting carefully and preserving under cover all the manure made by his stock during the winter, that he may have it abundantly and in good condition for his potatoe and green crops when the time of planting or sowing comes.

16th. Manuring annually, by top dressing, his worn out hay lands, when the land is not stumped, and therefore cannot be ploughed up.

17th. Collecting carefully all waste bones, breaking and applying them to the land; especially the use of bones is to be recommended upon land which has been worn out by over cropping with corn.

18th. Sowing down always with artificial grasses, when land, after a corn crop, is to be left with the view of its producing hay.

19th. To provide shelter, by fences or plantations, for his fields and stock.

Chapter XVIII.

Of Emigration to New Brunswick, the success which has attended Agricultural Settlers in the Province, and the kind of Emigrants for whom there is at present the greatest demand.

I might be excused from touching upon this subject of emigration from Europe to New Brunswick as a distinct question, on the ground that the data I have already given are sufficient to enable the readers of this Report to judge for themselves, as to the propriety of choosing this Province as a place of settlement, or of recommending others to do so. However carefully worded also recommendations may be, there will still be many who will mistake their meaning, and when disappointment occurs in consequence of these mistakes will blame the writer for the evils which have come upon them.

I consider it a kind of duty, nevertheless, to lay before Your Excellency, some of the materials towards forming a sound opinion upon this subject which have come into my possession during my residence in the Province.

There are three points to which I shall almost exclusively confine my observations:—

First, the ability of the Province to receive, locate comfortably, and abundantly sustain a large number of emigrants.

Second, the kind and amount of success which has attended industrious agricultural settlers in past years.

Third, the class of persons who ought now to come, and the encouragement they are likely to meet with in different parts of the Province.

I. On the first of these points little need be added to what has already been introduced into the third chapter of this Report. There is a very large extent of first rate upland in the Province, still ungranted, and much also, which though granted, is as yet unimproved, and is on sale at slightly elevated prices. The extent and position of these lands may be seen by a reference to the Agricultural Map which is intended especially to illustrate Chapter III. Indeed it is obvious to common sense, that if the Province is fitted by nature to support three or four millions of inhabitants, there must be ample room for crowds of emigrants from Europe, and that if there be much good land still ungranted, there must also be the means of locating these immigrants comfortably.

At the same time, as I have elsewhere stated, facilities are wanting to make the country enticing and easily accessible to the new settler. Roads into the new lands, facilities for obtaining speedy possession of them, offices to give information in different parts of the country, registers of lands on sale by private parties, improved and unimproved—these are a few of the points which deserve the attention of those who desire to see the wild lands early settled by intelligent and industrious emigrants.

II. *The kind and amount of success which has attended industrious agricultural settlers in past years.* I have, myself, during my tour, seen numerous examples which were both interesting and highly satisfactory as to the opportunity which the Colony presents to the industrious man, to make a comfortable living by tilling the land—to the poor man, of bringing up and comfortably settling a large family of children. Instead, however, of detailing the particulars of the many cases I inquired into, which would be both tedious and open to suspicions from the bias I may be supposed to have had in favour of the Province or against it, I shall introduce in this place the information I have received from the various parts of the Province, in answer to a question as to the success which had attended settlers from the old country in the different districts. The varied statements and opinions thus obtained from different Counties and persons, will present a much more reliable and truthlike aspect of the case, than any which a single individual could present as the result of his personal observation:—

Sober men who have attended exclusively to farming, have invariably accumulated property, and their descendants who follow agriculture, have grown up sober, industrous, virtuous, and prosperous.—D. B. Stevens, Saint John.

There came here some years ago thirty or seventy emigrants from Scotland, who settled altogether in the Parish of Saint James, in this County, they were all very poor when they came, and are now living quite comfortable. There is another settlement called the Bailey Settlement, who were poor emigrants from Ireland, who I understand are very comfortable; also another settlement of English, called the Harvey, who are doing well.—Joseph Walton, Charlotte.

I have known scores of persons who were landed here without a penny in their possession who are now in easy circumstances, with farms and stock, of from fifty to five hundred pounds in value.—David Mowatt, Charlotte.

Industrious farmers who have attended exclusively to their business, have all done well and improved their circumstances.—James Stevenson, Charlotte.

With regard to particular settlers or settlements, I can only state that in my immediate neighbourhood (a distance, say, of 4 to 6 miles) it is settled by Scotch from Perthshire, who came to this country twenty five or thirty years ago; few of them had much or any money on their arrival, now they own farms and stock, I may say superior to their neighbours; all this by dint of perseverence and industry. I might also state of an Irish Settlement from the North of Ireland, in the Bailey Settlement in this County, they settled in the woods and are now comfortable.—John Mann, Jr., Charlotte.

Persons upon leased farms, from 10 to 50 acres, have acquired in the course of a few years a certain means of a comfortable livelihood, paid for their stock, and have money laid by. I consider one great advantage in this district to be the ready market which the States afford, and the cheapness with which articles, other than farm produce, can be procured.—John Farmer, Charlotte.

There are some settlers who have gone into the wilderness, and who have in a few years, by the improvement of the land alone, acquired not only competency but comfort. Industrious farmers who have attended exclusively to their business have, notwithstanding the pressure of commerce, and the failure of the crops, improved in their circumstances.—Mr.——— Westmorland.

Farmers who have attended exclusively to their business

have, notwithstanding the difficulty they have undergone, improved their circumstances.—R. K. Gilbert, Westmorland.

There is a settlement called the Irish Settlement, who are as poor now as they were twenty years ago, and not more land cleared than was ten year ago. There is another called the Golden Mountain Settlement, where the people began poor about fifteen years ago, who are now living well, and are quite independent. Farmers who attended exclusively to their business were enabled to withstand the shock of bad times better than any other people in this district.—Howard D. Charters, Westmorland.

Persons with small farms, good land, and small families, and also persons with large farms, who have plenty of help within themselves, and little or no wages to pay, who have been industrious and prudent, have improved in their circumstances; but even they, at the present time complain that they cannot make ends meet.—The farmer's interest generally is in a very depressed state.—Robt. B. Chapman, Westmorland.

From the early settlement of the Province till within a few years past, such farmers as were attentive to their business were generally in improving and comfortable circumstances. Lumbering and pursuits of that nature, have operated to a limited extent in producing an unfavourable change in the habits of the people; the failure of the crops, and last, though not least, the operation of free trade principles, have caused much distress and privation amongst the agriculturists.—Wm. Crane, Westmorland.

Industrious farmers who have attended solely to their own business have, in almost all cases, improved in their circumstances.—C. Dixon, Westmorland.

Industrious farmers who have attended to their business attentively have, in many cases, improved in their circumstances.—John Trenholm, Westmorland.

The new settlers in this section of the County of Westmorland are most thriving, particularly those who have attended to their agricultural avocations.—Alex. Munro, Westmorland.

Industrious farmers who have attended exclusively to their business have, without exception, improved in their circumstances.—George Otty, King's.

From my personal knowledge, I can enumerate several settlements inhabited by the poorer class of emigrants from Ireland, who have within the last fifteen years realized what may be termed an independence—say property worth from £300 to £1200—besides bringing up large families. Mechanics, when settled in country districts, soon become proprietors of land.—A. C. Evanson, King's.

I know of many who have attended exclusively to their farms have become independent. I am acquainted with an Englishman who lived a servant with my father about 20 years ago, who is now worth £800, and when he commenced had not more than one year's wages.—Henry Hayward, King's.

In King's County there are to be found many settlements grown up, and still progressing, comparatively in a very short time—some of the inhabitants doing very well, others not so well, but all possessing independent properties, and notwithstanding 5 years failure of the crops, still making a comfortable living. There are the upper part of the Mill Stream, the Campbell, English, Irish, New Cork, New Bottle, Upper, Dutch Valley, &c. Many have not been settled more than 8 or 10 years; the principal part of the men began with nothing but their axe, or at furthest, one year's wages; all of them are now doing well.—Thomas Beer, King's.

There are very many farmers who by attending steadily to their profession, have made themselves and families comfortable, and there can be little doubt that the man who minds his business and understands it, will always thrive. I must here observe, that a crying evil is the too general disposal of the wholesome farm produce at a sacrifice of time and substance for foreign grown food, &c.—Andrew Aiton, King's.

We have a neighbour who emigrated from England some twenty five years ago, with eight sons and a capital of about £300; purchased a farm; now the sons all own farms, value in the aggregate £3000. Also a number of individuals emigrated from England some twenty years since, with little save themselves and companions, located in an unbroken wilderness, aided by nothing but their perseverance and industry, now constitute a flourishing settlement, enjoying all the privileges of competency and comfort. Sober and industrious farmers have invariably accumulated property.—Matthew M'Leod, King's.

Steady industrious settlers who have been brought up to farming, and attended exclusively to their business, have manifestly improved in their circumstances. It is always observable that tradesmen who have bought land, make but poor settlers; being unskilful in the art of farming, they get discouraged, sell their lands, and go off.—Daniel M'Lauchlan, King's.

This place was settled about the year 1814, by persons of no capital; those persons have raised large families, settled them, and are now worth from 10 to £1500. All those who have attended exclusively to their business, have had success in farming.—Wm. Keith, King's.

Most all the settlers in this district were poor emigrants, and from industry on their farms have, in the course of eight or ten years, acquired property worth from 3 to £400, and are living very comfortably. Settlers in this district should pay exclusive attention to their farms and not enter into lumbering pursuits.—Daniel Smith, Queen's.

There are several prosperous settlements in the rear of Gagetown. Industrious farmers who have attended exclusively to their business, have improved their circumstances.—Reverend Allan Coster, Queen's.

Every industrious farmer has progressed who has attended solely to his farm; the great difficulty is the want of energy and unceasing industry, with proper means.—John Robertson, Queen's.

Several settlements situated in the western section of Queen's County, more than two thirds of these settlers having emigrated from the old countries, within 20 years have rendered their circumstances comfortable, reflecting much credit on their industrious habits. Industrious farmers who attend exclusively to their business, have prospered more than any other class that I know of.—Wm. Reed, Queen's.

I know of several persons who settled in this and the adjoining settlement without capital, who are now well off. Mr. Inch, (from Ireland,) in the New Jerusalem Settlement, settled on 100 acres of wild land, about 20 years since, and now owns three farms, in all 600 acres well improved. Mr. James Mahood, in the Coothill Settlement, began on wild land without any capital 22 years since, and at his death in 1847, his property was valued at £800, and no doubt was worth £1000.—Samual Mahood, Queen's.

A settlement of emigrants from Yorkshire, (England) was commenced in 1816, in Queen's County, and on seeing it in 1837, I was highly gratified in seeing a well settled district, intersected with good roads, and ornamented with beautiful fields and orchards. The Harvey and Cork Settlements on the Saint Stephen Road, as well as some on the borders of the Magaguadavic River, are in a thriving condition. Persons attending exclusively to farming have seldom failed to improve their circumstances.—C. L. Hatheway, Sunbury.

