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**AGRICULTURAL**  
**JOURNAL**  
 AND  
**TRANSACTIONS**  
 OF THE  
**LOWER CANADA**  
**Agricultural Society.**

VOL. 4.

MONTREAL, DECEMBER, 1851.

No. 12.

QUEBEC AND HALIFAX RAILROAD, AND TRUNK LINE OF RAILROAD TO HAMILTON AND DETROIT.

In the last Session of the Provincial Parliament, an Act was passed, entitled "An Act for raising by way of Loan, a sum not exceeding four millions of pounds currency, for making a Main Trunk Line of Railway throughout the length of the Province," (August 30th, 1851.) This Act recites the substance of a Message from His Excellency the Governor General, acquainting the Legislative Assembly, "that Her Majesty's Government were disposed, on certain conditions, to recommend to Parliament, that the credit of the United Kingdom should be employed to enable the Provinces of Canada, New Brunswick, and Nova Scotia, to raise upon advantageous terms the funds necessary for the construction of a line of Railway from Halifax, in Nova Scotia, to Quebec or Montreal, in this Province." This Act goes on to provide that this Line of Railway should be continued from Que-

bec to the City of Hamilton, in Western Canada, and thus form the "Main Trunk Line of Railway throughout the Province," in connection with the Great Western Railroad now being constructed from Burlington Bay to Detroit River, the funds for which are already guaranteed by the Province. The Act presumes that the funds required for the whole of the "Main Trunk Line of Railroad" will be obtained upon the credit of the United Kingdom, and there is very little doubt on this subject.

It is upon the authority of this Act, solemnly passed by the Provincial Parliament, that the friends of this railroad advocate its construction *throughout the Province of Canada*, because it would be a work of the highest importance to the progress and welfare of the Province. They do not advocate any separate portions of this railroad, but that the whole line should be completed from the boundary line between Canada and New Brunswick, westward to Hamilton, in

Upper Canada, according to the true spirit and meaning of the Act referred to, and in common justice to all parts of the Province of Canada. It is a very extraordinary fact, that parties who oppose the Quebec and Halifax Railroad would be perfectly satisfied that the four million pounds should be borrowed and expended on railroads to be constructed westward of Montreal, although there is not at present a mile of railroad constructed within one hundred miles of Quebec. There appears to be an unfairness in such conduct towards our fellow subjects, that it is astonishing a proposition of the kind would be made, or obtain any support. It is the general opinion, that in the present age railroads are necessary to the prosperity of every country. If this be the fact, how is a country that has no railroads to have any chance of succeeding like one that has them? It is admitted that the proposed line of Railroad from Quebec to Halifax must pass through an immense tract of forest land that is capable of cultivation. The opponents of the railroad may question this, but the very circumstance of the land being adapted for a railroad, proves that it is capable of cultivation. It may require draining of course, but if it is sufficiently level for a railroad, there is little doubt of its being suitable for cultivation, when there was a certainty of means of transporting the produce to market. There is not much of the forest lands of British America, south of 47°, that are not capable of cultivation unless the mountainous parts, which do not prevail much south of that line. The opening up for settlement and cultivation many millions of acres of land would alone justify the expenditures required for constructing the Railroad from Quebec to Halifax, under the circumstances.

What influence would the making of this road have upon emigration? Emigrants from the British Isles are constantly going to the United States by hundreds of thousands, and many of them passing

through this Province, because they obtain more employment and better wages in the neighbouring States. They are employed in the latter country in making railroads, and other improvements, and subsequently settle there, and thus augment the population, wealth, and power of the United States. Railroads are required in Canada for its improvement as much as in the United States, and now that a favourable opportunity offers of constructing a most necessary and useful railroad, of giving employment to emigrants, and of expending a large amount of capital in the country, in the most useful channels possible, parties are found to offer the most determined opposition, unless all the advantages are appropriated by themselves, or at their dictation. Professor Johnson, of Durham, England, was sent for expressly, in 1849, by the Legislature of New Brunswick, to make a survey and report of the agricultural capabilities of New Brunswick. This gentleman's report is extremely favourable indeed. He says the Province is capable of amply providing for a population of between five and six millions, and that the average produce, (from official returns he had obtained from every county in the Province), of wheat, barley, oats, buckwheat, rye, potatoes, and turnips was greater in New Brunswick than in New York, Ohio, Michigan or Canada West. This gentleman was well qualified to give a correct opinion, and if he was not known to be so, he would not have been selected for such a purpose. He travelled by land from Quebec to New Brunswick, and reports favourably of the whole line which would be about that of the proposed railroad. If we find productive farms resulting from good management, though surrounded by unproductive farms resulting from bad management, we cannot condemn the soil and climate because it is unproductive from want of improvement and bad management.

It is the general opinion that drainage and cultivation will greatly ameliorate the

climate of a country, and there is very little doubt of it. The country on the South side of the St. Lawrence, for 150 miles below Quebec, is admitted to be a fine country naturally—and has a considerable population, (we cannot say exactly, but believe it something over 100,000)—and to this section of the country a railroad would be of immense advantage. Canada has not an open sea port for five or six months of the year. By constructing the Quebec and Halifax Railroad, it would give Canada constant access to a sea-port on the Atlantic, open at all times of the year, and from which there is a line of first-class steamers weekly to England. If Canada, with her population and resources, cannot afford to have and support this road to the boundary of New Brunswick, without injury to her credit or her means, it would certainly be very strange. The population of Lower Canada are the most lightly taxed civilized people on the face of the earth. The average amount for each inhabitant paid annually towards the revenue does not exceed five to six shillings currency. Some parties may suppose it more than this amount, but on a close inspection of official returns of imports, exports, &c., it will be found not to exceed our estimate.

The rapid progress of the people of the United States, particularly in the construction of railroads, is constantly pointed out to us as an example for imitation. If they had such a road as that proposed from Quebec to Halifax, and from Quebec to Hamilton, to construct, with the same favorable means of doing so—namely, obtaining money from England at an interest of  $3\frac{1}{2}$  per cent, the work would be in progress before the end of a month, and would be very soon completed. The opposition to this railroad appears to be confined chiefly to Montreal. It must not be forgotten, however, that Montreal is not British America, nor even Lower Canada, although she forms a part of it, and has a population of something over a twentieth

part of that of Lower Canada, and it would be difficult to reconcile it to strict justice, if the opposition of a section of the inhabitants of Montreal should be able to prevent the construction of the railroad in question, and defeat the Act of the Provincial Legislature. The construction of railroads and canals should not be made political questions. These improvements should be made for the general benefit of the population of the country, wherever they would be required, provided the funds could be obtained for them on favourable terms, as in the present instance; but party and sectional interests should not be allowed to have any influence whatever. We advocate railroads and canals, because we are convinced they will have a most beneficial influence in promoting the improvements of agriculture, and upon the general prosperity of British America. There cannot be any road constructed that would produce a greater amount of general good to British America, than the Halifax and Quebec Railroad, connected with the Grand Trunk Line to Hamilton and Detroit in the western section of Upper Canada. Branch lines of road will be constructed from this trunk line, where necessary. If the inhabitants of this country were called upon to furnish the funds to construct this road it might be very imprudent for them to lock up in a railroad so much of the working capital of the country, where it is not in abundance. On the contrary, this is not required, but we would have the advantage of expending in the most useful channels four million pounds currency of capital, obtained on the most favourable terms from England, and there is not the slightest grounds to apprehend that England will be a severely exacting creditor under the circumstances. When the Erie Canal was commenced through a wilderness, there was a thousand-fold more opposition offered, than there is to the Quebec and Halifax Railroad, and when the Lachine Canal was being enlarged, and the St. Lawrence

