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AGRICULTURE.

REPORT ON THE AGRICULTURAL CAPABILITIES OF THE PROVINCE OF NEW BRUNSWICK.

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(Continued from our last.)

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 Rivers, and those of the County of Charlotte. When the upper more open soil rests 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 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 produce and to nourish crops. If the roots are unable to descend, the riches of the earth lie buried as truly as the gold 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.

α. 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.

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 30 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 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 obseve 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'LAUCHLAN.

This year I used twenty two hogsheads of lime; each cask will slack 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 eight or ten inches deep with the surrounding clay, and allow them to stand for 3 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 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's 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, *Northumberland.*

Lime has been profitably employed 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 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 benefitted. 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 likely to be the most 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 of 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 fertilizing 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 benefitting 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 various 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 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 stray off the farm unless an equivalent in manure be brought back in its place—a more early cutting of the grain crops than is usually practised—these and 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 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 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 a means by which the necessity for selling or killing so much of the stock on the approach of winter should 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 that 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, so 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. 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 & Rye flour. Bushels.	Corn Meal. Bushels.	Oats.		
			in Meal. Bushels	Raw. Bushels	Total. Bushels.
1845	1206	400	nil	6239	6239
1846	1419	580	1700	5303	7002
1847	1574	542	880	8614	9491
1848	2587	1180	1550	8691	10241
1849	2088	1163	3830	12100	15030
Increase from 1845 to 1849.	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 of oats (manufactured particularly) is in fact more than double the quantity of that grain being cultivated in