The settlement in the rear of this district was commenced about 25 years ago—has made but slow progress, and is poor. Our River farmers have the most of them improved in their circumstances until the last three or four years, but most of them do something in the lumber way. The potato rot has been a great drawback to both rich and poor.—Nathaniel Hubbard, Sunbury.

There are several back settlements in this County, composed chiefly of emigrants from the old country, who on account of want of capital, were compelled occasionally to hire out and get lumber until their land was sufficiently cleared to live on. Those who attend to their business improve in their circumstances.—Charles H. Clowes, Sunbury.

Farmers who have attended to their business, and been economical and industrious, have improved their circumstances.—Charles Harrison, Sunbury.

I have known several industrious farmers who have attended exclusively to their business, who have very much improved in their circumstances, until the almost general failure of the crops, but who, if the crops continue to be as good as they were this year, will, I doubt not, go on as prosperously as formerly.—Edward Simonds, York.

There have been many men in this County and Province who came without any money, and by getting farms on the shares, or at high rent, have raised large families, and have made money to buy that farm or another as good in ten years. The Harvey settlers were men who came to this country without any experience in clearing the forest, but who have made a good settlement and comfortable homes. Take ten years together, and you will find the farmers the best off.—John H. Reid, York.

Almost all the farmers in this neighbourhood were lumberers before they were farmers, and it was by lumbering they got their farms stocked, &c.; but that lumbering or any other occupation is incompatible with profitable farming, is evident enough. I know one or two farmers who, by industry and attention to their farms, have materially bettered their circumstances, but farming on the whole is not a thriving business. I am inclined, however, to ascribe the failure rather to a

want of system and energy on the part of the farmer, than to any inherent defect in the climate or the soil.—Robt. Gray, York.

Wherever farmers have applied themselves exclusively to farming they have, when the land was of a fair quality, not only become comfortable in their circumstances, but many are quite independent.—Wm. Wilmot, York.

I know numbers of settlers, chiefly emigrants, who have gone into the wilderness, taken up land, have now good clear farms, good buildings, and are very comfortable. I know many industrious farmers who have principally attended to their business who are now in comfortable circumstances.—James Sutherland, York.

The Cardigan, Tay, Woodlands, &c. Settlements, all within a few miles of the residence I have built for my family, are, without exception, making progress varied by the habits of the respective settlers. I know of no instance of an industrious and sober farmer, contented for a few years to live chiefly on the produce of his own farm, who has not improved in his circumstances.—Edwin Jacob, D. D., York.

Near where I live are several back settlements; those that have been industrious and prudent have made much progress, and in general have done well, have cleared up large fields and raised plenty of grain, in fact have done better than those settled along the river. Farmers who have well attended their farms, have in all cases improved in wealth, some more and some less, but all improved. Farmers who went lumbering, of course neglected their farms, and three-fourths of them have sunk their farms and much more.—Israel Parent, York.

Industrious farmers who have attended exclusively to their business have in every instance improved in their circumstances.—Wm. Dow, York.

I know many single men who came here penniless, and within fifteen years have fine farms of their own, well stocked, and are now with their families living in comfort and plenty. Industrious farmers, or even men who were no farmers, who attend exclusively to the business, *invariably* improved in their circumstances. If you see a farmer going back in the world you need not ask why—he has left his farming and in his haste to get rich has taken to lumbering.—James Rankin, Carleton.

Industrious farmers who have attended exclusively to their business are doing well.—James L. Pickett, Carleton.

Several settlers who commenced with little or no capital six years ago, are now independent, and the wilderness is fast disappearing around them. All who have devoted themselves exclusively to Agriculture have, without exception, improved in their circumstances.—John Smith, Albert.

Persons who have attended exclusively to their farms, and who have pursued an economical and industrious course, have in most instances been so far successful as to be quite comfortable.—W. H. Steves, Albert.

There are several settlements in this County in a very prosperous state; and I know some settlers who went into the woods destitute ten and fifteen years ago, who are now in a very comfortable condition, out of debt and doing well. Farmers in this County who have attended solely to their farms, and have been industrious, have invariably improved in their circumstances, while others who have had better farms and greater facilities for farming, that have neglected their farms and bestowed their attention on saw mills, are in debt.—John Lewis, Albert.

There are several settlements in this County in a very prosperous state; and I know some settlers destitute ten or fifteen years since, who are now in a flourishing state. Farmers who have been industrious in this County have made great improvements.—Wm. Wallace, Albert.

With regard to particular settlers, I am acquainted with persons who with very little assistance, together with their own industry, have settled on new farms ten, fifteen, and twenty five years, who now are in good circumstances. Industrious farmers who have attended to their farms exclusively have invariably improved in their circumstances.—John M'Latchy, Albert.

There is a settlement a little distance from me, composed exclusively of Scotch emigrants and their descendants; they arrived about 30 years ago worth comparatively nothing; they choose land rather fertile, a short distance from the central or Shire Town of the County, thus affording a ready access to it; worked as industrious and indefatigable Scotchmen work; have now extensive and cleared farms; and brought up and educated families, even to grandchildren. Experience in this County proves this, whoever years ago made his farm his chief business, the centre to which other things tended, and took an honest advantage of lumbering folly; cut a few logs on his own land; worked for high wages then given; sold produce at high prices then given; is now in the independent, proud, enviable position which every person should aspire to.—Joseph C. Wheten, Kent.

I know of many thriving settlements and settlers in this County whose farms are now worth £100 to £500 each, and many of whom, when they first went there could not command £10 from their own resources, and are now living in comparative ease and independence. I do not mean to say they are living in affluence as many farmers do in the old countries.—J. G. G. Layton, Kent.

Industrious farmers who have attended exclusively to farming have invariably done well. Persons of this character who began without any capital some twenty years ago to clear and cultivate lots of land which they purchased from Government, have become comparatively independent—that is, they have succeeded in reclaiming a part of their lots from its wilderness condition, and converting them into cultivated farms of thirty to eighty acres, well stocked, and free from any incumbrance. James Cale, Northumberland.

Where settlements have been occupied exclusively in farming, they have invariably improved beyond other parts of the country. Every industrious farmer who has given the business his exclusive attention, has uniformly improved his circumstances and become independent.—John Porter, Northumberland.

There are many instances of individual farmers who came to this Country in a state of almost positive destitution, who in twelve to eighteen years placed themselves by their own exertions in comparative independence. The settlements of Salmon Beach, New Bandon, and Kinsale, afford the most striking instances of the prosperity that can be secured by steady industry in this country. No farmers have improved permanently but those who attended exclusively to their farms and persevered.—Henry W. Baldwin, Gloucester.

Farmers who have attended exclusively to their business have improved very much in their circumstances.—E. Lockhart, Gloucester.

There is a settlement principally of Irish at Belledune, who being inconveniently settled for lumbering, attended to the cultivation of land, and became comfortable and independent in their circumstances. I have not within the last ten years known any person who attended exclusively to farming industriously, that had not improved in his circumstances.—Dugald Stewart, Restigouche.

The above mass of testimony I consider exceedingly valuable, and the publication of it cannot fail to be of much use to the Province. Though varied in expression, it has all one main tendency, which could not be strengthened by any remarks of mine. In no country of Europe can it be said, as the above extracts, and nearly all the verbal opinions I have received, say of New Brunswick,—"that every industrious person who has attended solely to this business has done well in farming."

III. *The class of persons who ought now to come, and the encouragement they are likely to meet with in different parts of the Province.*

There are three classes of persons who so far as I have seen and have heard from settlers of a few years standing, ought not to come to New Brunswick, perhaps to no new country like this.

First, those who are well or comfortably off at home.

Second, those who are afraid of hard work, or are likely to be discouraged by early privations and difficulties.

Third, those to whom a severe winter, in a healthy climate, is a matter of dread.

Of the numerous persons in the old countries who do not fall under any of these classes, those who know a little of farming are most desirable and will succeed best. If they are labouring men, they ought to be content with moderate wages for a year or two till they feel their way in the country, and learn where they can best settle themselves on farms of their own, which on the wild or new lands can be bought for three or four shillings an acre, including all expenses. If he

possess £200 or £300 of capital, he will settle himself more readily on a farm already partially cleared, which he will have many opportunities of buying in nearly all parts of the Province.

The following extracts contain the opinions of practical and experienced men in all parts of the Province, as to the demand for emigrants in their several localities—the class of men who should be recommended to come—and the price at which partially cleared farms could be more or less readily purchased:—

A sober industrious class of emigrants, especially with a little capital, might come to this country with advantage to themselves and the country. Up-land farms, buildings included, with one quarter cleared and fit for cultivation, could be purchased at from 10s. to 50s. per acre—few farms are rented, but could be procured at from £5 to £10 per annum, per 100 acres.—D. B. Stevens, Saint John.

I think if there was a good industrious class of emigrants to come out to this country, they might do very well for themselves and the public. In this country we have generally had the very poorest emigrants to stop among us. We require good industrious men with some capital.—Joseph Walton, Charlotte.

From the experience of thirty years devoted exclusively to farming pursuits, I have no hesitation in saying there is nothing in the soil or climate of this country to prevent an intelligent and industrious man from being amply remunerated for the capital and labour expended in cultivating the soil. Cleared farms can be purchased very low at present, from one to three pounds per acre, often with comfortable buildings. Farms frequently rent at the halves* in this county, the landlord stocking the farm; rents are generally low in comparison with the value of the land.—David Mowatt, Charlotte.

With respect to emigration, farmers with a small capital would do well, say from £200 to £500. Good farm servants are much wanted, and would obtain from £16 to £20 per year and found.—James Stevenson, Charlotte.

The industrious farmer with even a moderate capital is the class required by the Province; also the sober, industrious mechanic, even without capital. Land partly cleared, fenced, and good dwellings, &c., is worth about £300 to £400 per one hundred acres; uncleared land from 5s. to 30s. per acre. In all cases convenience to market is to be considered.—John Mann, Junior, Charlotte.

The land is productive, easily tilled, sea manure abundant, and the markets of the United States and the Province available at a small expense of carriage by water, and fish abundant. Small farmers or labourers who are industrious and persevering, and who have means of getting over the first difficulty of making new settlements may be recommended to come. The generality of the inhabitants earn an easy livelihood by fishing, but the few who farm exclusively have done remarkably well.—John Farmer, Charlotte.

It is rather favourable to immigration in this district. Those who have plenty of money and those who are industrious are the persons who are best calculated for this district, as all the emigrants who have come here for three years, were nothing less than paupers. A farm of 200 acres of upland, and thirty acres cleared, with twenty five acres of marsh, will rent for about £20, and sell for £600 on credit.—Howard D. Charters, Westmorland.

In my opinion little can be said in favour of immigration into this district; we have now a dense population, and the question is frequently asked, where is the rising generation to obtain land on which to make a living. Labouring men might be advised to come if it was not for our long winters, but it is only during the summer season that farmers can employ them, consequently, as has heretofore been the case, they must leave for the United States or elsewhere. If any come, capitalists would be the best, as there are a number of farms for sale; cleared farms could be purchased at a very low price; land has depreciated in value nearly fifty per cent. within the last three or four years.—Robert B. Chapman, Westmorland.