Canal constructed on its present magnificent scale, we have heard men of talent and respectability say that it was the most foolish and unwarrantable expenditure of public funds that was ever made, and that it would be a ruinous debt to the country it would never be able to pay. This work was only commenced about seven years ago, and it is not yet complete, and by reference to official returns, it will be seen what is the result of this improvement, that is a credit and honour to our country. There is very little doubt that in a short period the trade and commerce by the canal in question will be increased a hundred-fold what it was previous to 1844, when the work was commenced. We are constantly taunted in this country for our slow progress in improvements compared with our neighbours on the South side of line 45° but this taunt is very unjust by those who make it, and they would not make it, if they took the trouble to examine all the circumstances of both countries. Might we not reasonably expect that the constructing of a railroad through the country east of Quebec, where perhaps, not one, or at least very few of the inhabitants ever saw a such a road, would be productive of great benefit, in showing them the vast advantages of such improvements, and of easy and rapid means of communication. The inhabitants of cities and towns may fancy that they are every thing to the country, but we can tell them that the prosperity of the cities and towns must depend upon the improvement and prosperity of the country, and that it is the products of the country, and not of the houses and streets of cities and towns, that must support railroads and canals, and trade and commerce, where not directly, certainly, indirectly. We have gone at great length into this subject, as we consider it one of vast importance. We are not influenced by any party or other motives, except what we conceive to be for the good of British America generally,

and Canada particularly. Railroads and canals are strictly connected with agriculture, and it is from this conviction we advocate them. They may not be of so much importance in every locality, but their general benefit to the agriculture of the country will be unquestionable. The Legislature of Nova Scotia, and, we believe, of New Brunswick, have in their late Session, passed Acts for constructing this road through their respective Provinces, and it would indeed be extraordinary if we should now annul our Act of Parliament, and refuse to meet them.

*To the Editor of the Agricultural Journal.*

SIR,—In a letter I addressed to you last spring, and which you had the courtesy to give a place in the pages of the Journal, I proposed that the farmers of Lower Canada should try some experiments on the different kinds of spring wheat, with a view to ascertain which kind will be most profitable for us to cultivate under present circumstances.

I do not wish you to understand that I think I have found out the best kind for us to sow, but to be consistent with myself, I give below the result of an experiment I made on a small scale on ten different varieties, and found them as follows:—

	Straw & Grain,	Clean Grain.
Webster's wheat,.....	86 lbs.	36½ lbs.
Jerusalem,.....	77	30½
Black Sea,.....	80	29½
Oregon,.....	82	29
Siberian,.....	74	26
Leroy's,.....	68	24½
Tea,.....	68	23
Club,.....	67	21
Red Hedge Row,.....	66	20
Lyman's English,.....	67	18

I kept a journal of the progress of their growth but it may not be of much interest to the readers of the Journal, although a source of amusement to myself in watching the race towards maturity. I only mention that the same quantity of seed was sown on the same extent of land on the 26th May; the Club was the first through the ground with the Oregon close upon it, five of the others came up at the same time, and three others, viz., Webster's, Jerusalem and English came

a little later. The Oregon was the first in ear by the length of the head; the Club was reaped ten days before any of the others, but it could not be said to have ripened, for it was killed with rust, and withered. All the others were reaped at the same time, the Webster being still on the green side; the English, which a few days previous was quite green, was struck with rust, and withered, which accounts for its great deficiency in yield, it was fully as bulky a crop as the others. Mr. Editor, the names I have given these different kinds are not their proper names, but yourself or some one that knows them better than I do, may give them their proper names. I send you a sample of each, threshed, and in the straw; you will observe that there are some of them near akin to each other, the Jerusalem and Webster's resemble each other, and also the Siberian and Black Sea; I am of opinion that there are different varieties belonging to the same classes, if not, they say little in favour of changing seed, as in both cases the seed raised on my own farm has proved the best, the others being brought from a distance.

Sir, I hope you will excuse me for troubling you with what follows: I noticed in the September No. of the Journal, a letter of "A Subscriber," who hails from Argenteuil. He says he has sown on his farm Mr. Lyman's English and Webster's wheat; he seems to think well of Lyman's and that Webster's is not adapted for our climate. He adds it is rusted on the stem and mildewed in the ear. Rust and mildew I have always understood to be two names for the same disease, no one could ever talk about rust on the stem; but "A Subscriber" must excuse me when I tell him that that which he calls mildew in the ear is a natural characteristic of the class to which the Webster Wheat belongs. As these two have proved the best and worst of the kinds I have sown, I am anxious to know how they yielded to the flail or mill with your correspondent. It may be of use to know how the same causes affect different kinds of wheat and different soils and localities. I hope there are many others who will give us information in these respects through the columns of the Journal.

I am, your humble servant,

WILLIAM BOA.

Virtue Roadhead, Oct. 25, 1851.

*To the Editor of the Agricultural Journal.*

DEAR SIR,—Should you find these few lines worth giving a little space in your most valuable Journal, regarding and giving the results of an experiment I made this last season on a small patch of potatoes, as I may perhaps induce some others in the coming spring to improve upon my success: the seed I selected were all large potatoes, and of the red description; and I took special care to select nothing but fine sound seed; the soil I planted on was formerly a heavy damp soil, but reclaimed by liberal manuring and draining these three years past; I have got it now into a loose rich loam. I had the patch destined for No. 1 experiment, ploughed deep enough, so as the under soil was turned up to the surface, opening my furrows two feet apart, and spreading rotten manure very lightly in the furrows, cutting my potatoes in halves, and placing them at a distance of twelve inches apart, in the rows, over which I sprinkled a small quantity of wood ashes, in its natural state, dusted over with the hand. No. 2 experiment. I planted the old system along side the former, by merely ploughing the land the usual depth, and manuring the furrows, omitting the ashes, but took the same precaution to select the same seed as of No. 1 experiment, the results were as follows:—No. 1 potatoes, when I dug them out, were all fine large even-sized, without any decayed ones whatever, and yielded fully a third more than No. 2's; whereas the No. 2's were not near so large, and mostly all the large ones were decayed, and the remaining ones of all sizes; showing plainly that the potatoes require a change of soil, and by turning up the under soil, or by subsoiling, and with the help of wood ashes, which every farmer can command at his disposal, my trial might be made with more improvements. I should be very thankful if some of the readers of the Journal, who might chance cast their eye upon this experiment, would try an improvement on my success the coming season, and give us the results hereafter through your columns, as the potatoe crop is one of the most essential crops the farmer can desire; and by making simple experiments at a small expense as above, which may be within the reach of the humblest farmer, I don't see why it may not be reclaimed. Trusting

Mr. Editor, you may excuse all faults to the first attempt at writing in your Journal.

I remain,

Yours very respectfully,

A LOVER OF AGRICULTURE.

Nicolet, 26th November, 1851.

**METEOROLOGICAL RESULTS**

For April, May, June, July, August and September, 1851, made at St. Martin, Isle Jesus, O. E. Latitude, 45° 32 N.; Longitude, 78° 36 W.,

BY CHARLES SMALLWOOD, M. D.

APRIL, 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,..... 29° 526  
 Highest do. do., 12th day 30° 334  
 Lowest do. do., 8th day 29° 280  
 Monthly Range,..... 1 054

*Thermometer.*

Mean Reading of the Standard Thermometer,.....F. 41° 447  
 Highest do. do. Maximum do., 23rd day,..... 63° 000  
 Lowest do. do. Minimum do., 12th day,..... 25° 600  
 Monthly Range,..... 37° 400  
 Mean of Evaporation,..... 45° 102  
 Amount of Evaporation during the month,..... 1,960 inches.  
 Amount of Rain during the month, 5,467 do.  
 Rain fell on 11 days, and snow on 1 day.  
 Most prevalent wind,..... E. N. E.  
 Least prevalent wind,..... S. W. to W.  
 Most windy day, 16th day.  
 Least windy day, 29th day.  
 Most windy hour, 12 to 1 P. M., 16th day,.... 27, 418 miles per hour.  
 Least windy hour, 9 to 10 A. M., 29th day,.... 0, 060 miles per hour.