Nothing favourable of any class under present circumstances; farms are low for ready money.—R. B. C. Weldon, Westmorland.

Persons disposed to immigrate to this Province will find abundance of land suitable for cultivation, which can be obtained on reasonable terms. Persons possessing some capital would be more likely to be useful to themselves and the Province, than the class of emigrants that we have had heretofore. Improved land can be had on moderate terms either to rent or to purchase.—Wm. Crane, Westmorland.

With regard to emigration into this country, the main thing to be done in my opinion is to keep the natural born subjects from going away to the United States; if they could be encouraged to settle, and in fact have any prospect of making a comfortable livelihood, the country would soon be settled without any emigration.—Charles Dixon, Westmorland.

A few skilful agricultural settlers would be an advantage to this settlement, and very likely be advantageous to the emigrant himself.—John Trenholm, Westmorland.

Be highly beneficial—those who possess pecuniary means—not many to rent, but purchases could be made at very low prices.—Alex. Mann, Westmorland.

There are large quantities of good land yet unoccupied suitable for settlement. It is desirable that new settlers should have some knowledge of agriculture, and also possess a small capital, say from £50 to £200, which would assist in their comfortable support until they were enabled to receive a return for their labour on the land. The value of 100 acre farms, with about 20 acres cleared, will be from £100 to £300, varying as to situation, goodness of soil, and other local circumstances.—Joseph Avard, Westmorland.

It would be desirable to get men of industrious habits and some capital. The price of farms from £2 to £7 per acre; Rent from £20 to £50 for farms of about 200 acres.—George Otty, King's.

I have always viewed emigration in a favourable light, both as regards the emigrant and the benefit to the Province at large. Farms can be had to rent, or on shares, at a moderate rate. The class of men best calculated to settle in New Brunswick, are small farmers, with a capital from £50 to £500; mechanics and labourers. The man with small means can obtain a farm partially cleared to suit those means.—A. C. Evanson, King's.

None will succeed except such as are able to purchase a good farm, the price of which varies according to improvements and quantity of level land, say from £500 to £2000.—Henry Hayward, King's.

Sober, industrious, patient labouring men may at all times be advised to come to any part of New Brunswick, they are always sure to be employed, particularly if not exorbitant in their expectations and demands. Farms vary in value very much, depending on the times, local situation, quality of the soil, &c. Cleared intervale farms will fetch from £10 to £15 per acre, upland farms from £3 to £6, but are frequently sold by the lump at from £50 to £1000; the general mode of rating is £1 for every ton of hay cut on the farm.—Thos. Beer, King's.

The great evil of labouring men coming to this Province with their families, that when they arrive they know not where to go; there is no efficient guide or directory to be got, and unless they have friends previously settled who will aid them, their means are exhausted before they find a suitable location, or build a cottage, or prepare for the winter; the same will apply to those of capital. Had the same man come out before his family, and taken a look round, the upshot would have been different, whether as regards actual purchase, or the leasing of a farm. Cleared farms can always be obtained either on lease or by purchase; the general standard per annum is £1 for every ton of hay the place cuts; price of farms £600 to £900.—Andrew Aitou, King's.

I cannot say that I am actually in favour of emigration, nevertheless the soil is good and the climate healthy, so that industrious emigrants of a certain class might, (as some others have already done,) better their condition. The only class of men fit for this quarter, are intelligent, enterprising farmers of some capital, who could always find farms partly cultivated, very reasonable. The value of farms for sale differs according to local situation, quality, &c. Intervale farms of 200 to 300 acres, with good buildings, cannot be bought for less than £1000 to £1500, but tolerable highland farms of 200 or 300 acres, can be bought for £300 to £400.—D. M'Lauchlan, King's.

I think emigration would be profitable in this district. English and Scotch capitalists would be very beneficial to the Province and also to themselves. Cleared land is worth £5 per acre.—Wm. Keith, King's.

A man with a small capital and two or three sons, might settle in this district with great advantage to himself and the Province. No cleared land for sale or lease, but a large quantity of good wilderness land can be purchased for about 2s. 6d. per acre.—Daniel S. Smith, Queen's.

Farmers possessing from £200 to £500 might be advised to come, also farm labourers of all kinds. Land altogether cleared sells commonly for £5 per acre, partially cleared, for £2 per acre; land rents for about 3 per cent. of the cost.—Allan Coster, Queen's.

* By the halves is meant that the landlord takes half the produce or profit of the farm after all expenses are paid.

There can be but little said in favour of immigration. The only class of men who could be encouraged are those who could purchase farms. The value of land varies from 20s. to 30s. per acre.—John Robertson, Queen's.

Young men with small capital and industrious habits might be advised to come. Farms from £100 to £200. Good farms rent for £25.—Elijah A. Perkins, Queen's.

No favourable inducements can be reasonably advanced in favour of immigration to this district, no lands being owned by Government in this part of Queen's County. Improved farms will command from £1 to £5 per acre. It is the prevailing custom where farms are let, for each party to find half the stock and half the seed, the person taking the farm to perform all the labour: the hay is never divided, but kept for the joint stock. —William Reed, Queen's.

Farmers possessed of a small capital, of sober, industrious habits, or mechanics, such as blacksmiths, shoemakers, tailors, and house carpenters, might do well. Improved farms sell for 25s. to 40s. per acre, and rent from £10 to £23, according to the stock they can keep.—Samuel Mahood, Queen's.

Immigrants have arrived here and succeeded in becoming freeholders, setting an example of economy and industry, worthy of imitation, and are annually extending their improvements. Healthy persons from rural districts, whether male or female, young, and of good character and temperate habits, also agricultural capitalists who would be able to purchase partly improved farms for less than the improvement cost, could hardly fail to benefit themselves and the Province. Farms are sometimes rented for half the produce, sometimes with and sometimes without the stock. Upland farms of 200 acres, with buildings and 20 acres cleared, sell from £100 to £150.—C. L. Hatheway, Sunbury.

The working class of men would be useful at 30s. per month in the summer, and 20s. in winter, but just as few even at that price in winter as possible. A farm of 100 acres, 25 of it cleared, situated on the River Saint John, with necessary buildings, worth £300, and the rent say £20 per year.—Nathaniel Hubbard, Sunbury.

I cannot say much in favour of immigration conducted upon the old system. I think a few industrious farmers, possessed of small capital, might invest their money to good advantage in this country. They might purchase lands in the back settlements, partially cleared, at from £100 to £250, or if they wished to rent, by having money to stock the farm and buy implements, they could work to a much greater advantage than if they commenced, as they generally do, with nothing.—Chas. H. Clowes, Sunbury.

The best class of men would be farmers with small capital, say from £250 to £1000. Cleared farms (except in the vicinity of Towns,) generally rent at the rate of 20s, for every ton of hay they will cut.—Edward Simonds, York.

Immigration has been confined to two sorts of emigrants, viz:—young men of no experience in any sort of business, who, instead of attending to farming, spend their money in extravagant living, and then to please their Governors at home, put all the blame on farming: the second class are poor labourers, who are the best for the country, if people had capital to employ them. The class I would recommend is the practical farmer with capital. The value of upland farms, with improvements, £1 per acre—Island lands from £10 to £20 per acre. Farms can be had at any price.—J. H. Reid, York.

There is nothing in the appearance of the country, the climate, or the people, so far as my experience goes, that need deter any person from coming here, but just the reverse; steady industrious agricultural labourers, and small farmers with working families, would get a larger share of the produce of the land for their labour here than they would do at home, and might soon place themselves in a comfortable position. Farmers with capital would be of most benefit to the Province.—Robert Gray, York.

The most of the emigrants that come to this Province are from Ireland, and many of them are as awkward as if they had never seen a farm, and cannot use any tool but the spade or shovel. We know of no class of emigrants that would be a greater acquisition, under our peculiar circumstances, than sober, practical and industrious farmers, with a small capital at least, as there are so many farms in different parts of the Province, the present owners of which have become embarrassed and who must soon sell at a nominal price. Farms are often let to the halves, the landlord furnishes the stock, implements of husbandry, and half of the seed required. In this instance the tenant has a decided advantage, while the landlord often receives a very small interest for the capital expended.—Wm. Wilmot, York.

Farmers and farming men are very much wanted—it is here the same as in other countries, some get on well, and some do very well, and some again do very badly. Some farmers in this district came here possessing nothing, and now have comfortable farms, on which, by dint of hard labour and skill (still being applied,) they live decently. Farms can be bought partly cleared, partly under the plough, remainder in woods, from £60 to £700.—Robert D. James, York.

Men who wish to settle on lands in this country can do very well. Farmers of capital and enterprise will benefit both themselves and the Province.—James Sutherland, York.

Immigration to the Cardigan district may be unhesitatingly recommended. The class of men who may be advised to come from England, Scotland, or Ireland, consists of the hardy, industrious, frugal peasantry, with means adequate to their settlement and support for the first year. A farmer intending to purchase should bring with him not less than £100 clear of all travelling expenses; an intending tenant may succeed with £50. Cleared farms of 200 acres each may be purchased at the rate of £5 per acre for the land under the plough, and from 5s. to 20s. for the remaining forest.—Edwin Jacob, D.D., York.

Men of capital would be of great benefit to the country. Immigrants have not been very profitable, being of too low a class —they should be men of good habits, moral and industrious. English and Scotch are the best settlers and by far the best farmers, they know best how to work on farms. A farm of 300 or 400 acres, with good buildings and improvements, generally sell from £600 to £1000, and generally rent for more than the interest of the real value.—Israel Parent, York.

This district is an excellent opening for emigrants, as the land is much neglected by lumbering, and the proprietors generally in debt, consequently land is sold for much less than its real value. Industrious scientific farmers, with not less than £200, may be advised to come. Farms with an equal portion of cleared and wood land, with buildings, can be purchased for from £1 to £3 per acre; the general rent amounts to about the interest of the purchase money.—William Dow, York.

Facts might be produced to prove that this district is equal to any in the Province for agricultural purposes, and to every man who is frugal and industrious, a fair competency is before him. There are two classes who may come, with certainty of success, if they are only careful and persevering.—1st. Agricultural labourers, of whom we are in great want; 2d. Men acquainted with farming and possessed of a small capital, say from £100 to £500, they could purchase a farm with from 20 to 100 acres cleared, and at once enjoy all the rough comforts and many of the luxuries of life. Farms of 100 acres, with from 25 to 30 acres cleared, can be had for about £120, but much depends upon the quality, and condition, and situation of the soil. The wild lands in a good situation, many prefer to most of our cleared land.—James Rankin, Carleton.

Immigration would be a very derirable thing in this place; Scotch or English farmers may be advised to come. Rent for the year from £8 to £10 per 100 acres—for sale from £1 to £10 per acre for cleared land.—James L. Pickett, Carleton.