MAY, 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,..... 29° 438  
 Highest do. do., 15th day 30° 169  
 Lowest do. do., 23rd day 29° 086  
 Monthly Range,..... 0° 083

*Thermometer.*

Mean Reading of the Standard Thermometer,.....F. 53° 40  
 Highest do. do. Maximum do., 12th day,..... 82° 00  
 Lowest do. do. Minimum do., 1st day,..... 34° 10  
 Monthly Range,..... 47° 90  
 Mean of Evaporation,..... 50° 30  
 Amount of Evaporation during the month in inches,..... 2,280  
 Amount of Rain during the month in inches,..... 7,664  
 Rain fell on 16 days, snow on 1 day, rain accompanied by thunder on 2 days.

Most prevalent wind..... E. N. E.  
 Least prevalent wind,..... E.  
 Most windy day, 2nd day.  
 Least windy day, 9th day.  
 Most windy hour, 2 to 3 P. M., 2nd day,..... 21, 122 miles per hour.  
 Least windy hour, 8 to 9 A. M., 9th day,..... 0, 014 miles per hour.

JUNE 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,..... 29° 428  
 Highest do. do., 17th day 30° 024  
 Lowest do. do., 9th day 29° 280  
 Monthly Range,..... 0° 744

*Thermometer.*

Mean Reading of the Standard Thermometer,.....F. 63° 55  
 Highest do. do. Maximum do., 29th day,..... 92° 50  
 Lowest do. do. Minimum do., 3rd day,..... 49° 00  
 Monthly Range,..... 35° 50  
 Mean of Evaporation,..... 55° 96  
 Mean of Dew Point,..... 53° 89  
 Amount of Evaporation during the month in inches,..... 2,930  
 Amount of Rain during the month in inches,..... 4,392  
 Rain fell on 12 days, accompanied by thunder on 5 days.  
 Most prevalent wind,..... W.  
 Least prevalent wind,..... N. E. by E.  
 Most windy day, 3rd day, mean miles per hour,..... 9,96 miles.  
 Least windy day, 26th day, mean miles per hour,..... 0,27 miles

JULY, 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,..... 29° 505  
 Highest do. do., 31st day 29° 802  
 Lowest do. do., 27th day 29° 187  
 Monthly Range,..... 0 615

*Thermometer.*

Mean Reading of the Standard Thermometer,.....F. 70° 010  
 Highest do. do. Maximum do., 14th day,..... 90° 100  
 Lowest do. do. Minimum do., 30th day,..... 51° 50  
 Monthly Range,..... 38° 60  
 Mean of Evaporation,..... 61° 55  
 Mean of Dew Point,..... 61° 11  
 Amount of Evaporation during the month in inches,..... 2,953  
 Amount of Rain during the month in inches,..... 7,042  
 Rain fell on 13 days, accompanied by thunder on 7 days.  
 Most prevalent wind,..... W.  
 Least prevalent wind,..... E.  
 Most windy day, 17th day, mean miles per hour,..... 8,21 miles.  
 Least windy day, 24th day, mean miles per hour,..... 0,40 miles.

August, 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,.....	29° 534
Highest do. do., 4th day	29° 885
Lowest do. do., 25th day	29° 345
Monthly Range,.....	0° 540

*Thermometer.*

Mean Reading of the Standard Ther- mometer,.....	F. 65° 90
Highest do. do. Maximum do.,	93° 00
Lowest do. do., Minimum do.,	46° 00
Monthly Range,.....	47° 00
Mean of Evaporation,.....	63° 66
Mean of Dew Point, .....	57° 76
Amount of Evaporation during the month in inches,.....	3,220
Amount of Rain during the month in inches, .....	1,205
Rain fell on 8 days, accompanied by thunder on 1 day.	
Most prevalent wind,.....	W. S. W.
Least prevalent wind,.....	E.
Most windy day, 4th day, mean miles per hour,.....	8,93 miles.
Least windy day, 11th day, mean miles per hour,.....	0,03 miles.

SEPTEMBER, 1851.

*Barometer.*

*Inches.*

Mean Reading of the Barometer corrected and reduced to 32° F.,.....	29° 880
Highest do. do., 15th day	30° 163
Lowest do. do., 23rd day	29° 308
Monthly Range,.....	0° 760

*Thermometer.*

Mean Reading of the Standard Ther- mometer,.....	F. 60° 60
Highest do. do. Maximum do., 10th day,.....	95° 10
Lowest do. do. Minimum do., 24th day,.....	32° 60
Monthly Range,.....	62° 50
Mean of Evaporation,.....	56° 96
Mean of Dew Point,.....	54° 33
Amount of Evaporation during the month, .....	2,631 inches.
Amount of Rain during the month, 6,400 inches.	
Rain fell on 11 days, and was accompa- nied by thunder on 5 days.	
Most prevalent wind,.....	W. S. W.
Least Prevalent wind,.....	N.
Most windy day, 14th day, mean miles per hour,.....	9,14 miles.
Least windy day, 4th day, mean miles per hour,.....	0,16 miles.

The Board of Statistics, composed of Messrs. Hincks, Taché, and Morin, have prepared an important Circular, relative to the Agriculture of Lower Canada, and which, through their efficient Secretary, Mr. Crofton, is being addressed to the Presidents of the several Agricultural Societies, numbering some forty-one.

The Circular calls for information on the following important and practical points :—

I. LANDS.

1. General character of the soil throughout the County.
2. Nature of subsoil.
3. Is the land generally improved? and if not, the reasons which, in your opinion, retard cultivation?
4. What is the most common course of agriculture followed—as to ploughing, whe-ther spring or fall—rotation of crops—whether drainage is common and of what description?
5. For what crops do the Lands in the County appear best adapted?
6. Have Agricultural Societies been established, and if so, has much benefit accrued from them?
7. What manures are chiefly used, and the cost per acre?

II. LABOUR.

1. What is the general cost of labour with and without board?
2. Are Labour Saving Machines in general use—what description of plough is found to answer best?
3. What is the general rate of wages for Mechanics?
4. What for female servants?
5. Is the supply of farm labour sufficient?

III. LIVE STOCK.

1. HORSES—Has the breed been improving lately? What is about the average value?  
Are many kept for pleasure?  
What is the general cost of keep per year?  
Many sold for export?
2. OXEN—Many raised?  
Average value?  
Cost of keep?  
Are many sold for market or slaughtered at home?  
What is the general method of fattening?
3. Cows—What breed is found to answer best for milk?  
And what for fattening?  
Average value of?  
Average produce?  
Many sold for export?
4. SHEEP—What is the prevailing race?  
Is this branch of husbandry much attended to?  
Which are preferred; the long or short wools?  
Method of winter keep?  
Average weight of fleece and price of wool?  
Are many lambs raised?



5. **HOGS**—Has much improvement in the breed taken place, and which is found to be the most advantageous?

How generally fed?

What is the remunerating price per 100 lbs.?

Are many sold?

6. **BEEES**—Are many kept?

What the average produce?

Number of swarms each year?

#### IV. FEEDING.

Will you state the comparative value of the following for feeding horses, cattle and swine, viz:—

Corn—green or ripe—whole or ground—cooked or raw?

Hay, Clover, Timothy, mixed hays or natural grass, and which is found most abundant in your County?

Oats, Peas and Root Crops?

#### V. DAIRY.

What is the general quality of the butter and cheese?

Is much attention paid to the dairy?

How and at what price is the surplus disposed of?