Immigrants bringing capital would succeed; small capitalists of steady habits, accustomed to agricultural pursuits, would probably benefit themselves and be an acquisition to the Province. Cleared farms rent for 15s. and sell for £10 per acre.—John Smith, Albert.

A very limited number of emigrants would be required in this district; a few young men and women who understand something about farming, could be profitably employed, together with a few men with families who are in possession of a small capital, say from £100 to £200; but without capital I could not recommend to this district. In the whole County a considerable number with capital could be advantageously settled, as some very good land yet remains to be sold by the Government, and as the price of land is generally low and the quality good.—W. H. Steves, Albert.

It is my opinion that a small number of emigrants might be encouraged to come to this County, as it would tend to develope the resources of the country. I would not advise any to come who were not in possession of a small capital, to commence a new farm, for to encourage a class of persons to come here who are in a state of pauperism, would be a very great injury to themselves and the country also.—John Lewis, Albert.

It is my opinion that a small number of emigrants might be encouraged to come to this County—I would advise young men and women—who were in possession of a small capital to enable them to purchase new land; they would find it a hard struggle to make money enough to purchase land.—William Wallace, Albert.

It is my opinion that immigration into this County, from the mother country, would tend to develope and open up the resources of the County. I would not advise more to come into this part of the Province unless they are in possession of a small capital to commence a new farm; to encourage a class of persons who are in a state of pauperism to come, would be a very great injury to themselves and the County.—John M'Latchy, Albert.

I would remark, that so far as a healthy climate, fertile land, light taxation, a well watered country, moderately traversed with roads, with the privilege of buying lands by making a road through it, is an inducement—such exists; on the other hand, for a year or two, long winters are a serious drawback to poor settlers, as there is but little work now in what they can engage. If emigrants would benefit themselves or the Province, they must be partly young men, healthy, with firm hearts, and some capital—capital is wanted to give them a start in their new farms, in improving them, and to assist in their support till improved. A settler with about £100 would soon become independent; even £50 would give him a good start. Scotch emigrants succeed best. At the present time £100 would purchase a very snug farm, house and barn, &c.; scarcely one farm in a hundred is rented.—J. C. Wheten, Kent.

Although this is commonly called a poor country, it is only because there are none among us who have grown *over rich*. the reason of which, I believe, may be traced to the general independence of the labouring classes, *there being no such thing as poverty known, as it exists in the older countries*. I think the class of men most wanted here are farm labourers. The value of cleared farms depends much upon the situation, &c.; say 100 acres of good land, with 20 acres partially cleared, might be worth from £75 to £300.—J. G. G. Leyton, Kent.

Farmers having a small capital of £100 or £200, and of industrious habits, would succeed well in any part of this County; farm servants of like habits are much wanted, and would, with care and economy, be able in a few years to obtain farms, and stock them for themselves. Farms of 100 to 300 acres, with one fourth part cleared, might be purchased at present, owing to a depression in trade, for little more perhaps than 20s. per acre. Farms are very seldom rented in this County.—James Caie, Northumberland.

There is a great abundance of cultivated farms and uncultivated land accessible for farmers, either to purchase or rent. The price of Government land is low, and that owned by individuals can be had at low rates. The climate is healthy and bracing, and water of the finest description abounds. The class of men intending to emigrate to this country should be industrious, persevering and frugal in their habits, and practically acquainted with the farming operations of their own country.—John Porter, Northumberland.

Industrious immigrants are almost certain of employment at fair wages; two year's wages would purchase 100 acres of land, build a log hut, and clear 4 to 5 acres; with this properly managed he can afterwards support himself, unless his family be very large. The best class of men for this country are those possessing health, strength, vigorous constitution, and about £150 in their pockets. Cleared farms can now be had very reasonable; price varies according to situation. In a general way, farms may be obtained at the rate of £4 to £6 per acre for cleared land, and 5s. per acre for the woodland; few or none are ever rented in this County; sometimes they are given on shares—the owner gives the land, the seed, the use of horses, or working cattle for ploughing, &c., a cow or more, and receives back half the crop and increase.—H. W. Baldwin, Gloucester.

Employment is scarce, but there is plenty of land to be sold, consequently persons well acquainted with farming, and possessing a small capital, might do well, and benefit the Province. Farms of 100 acres, with 20 acres cleared, are worth from £50 to £100. Rent is very low.—E. Lockhart, Gloucester.

I know of no place where a limited number of practical farmers, with small means, and farm servants, can do better than in this County; and I may add, as the Bay of Chaleurs abounds with fish of various sorts, men who understand taking and curing fish on the West Highlands, will also do well. Farms partially cleared may be purchased or rented from the present owners on moderate terms, and they would move back on new farms.—Dugald Stewart, Restigouche.

Though there is considerable diversity in these answers, even when they refer to the same County, yet they, on the whole, speak very favourably of the prospects of the immigrants. I have considered it right to insert every written opinion I have received, and the value of the above collection is greater, I believe, for that reason. While it exhibits despondency and distrust on the part of a few, it shows, at the same time, that the prevailing opinion in the Province generally is, that it is fitted to give comfortable homes to many new settlers, and that in some of the Counties more than in others, both employment for labourers and land for purchasers is more abundant and accessible.

I add as an Appendix to this Chapter a letter from Lieut. Col. Hayne, the resident Director of the New Brunswick and Nova Scotia Land Company, one from Captain Beer of Saint John, and a Memorial placed in my hands by the Northumberland Immigration Society, all of which contain valuable additional information regarding immigration into the Province, and the prospects and probable success of immigrants.

One other point in regard to emigration which must be interesting to settlers, and will be felt to be of importance by the inhabitants of the Colony, has been brought under my observation frequently during my tour, and has been presented to me in a definite form in the following communication of Mr. David Wark, M.P.P.:—

"*Richibucto, Nov.* 19, 1849.

"Sir,—In reporting on the agricultural capabilities of this Province, the subject of emigration will no doubt claim a share of your attention, and I beg to suggest that it would tend greatly to promote the prosperity of new settlements if each of them was composed, as far as practicable, of one denomination of christians. Extensive settlements are now frequently met with containing neither a Church nor a resident Clergyman of any denomination, and on inquiring the cause, it will generally be found that they are composed of several different denominations of christians, none of which is sufficiently numerous to support a Clergyman.

"The French population have pursued a more judicious course. Instead of forming small detached settlements or mixing with other classes. they extend their own settlements till each is able to erect a Church and support one or more Schools. Were others to imitate them in this respect, I believe their interests would be greatly promoted by it. I know Presbyterian Settlements not able to contribute half the support of a Minister, which are capable of being extended over contiguous tracts of fine land till they would form respectable congregations, and in other parts of the Province there are no doubt other denominations similarly situated. I make the suggestion, as I think it deserving of attention from those interested in the subject of emigration.

"I am Sir, your most obed't. serv't., D. Wark.

To J. F. W. Johnston, Esquire."

No one can mistake the laudable religious spirit breathed throughout this letter, nor doubt that the adoption of the course suggested by Mr. Wark, would contribute much to the comfort of settlers, both new and old. Next to Schools for their children, which are now provided very generally throughout the Province, the means of religious instruction and of spiritual comfort, according to the forms of the denomination of christians to which they belong, are by the best class of emigrants regarded as the strongest inducements to select this or that County or locality as the future home of themselves and families.

It is difficult to see one's way to definite measures by which the desired end could be promoted. It must be effected chiefly, I believe, by private co-operation, and the Ministers of the several denominations might aid it much. The Legislature might probably assist by giving special facilities and encouragement to any body of settlers who might unite at home, with the view of settling together, and bringing out at once their Clergyman and Schoolmaster with them. This method has been adopted with much success by the Free Church settlers in New Zeland, and by the Reformed Dutch, who, with their Pastors, have lately emigrated in large numbers to the United States.

In concluding this Report, allow me again to express to Your Excellency my strong sense of the numerous imperfections it contains—arising at once from the rapidity with which my services of the Province was necessarily made, and the equal rapidity with which the Report itself has been drawn up. Besides errors in judgment, which I cannot fail to have made, and mistakes in substance, arising from imperfect information, numerous repetitions and verbal faults must, I fear, have crept into a manuscript, the copy of which I have not had leisure to re-read, much less to revise. For the last five Chapters I must ask an especial share of indulgence. Written in the United States since my departure from New Brunswick, sometimes amid the hurry of travel, and always while more or less occupied with other subjects of thought, they cannot fail to be both hasty in style and defective in matter.

I only regret that I have been unable to do more for the Province in the time I have devoted to the study of its agricultural condition and capabilities. What I have accomplished in so far as it is set forth in the present Report, I trust your Excellency and the Houses of Legislature will regard with that uncritical and forbearing eye which its many defects demand.

I have the honor to be
Your Excellency's most obedient
and most obliged servant,
JAMES F. W. JOHNSTON.

Boston, Massachusetts, 22d February, 1850.

APPENDIX TO CHAPTER XVIII.

1st. Letter from Lieutenant Colonel Hayne, resident Director of the New Brunswick and Nova Scotia Land Company.
2nd. Statement of the Stock, Crops, and improvements on certain Farms of the above Land Company.
3rd. Letter from Captain Beer, R. N., of Saint John.
4th. Memorial of the Northumberland Emigration Society regarding Emigration to that and the adjoining Counties of New Brunswick.

No. 1.

Fredericton, November 17, 1849.

Dear Sir,—Although the experience acquired during a residence of upwards of twenty years in Canada and New Brunswick—a constant intercourse with farmers of all classes, from the poor settler occupying a log hut, surrounded by a clearance of five acres, to the comparatively wealthy owner of three or four hundred acres of land, whose means and inclination led him to attempt scientific improvements—coupled with a knowledge of the process of reclaiming wild land, and the general result of the first year's cultivation of the soil, might possibly enable me to add a word or two to the mass of information you have received from practical agriculturists in New Brunswick, I am unwilling to swell your already accumulated papers, further than by replying to the 9th query in your Circular of the 3rd September last, which I trust will not prove uninteresting to you.

You ask for some "details in regard to the progress of particular settlers or settlements; and whether or not industrious farmers who have attended exclusively to their business have improved in their circumstances."

Commencing then from the formation of the Company's Settlement at Stanley, let me inform you, that in 1835-6 preparations were made for a certain number of emigrants, to the extent of a log house, four or five acres of land cleared and cropped, at a cost of about £50 currency per lot of 100 acres. The land was laid out in contiguous lots on the Stanley Road, and I have much pleasure in adding, that the emigrants from Berwick on Tweed and its vicinity, who settled on the Company's lands on the above given place, for the most part reside on their original allotments, and are doing well; and I have no hesitation in expressing my belief, that no better arrangement can be made for the *reception* and subsequent well-doing of a *body of immigrants*. An outlay of £50 in the manner described, would save an immigrant family much hardship and many expenses which could not be calculated on, and tend moreover to promote a *contentedness of mind*, with which few immigrants are blessed for the first few years of their residence amongst stumps and trees.