#### VI. CROPS.

Is weeding of crops much practised—what are the weeds that are found most troublesome, and are they sufficiently numerous to be a nuisance?

What is the general quality of the pasture—are thistles and other weeds regularly cut or suffered to grow to seed?

Is water plenty, and whether running or got by sinking?

What are the kinds of wood most prevalent—is much standing—what its value—when kept for the use of the farmers and for market?

Are hemp and other oil seeds much grown?

Will you have the kindness to give the following information relative to the several crops in your County for the year 1851, viz:—

Wheat, Barley, Rye, Oats, Pease, Maize, Buckwheat, Potatoes, Carrots, Mangel Wurtzel, Beans, Hops, Flax, Tobacco and Hay?

1. Average quantity of seed per acre?

2. “ “ produced “

3. “ weight per bushel?

4. Cost of raising, say 20 or more bushels of each?

5. Average selling price of 1851.

6. Usual time of sowing or planting and of harvest?

7. Kinds chiefly cultivated?

8. Cause of failure of crop if such has occurred?

Value of Straw?

#### VII. GARDENS OR ORCHARDS.

Any information on those heads will possess great interest—whether the sun flower seed and the artichoke are much used—what fruits most cultivated?

#### VIII. MISCELLANEOUS INFORMATION.

Quarries and Minerals?

Weather during 1851?

State of the Roads?

State of Manufactures?

Such general information as may convey a true knowledge of the state of Agriculture in your County, particularly with regard to capital and the want thereof?

Would you also favour the Board with your opinion on the following points:—

Results obtained from Agricultural Societies already established?

Advantages of Model Farms?

The publication of Elementary Treatises on Agriculture?

*A Cyclopaedia of Agriculture, Practical and Scientific.* Part 14. By JOHN C. MORTON. Blackie and Son, Glasgow, Edinburgh, and London.

WE are glad to welcome this acceptable visitor to our table. It still continues to contain papers of great merit and value to the tiller of the soil: from which we extract remarks “*On Green Manuring*.”

Vegetable substances in their green and succulent state, are powerful fertilizers when thoroughly incorporated with the soil.

The most pertinent explanation of this fact, is furnished by the consideration that they supply the identical elements that future crops require; in the same manner, that out of the materials of one house, another may be elaborated. And it is true that many of these materials exist in such union and affinity, as renders them especially adapted for the nutrition of the future crop, for it is a recognised truth in physiology, that both animals and plants take up and assimilate from their food a portion of their bulk, in the precise form in which it exists in that food.

The practice of growing crops for the special purpose of ploughing in as a manure for succeeding crops is not justified by this consideration merely. It would seem to be a waste of time and material to convert the elements of vegetable growth into living forms twice before they are made profitable. Why grow a lupin or clover plant one season, to be buried, in order that from its remains a cabbage or a turnip may be produced? Why, if you build your house, do you not fetch your materials direct from the quarry? These questions would be unanswerable, did plants obtain all their food from the soil. But such

is not the case, a great portion of the bulk of green crops is obtained from atmospheric sources; and, after a green crop is ploughed in, the soil necessarily contains more of the organic elements essential to vegetable nutrition than it did before the crop was grown; it is richer, in fact, by the carbon, oxygen, hydrogen, and nitrogen, which the green crop has obtained from sources independent of the soil. In like manner, the crop grown after a green crop has been ploughed in, has the advantage of a ready supply of mineral elements, which have been worked up by the roots of the fertilizing crop from the soil and the subsoil, and which in many instances, owing to their sparing solubility, are with difficulty obtained under ordinary circumstances.

The practice of restoring fertility to exhausted soils by laying down to pasture for several years, and the advantage to succeeding green crops, from the introduction into the rotation of depastured seeds, or even clover mown and carried off the field, illustrate the manner in which green crops are beneficial as manures. It is evident, that if such crops did not return to the soil some other elements than those which they found there, no length of time under green crop, would restore fertility to an impoverished soil; but, that on the contrary, under the constant abstraction of phosphates in the bones, and of valuable organic elements in the flesh, fat, and blood of animals depastured upon it, deterioration would take place.

But the practice of green manuring, is one sanctioned by the authority of experience, as well as of theory. In the remains of stems and roots of clover crops, of depastured seeds we receive the advantage of a green manure, the value of which, in promoting the growth of oats and wheat, is well understood by every farmer. Perhaps from no single crop does the agriculture of Great Britain reap a greater advantage than from this. Without it, the alternate system of green and grain cropping cannot be effectually carried out; and, indeed, it is only after a good crop of depastured seeds, that a full crop of wheat can be grown upon the high and dry wolds, and the limestone and chalk hills that are now brought into cultivation in this country. After turnips, barley upon such soils succeeds, but it is only upon the lea that wheat can succeed fully, where the texture of the soil is light. No direct manuring will answer upon fallow. The green sod when ploughed and furrow pressed, offers a firm and compact bed for the seed, and furnishes by its gradual decay, a continued supply of food for the wheat plant, through every stage of its growth. But green manuring, if we except the case of clover, is not common in this country.

In certain localities, sea-weed is collected and applied to the fallows in its fresh state, and in occasional instance, the tops of turnips,

potatoes, &c., are ploughed into the soil, instead of being carted off to the dung heap; or, as is most usual, being permitted to decompose upon the surface of the land. But in other forms, the practice appears to be hardly recognized in this country.

The tardiness of vegetable growth, and the necessity which the farmer finds for making every inch of available space produce food of some kind for his stock, upon which the continued fertility and the profit of his farm materially depend, render it difficult for him to find a place in the rotation for a crop of this kind, without displacing a *foeder* crop, by which he usually secures two valuable objects instead of one. Speaking on this point, an American writer, Judge Buel, (*Cultivator*, vol. ii. p. 13,) says, "the practice is chiefly suited to warmer countries, where vegetation is very rapid, and even there it argues a somewhat low state of the art, and is not the best way of producing decomposing matter. When we are able to raise green food of any kind, it is better that we apply it in the first instance to the feeding of animals, for then it not only yields manure, but performs another and not less useful purpose."

That there are, however, circumstances under which these objections do not apply with sufficient force to prevent the adoption of the system, will be seen when we treat of the *modus operandi* of the practice.

The condition of state in which vegetable substances should be applied to the soil, is a question of some importance. Plants of quick growing habit, when they have attained their full vigour, and are coming into flower, contain a larger proportion of organic matter, which they have obtained at the expense of the air, than at any other period. At this period they are quick of decomposition, and appear to be best adapted to the purpose of a manure of this kind, which, to be useful, must be alike *quick in its growth*, from the period of sowing to that of ploughing in, and *in its decay*.

The kind of vegetable substances that are available as manures, may be considered under two classes. First, Crops ploughed into the soil upon which they are grown. Second, Such as are collected from other sources and applied as manures.

Crops ploughed into the soil upon which they have grown are of two kinds. Such as have been partially consumed or reaped, and such as have been grown for the special purpose of manure.

Of green manures that have been partially consumed—old sward, clover stubble, clover aftermath, pastured seeds, which are ploughed in for a green crop, are instances familiar to all in practice.

In addition to the matter these plants collect from the air and from the subsoil for the use of the future crop, we must not overlook the physical influence which they possess.

In a strong clay, warmth and porosity are given; and upon a light and friable soil, where the furrow is properly pressed, tenacity and firmness are imparted by the fibrous roots. Without a previous crop of this kind, many lands are much too light to grow wheat. Upon the writer's own farm, are many fields of magnesian limestone, that will not grow a good crop of wheat in any other course than after seeds or clover. However highly a fallow or stubble may be manured, it will not produce a field of wheat equal to that grown after seeds or clover. The universal practice which holds with reference to the ploughing in of grass, its adoption as an indispensable part of the four course system, and of every other rotation, four, five, or six years, by which it is deemed most judicious to keep up the powers of the farm, render it unnecessary to say many words on the details of the system. The advantages of good workmanship in ploughing out such crop, are known to all practical men.

*Green manures grown for the special purpose* of being incorporated with the soil in their fresh state, are usually vegetables that are of quick growth, and capable of being grown upon poor soils.

The plants that have been recommended for this purpose, are Italian rye-grass, clover, buckwheat, lupine, rye, spurry, rape, mustard, tares, &c. The practical farmer who is situated so as to obtain a crop of the kind, will have little difficulty in determining which is best adapted to the circumstances of locality, seasons, climate, and soil, under which he is placed. Upon strong clays which have been open fallowed, if worked sufficiently early, a green crop of rye or tares may be occasionally obtained. This, if ploughed in, will not only furnish the succeeding wheat crop with useful food, but will improve the texture of the heavy soil.

This crop should not be sown early enough to prevent the fallow from being well made, nor to become a heavy crop; a fog crop five or six inches in length is quite sufficient. Clover which is so shy of growth, is too difficult to obtain for local purposes to allow us in old cultivated soils to attempt to grow it for green manure; when by so doing, we are likely to make our soil clover sick sooner. Mustard, rape, &c., may occasionally be grown upon light soils after an early crop of grain. To effect this, no time must be lost in preparation. Still disappointments will often occur in a climate like that of Great Britain.

When buck wheat is permitted to grow up and get into bloom before it is ploughed under, a roller is passed over it, marking such lands as it is intended to plough; and the plough is run the same way as the roller went. A short piece of very heavy chain dragging from the upper part of the coulter, in the furrow, will bend the tall stems under, and bury them effectually.

Green manures that are collected from extraneous sources, and applied in their fresh state as manures, are much more numerous than individually important. In the aggregate, however, they furnish us with an amount of fertilizing power that should not by any means be permitted to be neglected.

Separately, in some instances, they may be made available to an extent that is well entitled to the farmer's attention.

Sea-weed, farm-weeds, garden weeds hedge trimmings, turnip-tops, potatoe-haulm, are of this class. They have already been referred to in the article on Composts.

We record a single experiment made by Dr. Browne, Gorlstone, Suffolk, as an evidence of the action of sea-weed as a green manure. "In October, 1819," says he, "a violent gale of wind drove to this part of the coast, an unprecedented quantity of sea-weeds; these were eagerly scrambled for, and from my greater vicinity to the beach, I collected twenty-seven cart-loads, each as much as four horses could draw; and although other persons deposited their collections in their farm-yards to rot among their other manure, I spread mine, fresh and wet, upon little more than an acre of bean stubble, instantly ploughed it in, and dibbled wheat upon it on the 6th of October. I then salted the adjoining land with three bushels per acre, manured it with fifteen loads of farm-yard dung per acre, and dibbled it with wheat on the 15th of November. The result was, that the sea-weeded portion gave three times the produce of any equal part of the field."

*Farm-weeds* which have not developed their seed, are capable of being used as green manures with effect, where it may be more convenient to employ them in their fresh state, than to decompose them in the compost heat, as is the usual practice with modern and skilful managers.

The late Mr. Knight gives some very striking experiments with potatoe tops, fern, and nettles, as green manures. "In the beginning of June," he observes, "a small piece of ground was planted with potatoes of an early variety, and in some rows green fern, and in others nettles were employed instead of other manures, and subsequently as the early potatoes were taken up for use, their tops were buried in the rows in the same manner, and potatoes of the preceding year were placed upon them and buried in the usual way. The days being then long, the ground warm, and the decomposing green leaves and stems affording an abundant moisture, the plants acquired their full growth in an unusually short time, and afforded an abundant produce. The market gardener may probably employ the tops of his potatoes and other green vegetable substances in this way with advantage.

Another experiment of his with fern, he thus states:—"I received from a neighbouring farmer a field, naturally barren, and so

much exhausted by ill management, that the two preceding crops had not returned a quantity of corn equal to that which had been sown upon it. An adjoining plantation afforded me a large quantity of fern, which I proposed to employ for a crop of turnips. This was cut between the 10th and 20th of June. I thought it necessary to place the fern a few days in a heap, to ferment sufficiently to destroy life in it, and it was then committed in rows to the soil, and the turnip seed deposited with the drilling machine in rows over it. Some adjoining rows were manured with the black vegetable mould obtained from the site of an old wood pile, mixed with the slender branches of trees in every stage of decomposition; the quantity placed in each row appearing to me to exceed four times the amount the vegetable mould, if equally decomposed, would have yielded. The crop succeeded in both cases, but the plants upon the green fern grew with more rapidity than the others, and even than those which had been manured with the produce of my stable and fold-yard, and were distinguishable in the autumn from the plants in every other part of the field, by the deeper shade of their foliage."—(*Trans. Hor. Soc.* vol. i. p. 248.)

*Potatoe haulm* is valuable either as a green manure, or as an adjunct to the farm manure. The stem and leaves of the potato contain a large share of the most valuable organic and inorganic elements of plants. According to Mr. Fromberg, 100lbs. of the leaves in their natural state, contain from 0.82 to 0.92lbs. of nitrogen, or 100lbs. of dry leaves contain 5.12 to 5.76 of nitrogen. By every ton of potatoe tops, therefore, we add to the land about 50 lbs. of inorganic salts, and a quantity of organic matter containing 20lbs. of nitrogen, or about 23lbs. of ammonia. The best Ichaboe guano did not yield more than 9 or 10 per cent. of ammonia; and, therefore, 1 ton of potatoe tops may in this respect be compared to 2½ cwt. of the latter.

The tops and tails of turnips, when the crop is taken up and harvested for winter use, are useful as a green manure. Speaking on this subject, Mr. Shier says: "I find that the ratio by weight of the tops and tails to the bulbs, is on an average as 1 to 33; but, as 25 tons per imperial acre is a good crop, this would give 7 tons, 11 cwt. 2 qrs. of tops and tails; which should produce as great an effect on the succeeding crops, as a dose of 10 tons of well prepared farm-yard manure. Of turnip leaves, no accurate analysis, so far as I am aware, has yet been published; but they are known to contain a considerable proportion of saline and earthy matter, not to mention the purely organic part, capable of nourishing the succeeding crops of the rotation. If Sprengel's estimate that green turnip leaves contain 1.8 per cent. of inorganic matter, the quantity above specified would contain 303lbs. Now, when the effect of a much smaller dose of mixed saline manures is

considered, it will not appear strange that so much stress has been laid on ploughing in green turnip tops, as a means of enriching the soil and securing good after crops."

The necessity for attention to spreading these tops evenly over the surface of the soil, and carefully covering them by ploughing in when in their green state, instead of allowing them to wither and decompose in heaps until their valuable organic elements are dissipated, will be apparent. Such a system, as it saves carting, is even more economical than taking them to the manure heap; while the results in practice are even more advantageous than the foregoing estimate of their composition would induce us to hope.

*Address before the Members of the New York State Agricultural Society.* By B. Lewis F. Allen, late President of the Society. Albany: Weed, Parsons & Co.

THERE is one part of this very able address which will require no apology to our readers for its insertion. The whole paper abounds with information and sound views; but as the subject of agricultural education is attracting much attention at home, we venture to lay before our readers a short account of what is doing in this respect abroad.

Speaking of the wants of the farmers, Mr. A. says:—

Still there is a great class left: the substantial middle class of our farmers, who require for their sons, destined to follow in their own steady course, that necessary kind of education at present unattainable in our country, and which can only be properly given in agricultural schools. The young farmer painfully feels the want of advantages which these would confer, and the aid of which, he vainly seeks elsewhere; and the question, how are we to accomplish the object, remains to be answered.