The accompanying statement of the crops and stock belonging to those of our settlers who competed for the prizes (amounting in all to £25) given by the Company in 1849, will, I conceive, be in itself sufficient to satisfy you, that "industrious farmers" can make an honest livelihood from off their lands; and when I add that none of the competitors have ever devoted their time or energies to lumbering pursuits, and that on their arrival in this country they were for the most part in indigent circumstances, I feel persuaded you will agree with me in thinking, that by industry, sobriety, and contentedness, a settler is enabled to maintain his family very comfortably, and to raise himself to comparative independence as well in New Brunswick as in most other parts of the world.

The statement here referred to furnishes but a very indistinct idea of the amount of improvement made in the various settlements on the Company's tract of land,—1st, because the improvements effected by "the gentlemen farmers" are not introduced, they themselves not having hitherto been permitted to enter the lists with our original settlers;—2d. because many settlers, the value of whose improvements did not approach very near to any of those in the *competition list*, declined sacrificing the small *entrance fee*, 1s. 3d., believing they had no chance of a prize, and consequently no valuation was made, or I should rather say, appears, of the improvements of any settlers excepting those competing for the prizes, although I am well aware that the improvements on many of the non-competing farms, might be safely valued at from £100 to £250 and upwards.

Casting your eye over the *tabular statement* you will be doubtless much surprised to see so small a portion of the *land cleared*, being under *cultivation* in 1849. This apparent inconsistency may be perhaps accounted for in two ways—1st, from inability, amounting indeed almost to an impossibility, to obtain seed, as the want pervaded the whole Province more or less;—and 2nd. a disproportionate amount of live stock, which involves the necessity of holding a large quantity of land in pasture and meadow.

By my tabular statement you will see that the estimated value of the stock and the improvements possessed by the sixteen competitors for the Company's prizes, amounts to no less than £6,234 currency.

At the close of 1847, an estimate was made of the value of the crops raised by the settlers (216 in number) residing on the Company's lands in that year, which amounted to £10,485 currency, or about £48 per head. The value of the improved land at the same time amounted to £17,697 15s., to which let me add the value of the improvements since made, and it will be seen that the land brought into cultivation (within the Company's limits) since 1835, may be fairly valued at £20,000. Lest the estimate should appear to you to be overcharged, it is but right that I should inform you that I have been governed in my prices by those given in a Report transmitted by His Excellency Sir William Colebrooke to Her Majesty's Colonial Secretary, showing the value of the improvements, &c. &c. &c., made in "the Harvey," "the Cork," and "the Mechanics' Settlements," in 1846, if I mistake not; and as this Report is even more encouraging than that I have ventured to set before you, it is not unreasonable to suppose that what has been accomplished in these settlements, and on the Company's lands, may be done in other parts of the Province, the land being of an equally good quality, and that therefore the Province of New Brunswick generally is well calculated to receive a large portion of the surplus population of the mother country.

Aware that your inquiries have extended to the Minerals of the Province, I beg to inform you that coal is seen cropping out on either side of the River Tay, about five miles above the spot at which you crossed this River on your way to Stanley, and that it has very recently shewn itself on the bank of the Nashwaak, close by the road, about thirteen miles from Fredericton. Dr. Robb being aware of the existence of these facts, I feel it unnecessary to trouble you with any further remark on the matter.

Herewith I forward for your perusal, besides the tabula statement herein referred to, "the Prospectus," setting forth the terms, &c. &c., on which the Company dispose of their lands; the "conditions" on which their agricultural prizes are distributed amongst their settlers; and an extract from one of our Provincial papers in reference to the prizes granted in 1849.

Trusting these papers may furnish you with some information which may not hitherto have come under your notice,

I am, dear Sir, very truly yours,
R. HAYNE,
Com. of N. B. & N. S. Land Company.

To Professor Johnston, &c. &c. &c.

No. 2.

Statement of Examination of the Stock, Crops, and Improvements on the Farms, for the purpose of awarding the Prizes to be given to the Settlers occupying the New Brunswick and Nova Scotia Land Company's Tract, in 1849.

Name of Occupant and Competitor.	Date of occupation.	Under Crop, Season 1849. (Acres.) Wheat.	Buckwheat.	Oats.	Barley.	Rye.	Corn, Peas, Beans, &c.	Potatoes.	Turnips.	Hay.	Stock. (Number.) Horned Cattle.	Horses.	Sheep.	Pigs.	Land. (Acres.) Cleared new 1849.	Ploughed new 1849.	Total plough'd.	Cleared.	Estimated value.	Remarks.
										tons									cur.	In the last column, Dwelling Houses. Barns and Out-buildings are included in the estimate; but the Crops raised in 1849 *are not* taken into account.
H. Rogers,	1840	1½	2½	5	..	..	¾	1¾	2¼	13	11	1	4	3	7½	..	5	64½	£520	
4th. Benson Smith,	1841	..	3½	4	..	..	..	1½	1½	13	7	1	12	8	3½	..	7	58½	400	4th prize, £3 15 0.
David M'Lea,	1844	..	2½	5	..	..	¼	2½	¼	8½	5	2	14	5	4	2	5	48	345	
Geo. Humble,	1836	..	3	4	..	..	..	2	1	7½	7	..	16	4	5	1½	4½	45	285	
5th. Wm. Pringle,	1838	..	1½	4½	..	..	¼	2	¾	4	7	1	8	5	2	2	14½	37	335	5th prize, £2 15 0.
Thos. Jeffrey,	1836	1	1	5	¾	..	..	1½	¼	4½	5	4	5	3	..	2½	16½	49	400	
Geo. Jeffrey,	1846	..	1	3¾	..	..	..	1¼	..	1	4	..	9	5	2	1½	7½	27	192	
Wm. Currie,	1836	1½	1	9½	..	..	..	1½	..	3	4	2	11	3	5	2	10	65	420	
3d. D. Turnbull,	1836	..	1¼	8	..	..	¾	2½	1¼	8	9	1	14	3	9	6¾	13	49	377	3d prize, £4 10 0.
Thos. Douglas,	1836	¼	2¼	4	..	..	¼	1½	..	5	3	2	11	4	3½	4½	9¼	38½	310	
2d. Angus Boies,	1843	1½	3	6½	2½	2½	2	1½	1	9	6	1	20	8	5	..	18¾	155	970	2d prize, £6 0 0.
1st. Geo. White,	1838	¼	1½	11½	..	..	..	3	¾	21	14	3	41	4	..	..	6¼	100	700	1st prize, £8 0 0.
Thos. Bartlett,	1842	¾	1½	6	1¼	..	¼	1½	¾	9	10	2	20	3	..	..	2¾	34	250	
Jesse Clark,	1841	¾	1½	5	..	..	¼	1	¼	8½	7	..	9	3	..	..	3	38	245	
Jas. Duncan,	1836	..	2½	3	..	..	¼	1¾	¼	5½	5	4	5	4	3	1	6	45	350	
Chas. Robbins	1843	..	1½	3	..	..	¼	½	¾	4	4	..	3	5	2	2	7½	10½	135	
		6½	31¾	86¼	4	2½	5½	25½	9¾	123¼	108	24	202	70	51¾	27½	136¾	864	£6234	

N. B.—The Wheat, Oats, &c. &c., grown on the Lands above specified, not having been thrashed out, no estimate is made of the probable quantity raised, but it may be satisfactory to learn, that the Crops (Hay excepted) have exceeded the common average.

Of the 155 acres cleared, or rather under the head of "Land cleared," by "Angus Boies," it is right that I should observe, that upwards of 20 acres were cleared at the cost of the Company, prior to the occupation of this farm by Boies.

Henry Rogers and Thomas Jeffrey, whose names are to be found in the foregoing list, obtained prizes last year.

The comparative small quantity of Land cleared and ploughed by "Charles Robbins," induces me to observe, that Robbins is a Carpenter and Wheelwright by trade; and that his Land, which joins the Town Plat of Stanley, amounting in all to about 21 acres, is well cultivated.

November, 1849.

R. HAYNE, *Com. N. B. & N. S. Land Company.*

No. 3.

Saint John, N. B., October 12, 1849.

Sir,—I beg leave to put you in possession of some ideas of my own which may be worth the perusal.

It is true that farmers labour under disadvantages in this country, from variety of climate and length of winter—but where is the country to be found without its local disadvantages? Notwithsanding all we have to contend with, if labour was more abundant, and could be procured at a cheaper rate, the farmers in New Brunswick would do well.

As to steady, patient, farm labourers, there is no country in the world where they can so soon or so easily obtain an independent livelihood; I know many men who 12 years since had little more than their axe, have now there two or three cows, a yoke of oxen, ten or twelve sheep, a mare and colt, and drive their own horse to market with surplus produce, and have a comfortable house to live in.

Young handy men have no difficulty in finding situations, only let them be moderate in their expectations. The first year let them be content with £14 or £16 from any respectable farmer that offers it; the second year they can choose a situation. The men with industrious wives will easily find farmers glad to take them; the men with wife and child will not be refused; those with wives and from two to more children, will have to make provision for them the first year, but this difficulty vanishes the second year, particularly if the woman and children are inclined to make themselves useful in the neighbourhood they chance to fall; but it too often happens, that in expecting too much they obtain nothing.

After two or three years they save sufficient from their wages to purchase wilderness land, on which they commence, finding every body around ready to assist in building their log house, which is a warm, comfortable dwelling; they then cut down sufficient trees during one winter to enable them to burn and clear up before the first week in June, (the last week in May and first in June, is the best and sure time to plant potatoes,) in which they plant with the hoe as many potatoes as will suffice them the year; the crop is a sure one. Any land not ready before middle of June, sow with turnips, or, not too late, with buckwheat, sure to grow and yield a good crop; after the potatoes come out, throw in winter rye, harrowed with a bunch of brush; it will give them their bread early the following autumn; and so they progress. Two or three families settling near each other, insures a Government grant of money to make a road, which is sold by auction, and they become the purchasers; nothing is required of them, but every thing is put in their way, their greatest difficulties are now surmounted; let them keep clear from running in debt to the different traders both in town and country—rather deny themselves every thing than get in debt—they are sure to get on. Sugar or molasses they can make between the 17th of March and 17th of April from the maple tree; the labrador growing in the woods will provide them a more healthy beverage than tea: spruce beer they make if they like to take the trouble—in fact, with content and common perseverance, in the course of three or four years they may live within themselves, requiring but little from the merchant or trader. In the course of twelve or fifteen years, we find these men who began upon a trifle, or perhaps only their axe, in possession of a good farm, that they will not sell for £500 or £600, perhaps more—their daughters beginning to be married and settling around them—their sons beginning farms of their own. The only difficulty now is to keep one or two about the homestead, to prevent the old people from being under the necessity of hiring labour, *the moment this commences* the onward progress stops.