Although keenly alive to the necessity, I, for one, am not prepared to submit to you a definite plan; yet am prepared for a prompt, vigorous, and decisive action. In the first place, I believe a trial of some kind—and experiment, if you please—should be made. Our state has not been fearful to make experiments in the establishment of any work, the practical utility of which has once been settled. A few thousands, nay, millions of dollars, have not deterred our legislators from either taxing the people, or appropriating its already accumulated treasures for works tending to the public welfare. Our literature and common school funds have been augmented in various ways, until common education throughout the State is almost free, and in some communities

absolutely so, by the aid of general taxation on property. Medical institutions, as well as colleges, have been largely endowed, and are still assisted by the State; and you have abundant example that the disposition has not been wanting in our government to execute, where the great constituent body has demanded the work. The propriety of this measure has reached your high places, and I refer with great pleasure to the recent message of Governor Fish, who, in view of the benign results accomplished by your society, has emphatically recommended "the endowment by the State of an Agricultural School and a school for instruction in the Mechanic Arts;" and this, if followed up with the zeal and earnestness which its importance demands, you may certainly effect. I cannot believe that a wise and intelligent legislature will longer deny your prayer. It may be said, that we have in this country no examples from which to copy an institution of this kind. No matter. They exist abroad, in the full tide of success, far beyond the probation of experiment; the Hofwyl School, in Switzerland, founded by Fellenburgh, for example, to say nothing of others, equally successful, in other countries of Europe. To them might Commissioners repair, at a moderate expense, for models of instruction, so far as they are adapted to our wants and condition; and were it not so, it is but a poor commentary upon American ingenuity and enterprise, to halt at any thing supposed to be ultimately attainable, without the strongest effort to effect it; and we can no more doubt the final success of institutions of this kind, than we can doubt the conquering career of the steam engine, or the electric battery.

The laying deep and broad, the foundations of a State Agricultural School, subject to an equal ratio of scholars from the several counties of the State, would be in accordance with the already established plans of distributing the public benefits of education, and liable to no objection. Thus, the necessary knowledge, so acquired, in the remotest districts of the State, through branches of our institutions, which might be set apart for that purpose, or established independently, through private liberality or enterprise. It cannot be expected, indeed it never was anticipated, that the State Agricultural Society should embark in a work of this kind; it has neither the necessary funds nor the corporate strength to effect it, and in pursuing the correct path already indicated, it has abundant exercise for all its functions. Yet its advisory aid and co-operation would be invaluable, and greatly add to the utility and success of any agricultural institution.

Aside from the establishment of an independent School for agriculture, the State might with great propriety provide a department in the Normal School, now becoming a settled branch of public education, for in-

struction in the principles of Agricultural Science, which from them, might be taught in the common schools. Popular works on Geology, Agricultural Chemistry, Botany, Animal, and Vegetable Physiology, the plain principles of Mechanic Art—all which are indispensable to the proper education of the farmer, might be taught in a plain, and simple course of lessons, as easily as the ordinary rules of the arithmetic, or mathematics; and a knowledge of these would be the source of satisfaction, if not of future profit, to every scholar. "During the past year," I quote the language of Governor Fish, "81,624,05 dollars have been expended by the State for the increase of books in the school district libraries, to which have been added, one million three hundred thousand volumes." Works of the kind which have been mentioned, together with well approved Agricultural books, should form a portion of the annual additions to these libraries; and if such works cannot be found the necessary authority should be created for their compilation. Thus you provide the means of self instruction in a great degree, to the humblest and most obscure inquirer, and that without cost.

## REPORT ON AGRICULTURAL SCHOOLS.

BY DOCTOR KIRKPATRICK.

Sir,—In submitting to you my report of the progress that has been made, since the 1st of March last up to the present time, in the horticultural department in connection with the Glasnevin Model Farm, I beg to state, that the kitchen garden has been recently thorough-drained, and is now under a regular rotation of crops, consisting of the best varieties of all kinds of culinary vegetables; in conjunction with which we have a portion allotted to the cultivation of small fruits, such as the gooseberry, currant, raspberry, strawberry, &c. We have also lately got a set of hotbed frames, in which we are growing melons and cucumbers. These are cultivated by the pupils, who work in the garden in rotation; and it affords me much pleasure to say, that their attention and conduct are most satisfactory. I may also mention, that we make it a rule, that when any particular kind of work is to be done, all the pupils are to be in attendance, and every one is allowed to take a part in the operations going on; by this means each becomes thoroughly acquainted with the work. The pupils are brought together for a short time once a week, when I explain to them the work which has been done during the previous week, and point out the operations at which we are to be engaged the next.

In addition to the means thus afforded to the pupils of acquiring practical information, I deliver a course of lectures to them in their class-room—theory and practice being thus made to go hand in hand. So far as our pre-

sent means are capable, the pupils are becoming well qualified to fill the important situations for which they are intended—namely gardeners and land-stewards, now in so much demand. I would, however, most strongly recommend to the favourable consideration of the Commissioners of National Education the propriety of enclosing that portion of ground now used for the exercise of the cattle by a wall, as a fruit-garden, in connection with which a neat little range of glass could be erected, in which to grow the vine, peach, &c., together with a greenhouse; and also that the small garden at the ploughman's house be set apart as a nursery. In order to combine taste with utility, I would recommend that the portion of ground now under small fruit be converted into a neat little flower garden. All this could be done at a trifling expense, by which we would be enabled to qualify the pupils in a proper manner to fill the situations alluded to above with credit to themselves and to the satisfaction of their employers.

With respect to the garden set apart for the instruction of the masters in literary training at Glasnevin, I beg to say, that it is also under a regular course of cropping. The crops cultivated consist of the more useful kinds of vegetables and fruits; and the work is partly done by the teachers themselves, and partly by the agricultural teachers who reside at the model farm.

The method adopted of imparting instruction to the teachers is similar to that in practice at the model farm, viz., by lecture in the morning, in which the theory is fully explained, and by occasionally taking them out to the garden, and reducing the theoretic knowledge thus obtained to practice, the object being to enable them to cultivate a portion of the ground in connection with their schools as the garden, by which means they will be enabled to teach their pupils habits of industry from their earliest youth, and thus lay the foundation of their becoming useful members of society in after life. And, if I might be allowed to suggest, I would say that the landed proprietors of Ireland could not do a better thing than to grant a small plot of ground, rent free, to such teachers as were found to be well qualified and willing to carry out the object in view; and I have no hesitation in saying, that it will be found that there are many of them, in every part of Ireland, both able and willing to do so.

I have the honour to be, Sir,

Your very obedient and  
humble servant,  
A. CAMPBELL.

To Dr. Kirkpatrick, &c.

#### ON THE FOREIGN AGRICULTURAL IMPLEMENTS AT THE EXHIBITION.

Much has been written on the British Agricultural implements as shown at the Exhibition, but very little on the foreign,

probably because these latter were very inferior, and scattered in various parts of the building. It is useless mentioning implements unless they are either of superior quality, as shown by their gaining medals of commendation, or unless they contain in themselves some idea which, though perhaps imperfect at present, may be so modified as to produce in time a perfect implement, or, in other words, contain the germ of future progress.

On examining the list of prizes, I find that foreigners obtained medals for M'Cormick's reaping machine (United States)—Council medal; Burgess and Key, improved American churn and turnip cutter; Claes', of Belgium, corn drill and roller; Delstanché, of Belgium, plough; Odeurs, of Belgium, a plough; Pronty and Mears, of United States, a plough; Duchene, of Belgium, a churn; Lavoisy, of France, a churn; and Vacbon, of France, a seed and corn separator; Talbot, of France, a plough.

I will first take the ploughs.