To the farmer who wishes to leave England with a capital in his pocket, say from £200 to £1000, let him first ask these questions of his wife and daughters, (I allude to the females of a family, because on their dispositions and habits his success greatly depends): Are you ready to put up with and surmount the few difficulties we must at first have to contend with? Are you ready to perform your own household work, and to make not only your own, but my clothes and the boys? for servants, mantuamakers and tailors, are not always to be obtained in a new country, even if you have the means to pay them, and are always exorbitant. If the females are not ready and willing to meet these cases with patience and perseverance, let the family remain in England. However, supposing they are so, and the family arrive at Saint John or any other port in the Colonies, then let the man not be in a hurry to purchase this or that farm, nor let him tell any one that he has

money; the moment this fact is known he will find numerous friends ready to give advice interestedly; but let him be patient, look round and judge for himself, and be in the country at least one year before he lays out his money. After having bought a farm, let him confine his wants within limited bounds, and be determined not to get in debt to any man, for every three months will bring him his account with the interest and compound interest added to it; if he be debtor to a country dealer, that dealer will soon let him know that he has a fine yoke of oxen, a good horse or cow which he must dispose of to pay his debt, and ultimately he will be obliged to force a sale when the market is at the lowest, and nine times out of ten the dealer becomes the purchaser; but let him keep out of debt and be content to progress slowly, and the chances are all in his favour—six per cent. interest for money borrowed is far beyond the means of any farmer to pay.

But as I have before observed, the poor labouring steady farmer, without any capital but his own labour, is the man most likely to thrive in the cultivation of land in a colony.

I think that buckwheat would be a good grain to introduce into more general use in Great Britain, particularly in Ireland; from seventy five to eighty days brings it to maturity; it requires a certain management both in milling and cooking, but when properly managed is a most wholesome diet; nothing will fatten pigs quicker; it does not require a rich soil, but will grow anywhere, if not altogether too wet and barren; ploughed into the land when six inches high, makes a most excellent fallow; during the blight on the potatoes, it has been the saving of the poor in this country, always giving them a ready meal, and ready to be taken to the mill the latter part of August or first September. I think in Ireland two crops might be obtained during a season; the Canada will sow itself; it is only necessary to harrow the ground over, when it will produce a second crop perhaps better than the first, without sowing. I have also grown as good flax and made as good linen in this country as ever was produced in the Netherlands, but it cost me in labour three times as much as I could purchase the article for in the stores.

I have the honor to be, Sir,
Your obedient servant,
THOMAS BEER,
King's County.

To Professor Johnston.

No. 4.

At an adjourned meeting of the Board of the Immigration Society, held at Douglastown, the 13th October, 1849,

The Hon. Alex. Rankin, Vice-President, in the Chair,

The Committee appointed to prepare a Report for Professor Johnston, showing the capabilities of this part of the Province of New Brunswick for Immigration purposes, &c., having submitted their Report, which is as follows, viz:—

We, the undersigned, having been appointed a Committee by the Board of the Northumberland Immigration Society, to communicate with Professor Johnston on his arrival, and report upon the capabilities of this part of New Brunswick for emigration purposes, and the facilities and inducements for emigrants coming among us, having entered upon the same, beg to submit the following Report, viz:

This Committee, in the first place, report that there are immense tracts of uncultivated Government lands, which can be procured for actual settlement, on a fee simple tenure, and at moderate rates, say three shillings currency per acre for the purchase, payable in four yearly instalments, one fourth each year, without interest, or on payment of the whole on the day of sale twenty per cent. discount is allowed; in either case a Patent will issue to the Grantee, his heirs and assigns forever, free of further expense. That the Grant is subject to no incumbrances such as quit rents, tithes, &c. &c.

That there are also vast tracts of cultivated lands belonging to private individuals, which can be procured either on purchase or rent, and at moderate rates, the prices varying according to the eligibility, or local situation of the lands; and on many of these lands, buildings are erected suitable for the immediate reception of settlers.

That, through the bounty of the Legislature, liberal provision has been made towards Education, and in almost every District in this County, ever so remote, the youth has been provided with the means of Education within their reach, and for which the settler is called upon to contribute the smallest possible amount for the support of the Teacher, and even that amount depends upon the voluntary act of the donor.

That the County has been liberally provided with Religious Instruction, and all classes and creeds have the choice of their peculiar form of Religious Instruction, without compulsory restraints or legal restriction.

That the soils of this, and the adjoining Counties of Gloucester, Restigouche, and Kent, called the North Eastern Counties of the Province, have been considered by Agriculturists highly adapted for the culture of grains of every description; but as this branch of the subject more particularly devolve upon the Agricultural Board, we abstain from saying more on the subject. Suffice it to say, that as Lime Stone Quarries are in great abundance within the District, and as they have been found well adapted to the soils generally, the same can be brought to the highest state of perfection, through the means of lime.

That this County is intersected throughout by a great extent of water communication, well calculated as an easy means of transit throughout the County; and our Legislature have provided bountifully towards the Road Service, which may be now said to be in an admirable state of forwardness.

That many extensive and very valuable Mills, worked by steam and water power, are in operation, where grain of all description can be manufactured, and lumber prepared for building, export, and other purposes.

That the climate is bracing and healthy, and the prevailing diseases of many parts of Canada, of the interior of the American Republic, and of Tropical Climates, are unknown; and with moderate attention and care the inhabitants live to great age, and retain their activity and elasticity to the last, without either their body or mind becoming subject to debility or decay.

That water of the best and purest kind is in great abundance every where to be found, and is the common beverage, without requiring artificial means to make it palatable.

That Emigrants can procure passages, with their families, to this country on very moderate terms, and can bring with them such furniture and implements of husbandry as they may require, equally low, through the means of the Merchant ships trading to this port in ballast, from every port in Great Britain, and on their arrival can be conveyed to any part of the County for a mere nothing, the inland communication being of so little extent.

From an accurate survey of the Province, made by the Government, mineral resources are said to be in great abundance, and coal fields are described in many places, and of great extent.

That wood is in abundance, and the settler can procure that article on all occasions from his own farm for his own use or otherwise.

That the Fisheries of the Gulf of Saint Lawrence, which bound the north eastern section of the Province, are described as the finest in the world, and can be taken by all Her Majesty's subjects; no exclusive right or privileges having been granted to any one.

That the form of Government is truly British, being composed of a Governor appointed by and representing our Sovereign; a middle, or Upper Branch, appointed by the Governor, and sanctioned by the Queen, and beyond popular control; and the Popular Branch, elected by the people having Freehold Suffrage; that all classes are within the pale of official eligibility, without reference to country or creed; ability and integrity being the ingredients of success and promotion.

That for two years previous to the last some portion of the crops have, to a certain extent, been a failure, particularly the wheat having suffered by weavil and rust, and the potatoes from the awful scourge, rot: all countries, however, have more or less suffered from the latter, and many to a greater extent than New Brunswick; but in a general way the crops of this section of the Province, where attention have been paid to their cultivation, have rewarded the Husbandman with plenty, and to spare. And we are warranted in saying that our crops have been more certain and productive, than in countries more highly favoured, and more moderate in their climates. Where success has not crowned the sanguine expectations of the farmers, the cause has arisen to a great extent from their own want of care and attention, having devoted their time and labour, which their farms should have exclusively claimed, upon lumbering and other pursuits, thereby yielding a secondary consideration to their farms. In this way their expectations have not been realized, the fault has been their own, and their want of success is not atributable either to our climate or soil. We regret to say that our farmers have, in too many instances, abandoned to a great extent the honorable and lucrative employment of their farms, and madly followed after the lumber trade, which have disappointed their expectations, ruined their prospects, and involved them and their farms in irretrievable debt and ruin; in this way the country has been cried down, and her climate and soil held up as the predisposing cause of the evils, whereas the true and only one rests solely

upon the overdone lumber trade, where even the farmers regardless of their farms and honorable employments, have rushed madly into its toils. Within this immediate neighbourhood we can adduce numerous examples where Emigrants from Great Britain, almost pennyless on their arrival, have procured farms and settled on them, and by moderate toil, and exclusively engaged in their cultivation, have paid the purchase money, lived comfortably, and have now a competence for themselves and families, free from debt and difficulty, and are contented and happy in their lot; while their neighbours more highly favoured, with farms purchased and paid on the arrival of the farmer, having left them to follow after lumbering pursuits, are now farmless and pennyless. This truth, without any exaggeration, we hold up as an incontestible proof of what we are contending for.

Having now given a very brief outline of the capabilities of this part of the Province for Immigration purposes, we would, in conclusion, suggest the description of settlers that would be successful, and become useful alike to the country and beneficial to themselves and families. In the first place we should recommend that intending Emigrants become practically acquainted with the various branches of Agricultural operations in their own country, and with sufficient skill to bring that experience with them, and turn the same to the best account on arrival. They should be industrious and persevering, moderate in their wants and desires, and frugal in their habits, and above all should be contented, and give the country a fair and impartial trial, and not draw invidious distinctions between the country they had left and the home of their adoption; always bearing in mind that the one is the most highly favoured spot on the Globe in every point of view, while the other is in comparative infancy. They should be determined to devote their time, labour, and exclusive attention to the cultivation of the soil, without allowing their minds to be absorbed by any other consideration, or their attention detracted from the one grand object, Farming. They should be thankful and contented with the produce of their own farms to sustain them, and be clothed with such materials as can be produced therefrom. An Emigrant arriving here with such a determination, we are constrained to say, would be eminently successful; and by proper representations to his friends across the Atlantic, the tide of Emigration which have tended towards the far West would be directed towards this hitherto neglected British Province. We do not in the foregoing recommendations wish it to be inferred that farmers of capital should not come to this country, far from it; a farmer so circumstanced would be enabled to settle himself more eligibly, and to better advantage, and gather around him those luxuries and comforts which, without means, would take time and labour to acquire.—All of which is respectfully submitted.

ALEX. GOODFELLOW, JOHN FRAZER, EDWARD WILLISTON, JOHN PORTER, } Committee of the Immigration Board.

ALEX. RANKIN, Vice President.

Thereupon Resolved, That the Report be accepted, and the same be countersigned by the Honorable Alexander Rankin, Vice President of the Society, and be by that gentleman, and John Porter, Esquire, handed to the learned Professor on his arrival here. Extract from the Minutes.

EDWARD WILLISTON, Secretary.

We beg further to Report that the Society has now on hand a considerable sum, which can be appropriated to the objects contemplated by the Society at its formation. That by the constitution Emigrants on arrival will be assisted from the funds with means to enable them to settle on lands, and also to purchase seed for the first year's sowing. When the Emigrants, selected at home under proper authority, and only those encouraged to come who would realize the wishes of the Society, and the Society be satisfied of their becoming permanently attached to the country by settlement, this Society would be induced to appropriate a part of their funds towards the passage across the Atlantic. And unless a proper discrimination be exercised at home, the Society would not feel safe in appropriating their means for the latter object. We would further state, that farm servants, well acquainted with the various branches of husbandry, would be well rewarded by coming to this country for that purpose alone, as they could realize from £18 to £30 currency per annum for their labour.

ALEX. RANKIN, Vice-President.

EDWD. WILLISTON, Secretary.

ADDITIONAL APPENDIX.

5th. Act to facilitate the sale and improvement of the Crown Lands in New Brunswick.

6th. Report and Statistics of the Harvey and Teetotal Settlements formed in the Wilderness under the superintendence of the Honorable L. A. Wilmot.

No. 5.

12 VICTORIA, CAP. IV.

AN ACT TO FACILITATE THE SALE AND IMPROVEMENT OF CROWN LANDS IN CERTAIN CASES.

Passed 8th March, 1849.

'WHEREAS every facility and encouragement should 'be afforded for the occupation and improvement of the 'ungranted Lands in this Province: And whereas it is 'deemed advisable that the Government should be in-'vested with power to dispose of the Crown Lands in 'certain cases by private sale, upon such terms and 'conditions as may be most encouraging to the pur-'chaser;'

I. Be it therefore enacted by the Lieutenant Governor, Legislative Council and Assembly, That notwithstanding any thing contained in the Fifth Section of an Act made and passed in the eighth year of the Reign of His late Majesty William the Fourth, intituled *An Act for the support of the Civil Government of this Province*, it shall and may be lawful for His Excellency the Lieutenant Governor or Administrator of the Government for the time being, by and with the advice and consent of the Executive Council, from time to time, and as often as occasion may require, and with a view to the early disposal of the vacant Crown Lands to persons who are able and willing to improve the same, to cause portions thereof to be surveyed and laid off in such place and in such way and manner as may be deemed most advisable.

II. And be it enacted, That it shall and may be lawful for His Excellency the Lieutenant Governor or Administrator of the Government for the time being, by and with the advice and consent aforesaid, to sell and dispose of the Lots so surveyed and laid off as aforesaid, by private sale, for such price as may be deemed advisable, and upon such terms of payment, either in money or in opening and making the Roads through such Lots, or otherwise, as may most readily facilitate the occupation and improvement thereof by orderly and industrious Settlers; provided always, that no Lot be sold at a less rate than three shillings per acre, or shall contain a greater quantity than one hundred acres.

III. And be it enacted, That His Excellency the Lieutenant Governor or Administrator of the Government for the time being, by and with the advice and consent aforesaid, shall have full power and authority during the continuance of this Act to make, publish and enforce such Rules and Regulations as may be required for carrying out the objects of this Act.

IV. And be it enacted, That this Act shall not come into operation or be in force until the first day of September next.

REGULATIONS.

1. That the Local Deputies do, as soonas practicable, report to the Surveyor General the most desirable Tracts of Land for immediate settlement in their respective Districts, and the probable number of Lots that may be required for immediate settlement, and

that similar Reports be made from time to time as occasion may require.

2. That all persons desirous of selecting any particular Tract for Settlement, under the provisions of the above Act, do signify the same forthwith either to the Local Deputy of the County or to the Surveyor General, in order that such Tract, with the Road to and through the same, may be laid off preparatory to sale.

3. That the Applicants in all cases shall state in their Petition whether they wish to pay for their Land in Money or by Labour upon the Roads.

4. That no Land will be sold at less than three shillings per acre, and no person shall be allowed to purchase more than one hundred acres under the provisions of the above Act.

5. That where the purchaser shall prefer paying the whole amount in Money on the day of Sale, a discount will be made thereon of twenty per cent.

6. That where the Lands applied for require to be Surveyed, the expense thereof shall be paid by the applicant before he be allowed to take possession, or perform any labour in payment.

7. That where the purchase is made for Money under the Regulations, if the payments required are not duly made according to the terms of Sale, and any Instalment is not paid on or before the day when it becomes due, the Land in all such cases shall immediately upon default made, be open to re-sale, and upon application made, shall be disposed of without reference to any improvements which may have been made by the former purchaser.

8. That all payments of Money shall be made to the Local Deputies, except in case of purchases in York and Sunbury, when they will be made to the Receiver General.

9. That the Local Deputies shall render Returns, make remittances, and be entitled to receive and retain the same Commission on Monies received under the above Act, and by virtue of these Regulations, as they do at present under the Regulations of the 11th May, 1843.

10. That as the avowed object of the Legislature in passing the above Act was to secure the occupation and improvement of the ungranted Lands of the Province, no neglect of occupation and improvement will be permitted for a longer period than three months, unless upon good cause shewn therefor to the satisfaction of His Excellency in Council; and in case of the non-occupation and improvement of any Lot beyond that time, and not satisfactorily accounted for, the Lot shall be open to re-sale, and upon application made will be disposed of without reference to any improvements made by the former purchaser.

11. That the occupation and improvement under the last Rule shall be by *bona fide* settlement upon the Lot, and shall be such as plainly to indicate the intention of the purchaser to do all in his power to make a permanent residence thereon.

12. That in all cases where the purchaser is to make payment by Labour on the Roads, he shall perform the labour at such times and at such places as shall be fixed upon by the Commissioners to be appointed for that purpose; and in no case shall less work be done in any one year than will be equal to one-fourth of the whole purchase money.

13. That if any purchaser shall refuse to perform labour when required as aforesaid, the Commissioner shall forthwith report the same; and unless good cause be shewn for such refusal, the purchaser so refusing shall forfeit his right under the Sale, and his allotment shall be open to new application, and will be sold without reference to any improvements he may have made thereon.

14. That no Grant of any Lot purchased under the provisions of the above Act shall issue until it be proved to the satisfaction of the Lieutenant Governor and Council that, in addition to payment for the Lot by Money or Labour, the purchaser has actually resided thereon for the space of one year, and has brought at least ten acres thereof into a state of cultivation.

15. That if any purchaser do remove or cause or permit to be removed from his Lot any Timber or Logs before he shall have received a Grant of such Lot, such Timber and Logs shall be seized and forfeited to the use of the Province; and the Lot from which such removal shall have taken place shall be open to new application, without reference to any improvements of the original purchaser.

16. That in case any purchaser shall be detected in any fraud, deception or misrepresentation in his dealings with the Government under the above Act and these Regulations, he shall thenceforth be excluded from all the benefits and advantages of the said Act.

17. The remuneration to the Commissioners appointed under the said Act, shall be Five per cent. of the value of the labour performed, the same to be paid by the purchaser to the Commissioners on approval of the work, and to be deducted from the purchase money.

18. That applications to purchase Land by labour under the above Act, in detached or isolated Lots, will not be entertained.

(*Passed in Council 29th October*, 1849, *19th February*, 1850, *and 4th July*, 1850.)

No. 6.

HARVEY SETTLEMENT.

Report from Honorable L. A. Wilmot, Commissioner for Harvey Settlement.

(Copy) *Fredericton, 9th Feb.*, 1844.

May it please Your Excellency,

I have the honor to lay before Your Excellency a Statistical Return of the Harvey Settlement for the past year, including also the new Settlers in the rear Lots.

The great success which has followed the labours of these industrious and valuable Settlers is an unquestionable proof of what may yet be done on our millions of Wilderness Lands.

The Return shews that from Land where not a tree had been felled in July 1837, there have been taken during the past autumn, 260 tons of Hay and Straw, and 15,000 bushels of Grain, Potatoes and Turnips.

It is desirable that the accompanying Return may be circulated among the Settlers' friends and countrymen in the North of England, as well as in other parts of the United Kingdom, so that the capabilities of our new land soil may appear, and that it may also be made known that we have at least five millions acres yet undisposed of—a great portion of which is of better quality than the Land at Harvey—whereon the sober and industrious Emigrant may create a home under the protection of British Laws and in the enjoyment of British Institutions.

I have the honor, &c.,

(Signed) L. A. Wilmot, *Com'r.*

His Excellency Sir W. M. G. Colebrooke,
K. H., &c. &c. &c.

Return of Harvey Settlement for the Year 1843.

NAMES.	Acres in Crop 1843.	Acres new Land for crop next year.	Acres in Meadow this year.	Acres in Pasture.	Tons of Hay.	Tons of Straw.	Bushels Potatoes.	Bushels Wheat.	Bushels Oats.	Bushels Barley and Buckwheat.	Bushels Turnips.	Bushels other Roots	Cows.	Oxen.	Horses.	Sheep.	Swine.	Young Cattle.	Dwelling Houses.	Barns.	Other Out Houses.	Number in Family.	Estimated value of Land and Improvements.
William Embleton,	6	3	3	1	3	3	300	12	100	6	3	1	2	0	0	4	2	2	1	1	0	7	£60 0 0
James Mowatt,	8	4	8	3	3	3	300	4	90	14	0	0	1	0	0	0	3	2	1	1	1	4	100 0 0
William Messer,																							
Thomas Herbert,	14	8	12	3	5	5	400	6	250	31	0	1	2	0	1	7	4	1	1	1	2	8	155 0 0
William Grieve,																							
John Cockburn,	16	10	12	6	14	5	600	18	250	34	70	3	4	1	2	7	6	2	1	2	4	8	180 0 0
David Letford,	6½	5	4	2	3	2	40	5	50	18	4	1	1	0	0	5	0	1	1	1	3	7	118 0 0
John Thomson,	6½	4	7	2	6	4	200	12	70	1	0	0	1	2	0	2	2	0	1	1	2	8	100 0 0
Robert Wilson,	15	10	13	2	12	6	700	16	300	50	6	3	2	2	0	0	9	3	1	1	2	10	165 0 0
Henry Craigs,	11½	5½	12	3	9	6	200	8	130	8	13	0	1	0	1	3	3	0	2	1	2	5	150 0 0
William Bell,	6	5	6	1	3	3	100	5	120	14	9	1	2	2	0	0	2	0	1	1	2	5	130 0 0
Thomas Mowatt,	8	4	3	1	1	3	200	12	100	42	1	1	1	2	0	0	2	2	1	1	2	6	92 0 0
James Wishet,	5	1½	14	6	8	2	160	7	20	16	0	0	1	2	0	0	2	2	1	1	1	2	150 0 0
Alexander Hay,	10	4	2	1	1	4	150	15	100	44	0	1	1	2	0	0	5	2	1	1	2	8	100 0 0
Andrew Montgomery,	6½	2	6	0	1	1	60	4	50	0	0	0	2	0	1	8	3	3	1	1	3	4	150 0 0
Matthew Percy,	11	5	7	2	6	6	400	24	200	48	6	3	1	2	0	8	4	1	1	1	3	5	135 0 0
James Corne,	9	5	6	4	3½	4	200	19	100	7½	3	1	2	2	0	0	4	1	1	1	2	8	126 0 0
Thomas Kay,	6½	3	3	1	3	3½	235	13	93	26	2½	1	2	0	0	2	2	2	1	1	3	4	73 0 0
George Davidson,	4	3	2	1	2	2	150	4	70	10	0	0	2	0	0	1	3	3	1	1	1	3	75 10 0
John Scott,	5	2	6	2	2	4	80	8	80	11	0	0	1	0	0	0	3	1	1	1	1	2	90 10 0
Thomas Percy,	8	4	5	5	8	6	300	15	100	15	12	3	3	0	1	9	5	2	1	1	2	4	180 10 0
John Carmichael,	6	2	3	1	1½	2	200	7	50	25	1	0	1	0	0	2	2	1	1	1	1	7	92 0 0
John Wightman,	7	3	4	1½	6	3	300	4	100	15	10	0	1	2	0	0	3	1	1	1	2	6	135 0 0
John Nesbitt,	10	5	10	0	5	5	300	6	100	8	10	0	2	0	1	6	7	5	1	1	2	8	130 0 0
Robert Tait,	10	3	0	0	0	3	300	5	70	15½	0	0	1	0	0	0	5	1	1	1	0	2	70 0 0
William Patterson,	10	4	6	1	5	3	330	16	100	15	0	0	2	0	1	0	4	3	1	1	2	3	120 0 0
William Robison,	10	6	4	0	4	3	453	25	230	30	10	0	2	0	1	0	7	0	3	1	2	11	130 0 0
	219½	111	158	49½	115	91½	6955	270	2920	564	160	20	41	19	9	59	97	40	28	26	47	147	£3007 10 0
Robert Embleton,	7	4	1	0	1	4	200	16	100	15	14	0	1	0	0	0	4	0	1	1	3	1	£78 0 0
George Nesbitt,																							
George Embleton,	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	5	72 0 0
George Cockburn,																							
James Swan,	7⅔	5	1½	0	1	4	200	12	130	8	0	0	1	2	0	0	2	2	1	1	1	4	100 0 0
Thomas Briggs,	6	5	4	0	3	3	180	10	130	0	0	0	1	2	0	0	2	0	1	1	1	5	100 0 0
Matthew Little,	14	13	4	0	4	7	700	20	300	0	3	0	1	0	0	0	35	3	1	1	1	1	149 0 0
James Little,	6	3	2½	1	2	1½	300	5	70	0	0	0	1	0	0	0	2	1	1	1	0	1	90 0 0
William Little,	9	13	2½	3½	3½	6	570	0	240	0	0	0	2	0	1	0	8	2	1	1	1	1	133 0 0
David Little,	4½	11	6	2	7	2	350	3	60	3	0	0	2	0	0	0	2	3	1	1	0	1	138 0 0
A. Hughen,	3	2	0	0	0	1½	200	0	50	0	0	1	1	0	0	0	2	2	1	1	0	3	64 0 0
Luke Craigs,	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7	1	0	0	0	5	50 0 0
James Craigs,	3	6	0	0	2	0	130	0	30	0	0	0	1	2	0	0	3	3	0	1	1	4	58 0 0
John Moffat,	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	1	0	0	3	50 0 0
Thomas Brown,	6	4	0	0	0	2	100	5	50	0	0	0	0	2	0	0	2	0	1	1	0	1	50 0 0
M. Gill,	6	4	0	5	0	0	30	0	0	30	0	0	0	0	0	0	0	1	0	0	0	0	150 0 0
William Cockburn,	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 0
Robert Piercy,	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 0
	72½	109	21	11½	23½	31	2960	71	1160	56	17	1	13	8	1	3	73	16	13	10	7	35	£1282 0 0