Delstanché's Belgian plough has a skim coulter, and fixed in the beam behind, so that the ploughman can raise or lower it at pleasure; a rough sort of subsoiler: length of beam 4 feet; of the single handle to plough  $2\frac{1}{2}$  feet.—Odeur's plough, which stands near it, professes to be made for one horse; but except in the lightest sand (such as Belgian) its clumsy mouldboard and general make, with its weight, would prevent its being so used; the length of beam in this is  $3\frac{1}{2}$  feet; of the handle 3 feet. The hind part of the mouldboard being fixed on hinges is capable of alternation. Had these ploughs been English, and shown in the English department, they would have been so far from gaining a prize that they would have deservedly been objects of ridicule both to ourselves and foreigners. If the prize was given in the first plough for the skim coulter, or for the subsoiler fixed behind; or if, in the second, for the power of altering the position of the mouldboard, a slight acquaintance with implements described in the catalogue of the Royal Agricultural Society would have shown that long ago similar contrivances, and yet of far superior workmanship, had been in use in England.

The shortness of the single handles would prevent any efficient grinding of these ploughs, which were only fit to make rough work on very light soils.

The prize plough of Mons. Talbot, in France, was still more heavy in construction. It is difficult to conceive for what it obtained the prize, unless it might be for weight: probably it was for the mode of raising or lowering the forecarriage without stopping the plough, by means of a screw and handle; if so, a reference to "Bacon's Norfolk Agriculture" will show that this is nothing new.

A complete contrast to these foreign monstrosities was shown in the ploughs of the United States. Here lightness in a degree superior to that shown by any, even English manufacture, was shown. An intelligent American, who spooke of this, said that English makers would think them too slightly made to stand work, and so they would be if made of English wood; but the American young oak, of which they are made, is of so tough and superior a nature that it allows of this apparent lightness. The superior quality of American wood is not confined to oak; we may notice the ash, of which Mr. Page's oars, each 36 feet long, were made, and the hickory, of which the American trotting sulky, with wheels 5 feet high, and weighing only 45 lbs., was constructed.

Pronty and Mears' self-sharpening American plough took the prize in the Exhibition. I was informed that Starbrick's (No. 9) was considered the best plough in the United States, and that this lost through sending a plough calculated to turn a furrow 12 inches wide, while 9 inches was the width appointed by the judges. At all events, both these appear neat ploughs—perhaps rather too short and too much like toys to suit English taste, but much better calculated to plough between stumps, and for one horse, only one being used on all but stiff lands.

The very light ploughs that may be carried in one hand are horse-hoes used to plough between the rows of Indian corn while in growth.

Further remarks on foreign implements I must defer till next month, when I hope to be able to show that many of foreign improved machines are merely copies of the English—to describe the reaping machine, and to show the difference between American and English agriculture, which leads to the difference in their farm machinery.—*W. R., Oct. 27.*

#### MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

The trial of implements commenced at noon, on the 6th, in a field near the Trafford Arms Inn, Stretford. There was a large attendance, and the trial occupied about five hours. The judges considered that the wheeled ploughs had a decided and striking advantage, when it was required that furrows of a greater depth than 5 inches should be produced, but the swing ploughs worked in a very satisfactory manner to 5 inches depth, for which they are in general specially constructed. A dynamometer introduced by the society was upon the ground, and its use brought several results, important to the conduct of agricultural labour. Although no striking difference in the draught of the best ploughs of either kind was dis-

covered by the use of the dynamometer, yet the value of the instrument was strikingly exhibited, by the very serious increase in the draught of ploughs, which it showed from an improper or careful adjustment of the different parts, or from general bad gearing. In many cases it was shown that work could be more efficiently performed, with from 10 to 20 per cent. less draught power, after proper arrangements of the parts of the ploughs; and in a few cases a much greater saving was effected. The prize for general work was given to a two-wheeled plough, by Gascoigne.

**A FEW WORDS ON HATCHING AND REARING POULTRY.**—I would recommend all parties desirous of procuring a superior breed of birds, at the least possible expense, to obtain two or three barn-door hens about to sit, then buy from some neighbour, having the desired breed, fresh-laid eggs, allowing from eleven to thirteen to each hen, according to size; should more than thirteen eggs be placed under a hen, and the weather prove cold, the chances are that one-third of the clutch, at least, are spoiled. If an out-house or cellar can be used for the nest-house, so much the better, provided the floor is slightly moist. In the darkest corner place a good handful of broken oat-straw; and to better form a nest and prevent the eggs rolling out when the hen moves, a row of bricks all round. In such a place the chickens will shell out strong and healthy. Many persons may wonder at my recommending a moist place; but let it be remembered, if you leave a hen to herself, she will choose for the brooding-place a spot under a bed of nettles, a gap in a hedge, inside a stack of faggots, or similar damp places; all being places nature has pointed out as the most suitable, and apparently for this reason: the germ of the egg floats uppermost within and against the shell, in order that it may meet the genial warmth of the breast of the fowl. We must therefore, in hatching, apply most warmth to that part only; the egg being supplied with only a limited quantity of moisture, is thus arranged to prevent evaporation from a large surface, as the egg is only warm at the part in contact with the fowl, until the blood-vessels searching nourishment for the embryo, have surrounded the inner surface of the shell, when the whole egg becomes gradually warm, and eventually of an equal temperature.—*Cottage Gardner.*

#### MATERNAL AFFECTIONS IN INSECTS.

Bee carpenters, bee masons, and bee miners, all play their tasks with maternal views. Nor are they without their parallels in the wasp tribe; but the ogress of a wasp mother, instead of pollen, usually provides a larder of flies or gnats, and sometimes, as in the case of the mason wasp, coops up a

string of living caterpillars, or a brace or two of live spiders. On these, the number of which is nicely calculated to meet his wants, the young cannibal is nourished up to perfect wasphood, unless, spite of his mother's labours so cunningly protective, he himself falls a prey to the usurping offspring of some ichneumon fly, who, more clever still, has contrived, cuckoo-like, to lay her egg within the nest he occupies. One species of mason wasp, mentioned by Bonnet, approaches nearer than any of the above to the feathered race in her mode of supplying her young, for instead of inclosing at once within her nursery ladder a store sufficient to supply the future exigencies of its inmate, she from time to time carries thither a living caterpillar, opening and reclosing the nest for entrance and exit. Acheta considers the prospective skill and care of solitary bees and wasps, and similar maternal architects, as entirely of an instinctive character, but assigns one of a higher description to certain other features of insect maternity. The affection of insects, as in mammiferous animals, is developed even more strongly in the predatory race, than in the mild and gentle tribes. The cruel spider, the devouring water-scorpion, the murderous wasp, and the occasionally cannibal carwig, are noticed as fully bearing out that assertion. It might not, we agree, excite our wonder to find the large meely wings of the soft and beautiful butterfly, or those of the downy moth, spread dovelike over their eggs or young broods to hatch or cherish them, though we must look elsewhere among insects for those hen-like propensities. We also grant that those butterflies and moths are not without their maternal instincts; but we do not share in Acheta's wonder, that the butterfly should desert "her delicate repast among the flowers, to deposit her eggs on the (to herself) uninviting cabbage which is to support her progeny." The gipsy and gold-tail moths will, like the duck, strip the down from their body to defend from the winter's cold, the brood which the insect mothers will never behold; but if we would seek for a parallel to that pattern of motherly love and perseverance, a sitting hen, we must turn our eyes to the florist's worst enemy. The harsh, wiry, lengthy earwig sits upon her eggs, guarding them with the greatest care. Invaade her nest and scatter them, she will collect them again, and then resume and maintain her sitting. Her nestlings, when hatched, creep under her as chickens creep under a hen, and are sometimes brooded over by her for hours. All this has been observed and noted by De Geer and others, and Acheta had opportunity of watching one of these insect parlets, which had been transported from her nest behind a stone, with half a dozen of her still white progeny into the translucent prison of an inverted glass. A blos-