REMARKS.— The estimated value of improvements is made up exclusive of the Buildings, and no one Settler would part with his Lot at the stated value. There is a good School in the middle of the Settlement, and the average attendance of Scholars during the past year was thirty. The Settlers accompany the original Return with the following observations: "The Climate of New Brunswick agrees well with the constitution of Englishmen; the air is salubrious, and the water as pure and wholesome as any in the world. During the six years of our location there has occurred but two deaths, while there have been thirty nine births without the presence of medical aid. Six years experience have convinced us that notwithstanding the privations to which new Settlers are exposed, diligence and perseverance must ensure success."

February 9th, 1844. (Signed) L. A. WILMOT, *Late Commissioner.*

Recapitulation.

	Old Settle't.	Backsettl'rs	Totals.
Acres in Crop,	219½	72	291¼
New Land for Crop next y'r,	111	100	211
In Meadow,	158	21	179
In Pasture,	49½	11½	61
Tons of Hay,	115	23½	138½
Tons of Straw,	91½	31	122¾
Bushels Potatoes,	6955	2960	9915
Bushels Wheat,	270	71	341
Bushels Oats,	2920	1160	4080
Bush. Barley & Buckw't	504	56	560
Bushels Turnips,	160	17	177
Bushels other Roots,	20	1	21

Recapitulation—Continued.

	Old Settle't.	Backsettl'rs	Totals.
Cows,	41	13	54
Oxen,	19	8	27
Horses,	9	1	10
Sheep,	59	3	62
Swine,	97	72	169
Young Cattle,	40	16	56
Dwelling Houses,	28	13	41
Barns,	26	10	36
Out Houses,	47	7	54
Number of Souls,	147	35	182
Estimated value of improvements.	£3,007 10 0	£1,280 0 0	£4,289 10 0

Fredericton, February 1844. (Signed) L. A. WILMOT, *Commissioner.*

TEETOTAL SETTLEMENT.

Report from Honorable L. A. Wilmot, Commissioner for Teetotal Settlement.

Fredericton, 25th Jan., 1844.

MAY IT PLEASE YOUR EXCELLENCY,

I have the honor of herewith laying before Your Excellency a Tabular Return of the Improvements, Crops, Stock, &c., of the "Teetotal Settlement," up to the close of the last year.

The results of this, the second effort in which I have been engaged, in forming Settlements in the Wilderness, have afforded me the most unmingled gratification.

Where but two years ago stood a dense Forest, there have been gathered by thirty Settlers during the past Autumn seven thousand two hundred and seventy six bushels of Grain, Potatoes and Turnips.

The accompanying Return shews an estimate value of £1,137 in Buildings and Clearings, and when there is added to this the market value of the Crop, exceeding £800, we have about £2000 return (exclusive of the making of four and a quarter miles of Road) from a tract of Land, which, in its Wilderness state, would not in the same time have produced one shilling.

I cannot now consider the successful occupation of our Wild Lands by associated bodies of Settlers, having the privilege of making their own Roads at a reasonable rate, as a doubtful experiment. No antagonist theory can prevail against the practical experience which can now be referred to.

Similar management must produce similar results, and I am well persuaded that no other system is so well calculated to promote the improvement of our millions of wilderness acres, and thus to advance the Population and Commerce of the Province.

I have the honor, &c.

(Signed) L. A. WILMOT, *Com'r.*

Return of Teetotal Settlement for the Year 1843.

NAMES.	Houses.	Out Houses.	Acres clear'd	Acres crop'd.	Bushels Potatoes	Bushels Turnips.	Bushels Oats.	Bush. Wheat	Bushels other Grain.	Cows.	Other Cattle.	Swine.	No. in Family	Estimated value of Improvements.
James Barrett,	1	1	2	2	Crops	lost	0	0	0	0	0	0	1	£14
Daniel Donovan,	1	2	7	5	130	0	60	10	0	0	0	0	1	44
Richard Davis,	1	2	3	4	150	20	30	5	10	1	0	1	5	32
John Sullivan,	1	2	3	2	20	12	30	0	0	0	0	0	1	14
Michael Sullivan,	1	2	5	5	300	30	40	10	17	0	0	4	2	39
James Crane,	1	2	5	4	200	20	40	0	0	1	0	0	3	35
James Cailey,	1	1	4	2	0	0	0	0	0	0	0	0	1	25
Michael O'Brien,	1	0	5	2	50	12	0	0	0	0	0	0	2	24
Cornelius Clancy,	1	1	5	4	130	0	40	0	0	0	0	0	1	35
Cornelius M'Donald,	0	0	3	2	40	12	30	0	0	0	0	0	1	14
David Scanlin,	1	1	3	3	260	15	30	5	0	0	0	0	4	27
Michael Crowley,	1	1	5	3	100	0	25	0	0	0	0	1	2	31
Jeremiah Crowley,	1	1	6	4	200	20	30	0	0	1	0	1	4	37
James Gorman,	1	1	7	5	300	25	45	12	0	1	horse	3	2	43
Owen Smith,	1	1	5	3	140	12	40	0	0	0	2 do.	0	1	31
Daniel O'Brien,	1	1	4	4	200	12	50	4	0	0	0	0	1	33
John Mahony,	1	2	4	4	200	20	30	0	0	1	0	3	5	33
Dennis Riorden,	1	1	5	3	180	15	25	0	0	1	0	0	2	31
John O'Brien,	0	1	4	3	150	0	20	0	0	0	0	0	1	23
George Wynne,	1	1	5	4	140	20	0	9	0	0	0	3	1	33
Miles O'Leary.	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Simon O'Leary,	0	0	5	3	0	0	0	0	0	0	0	0	0	22
Michael Mahoney,	1	2	5	3	150	12	30	0	0	0	0	1	4	31
Daniel Hurley,	1	2	4	3	120	15	20	8	0	1	0	2	4	29
John Driscoll, 1st.	0	0	3	2	0	0	25	0	0	0	0	0	0	14
James Driscoll,	1	1	5	4	150	0	55	0	0	0	0	0	1	35
Daniel Couglan,	1	2	5	3	130	12	20	5	0	0	0	0	5	31
Jeremiah Donovan,	0	0	3	2	0	0	0	0	0	0	0	0	1	14
John Driscoll, 2d.	1	1	5	3	130	13	30	0	0	1	0	0	3	31
John Barry,	1	1	6	4	230	20	40	10	0	0	0	1	3	37
Edward Connor,	1	1	5	3	200	15	25	0	0	0	0	1	4	31
John M'Curdy,	1	1	4	3	200	20	0	0	0	0	0	1	4	29
Daniel Sullivan,	1	1	6	4	150	15	25	6	10	0	0	0	4	37
John Kingston,	1	1	4	2	100	12	15	0	0	1	0	2	6	25
Timothy Daly, 1st.	1	1	5	4	250	20	30	6	0	1	0	0	4	35
John Couglan,	1	1	5	4	300	20	40	10	0	1	0	1	4	35
John Russel,	1	2	4	5	330	25	40	0	0	0	0	1	2	37
Timothy Daly, 2d.	1	0	3	3	200	20	30	0	0	0	0	1	3	24
James Mahon,	1	0	3	2	100	0	10	0	0	0	0	2	7	29
Henry Wynne,	0	0	3	2	130	0	20	0	0	0	0	0	1	14
TOTALS,	33	41	177	127	5700	464	980	95	37	11	3	29	101	£1137

REMARKS.—The valuation is exclusively confined to the improvements, and does not include the Purchase Money to the Crown.—In making up the Estimate, each House is valued at £6, Out House, £3, and £4 per acre is allowed for the Land thoroughly cleared, and £2 per acre for that only partially cleared.

RECAPITULATION.

Houses, 33; Out Houses, 41; Acres cleared, 177; Acres cropped, 127; Bushels Potatoes, 5,700; Turnips, 464; Oats, 980; Wheat, 95; other Grain, 37; Cows, 11; Horses, 3; Swine, 29.—Total number of Souls in Settlement, 101.

(Signed) L. A. WILMOT, *Commissioner.*

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