som of dandelion was introduced, and mother earwig was seen to commence at once upon one of the yellow petals, the bitten edge of which was directly afterwards attacked by the tender jaws of one of her brood. The field bug is said to lead her large family of thirty or forty abroad as a hen does her chicks. Where she goes, there they must be; and where she stops they assemble in a cluster around her. As for the water-scorpion, she never leaves her eggs for a moment, but always carries them in a cluster upon her back. Kirby will tell you, and you may satisfy yourself of the fact, that no miser clings to his treasure with more solicitude than a species of spiders common under clods of earth, to the silken bag that contains her eggs. She carries it with her everywhere. If you deprive her of it, she makes the most strenuous efforts for its recovery. If you restore it, her actions demonstrate her joy. She seizes it, and with the utmost agility runs off with it to a place of security. When the proper time arrives, she makes an opening in the bag for the young to come forth, when they run in clusters upon her back and legs; she carries them about with her, and feeds them till able to help themselves. The American opossum takes no better care of her much-loved young, nor carries them on her back more cleverly or tenderly than the despised insect. Bonnet put one of these Archneian mothers to a severe test. He threw her into the pit of a large ant-lion. The ogre seized the bag, but she held on till its fastening gave way, and then regained it with her jaws; but his superior strength prevailed, and he pulled it into his sand-pit, into which, rather than forsake her treasure, she suffered herself to be dragged also. Then Bonnet pulled her from it; but, though repeatedly pulled away, she would not leave the spot.—*Frazer's Magazine.*

#### SCRAPERS.

There is a subject that time after time I have intended to write to you about, hoping you would give it your influence to set it to rights. The subject is a foot or shoe-scraper. You see I do not soar very high in my cogitations. Being also a little shortsighted, my meditation on the subject lead me to bless these foot-scrappers a thousand times, the more so that I know there is a remedy for the evil. When recently in Hamburg, I was delighted with the substitute they have there for the really inefficient, after a little use, and dangerous thing we have in this country. At each end of the door-step, and on a level with it, they have a grating, which not only is far more serviceable, but allows the dirt to fall through into a convenient space opening to the front, cut out on purpose, and which admits of its daily and easy removal.—Correspondent of the *Builder*.



# Agricultural Journal

AND  
TRANSACTIONS  
OF THE  
LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, DECEMBER, 1851.

## AGRICULTURAL ACCOUNTS.

It would be very desirable that greater attention was given by farmers to keeping regular accounts of their receipts and expenditure, and particularly to endeavor to ascertain the expenses and proceeds of different crops; and of each species and variety of animals kept. This might be done in a very simple way to answer all the useful purposes required. Even the general receipts and expenditures upon the farm, it would be interesting to know what the balance was. This might be sufficient for working farmers, but for gentlemen who have to pay for the labor, it would be very necessary that the accounts should be kept with a greater degree of form and exactness, showing every item of expense, the cost and produce of each crop, of horses, neat cattle, sheep, swine, and the dairy. This would show what branch of farming was the most profitable, and what, perhaps, was otherwise. Horses, (and if any oxen) kept for work, it would be very proper to ascertain what was the exact expense of their keep throughout the year, valuing what they consumed at a fair price, according to the market, deducting the expense of taking to market. The value of the manure should also be deducted at the price it would cost to obtain it. A reasonable amount should be allowed on the capital employed in horses and oxen, including the casualties which this description of stock is subject to. It might be interesting to set a value upon the labor performed by these animals, but as the value of this labor will depend upon the value of the produce raised from it, we do not see how it can be accurately estimated.

It is very proper to keep an account of the days that horses and oxen are worked, and the work that they have been at, in a journal or day book, where every transaction upon the farm would be regularly recorded; a plan which we adopted before we came to this country, and found both interesting and useful. With regard to the dairy, it would be useful to ascertain the quantity and quality of the milk of each cow, and its produce in butter or cheese. This would enable the farmer to see what cows were the most profitable, and to have only such for the dairy. It is a great drawback in this branch of the farmer's business when he keeps cows for his dairy that are not productive in butter and cheese. Animals may be very suitable and profitable for fattening for the butcher, that would be very unprofitable for the dairy. Indeed, we are convinced that a well selected dairy stock would produce double the quantity of butter and cheese that an indifferent and unsuitable stock would do, although there might not be any difference in the expense of their keep and attendance. This is of very material consequence to those who have dairies. In keeping farming accounts for an ordinary establishment, if the farmer's family are a working family, the expenses of all articles of necessary food and clothing should be charged with all other house expenses, including servants' food and wages, if any are kept. Every expense incurred in production should be charged to this production, and every part of this produce that is sold, should be credited to the farm. By keeping a regular work book of the labor performed by the farmer's family, at the same rate it would cost by hired laborers, it could be correctly ascertained what profit the farm produced in a year. In fact there is no difficulty of keeping farming accounts by any man of ordinary education. Attention and constant regularity will accomplish all that is necessary. However regularly accounts may be kept, there are some items which the farm may not be credited

for, that are, nevertheless, valuable considerations to a family residing upon land in the country, which they could not have residing in a town, without paying for them. It is not, therefore, the actual balance of the account of sales of produce over the expenses, that would show the true annual profits of a farmer. There are many advantages besides, that cannot have a money value set upon them, and which will compensate in a great degree for less profits appearing upon the balance sheet of the farmer than would generally result from other business and professions. Farming does not obtain credit for all the advantages it is capable of affording to those who are engaged in that business. We admit it is a laborous business to those who have to work constantly, but we maintain it is more healthful and agreeable to work in the fields, and in attendance upon the various animals upon the farm, than at any other trade or business that we are acquainted with. Gentlemen of wealth and education, settle occasionally in the country, and we constantly hear complaints of what they lose by farming, but these complaints we believe to be generally unfounded. They do not take into consideration their fine country residence, their garden, their out buildings, their fine walks on their own green swards. They have horses, cows, sheep, pigs, poultry, all their own. Could they possess these things residing in a city? Would their fruits, vegetables, milk, butter, fowls, and fresh meat be so good, fresh and wholesome, purchased in a town, as if taken from their own lands? Certainly they would not, whatever they might cost. There are not many persons who can appreciate these advantages, and when they find that the balance sheet of their agricultural operations does not show a large profit, they condemn farming, losing sight altogether of the privilege of living like gentlemen in the country. If a great landed proprietor in England was to be asked what value he set upon his residence in the country, he

would tell you that such a privilege was priceless, and not to be estimated by pounds, shillings and pence. We pity those who choose a country life, if they are not able fully to appreciate all the advantages that belong to it; indeed, they do not deserve the privilege, who would not be satisfied to place to the credit of farming, all the enjoyment that is attainable from a residence in the country.

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#### PRACTICAL FARMERS.

There are many practical working farmers who conceive that it is almost impossible for any man to carry on farming properly or profitably, who is not a practical working farmer. We consider, however, that such men are mistaken. There is no doubt that a gentleman cannot become a good practical farmer without understanding something of the science of agriculture, and seeing something of the practice, but with this knowledge, a good ploughman, and with laborers experienced in husbandry, a gentleman who is attentive, and is anxious to farm well, will very soon acquire a good idea of the business, and farm better, and to more advantage, than men who have been brought up to it from their youth in the ordinary manner. We admit that gentlemen farmers must take a great interest in the business, to insure attention to it, as that alone can insure success; but when they are interested, and find pleasure in a country life, there is not much doubt but they will succeed in making the capital employed pay a fair return, not a large return certainly, but as much as it would in bank or railroad stock, or any other safe investment in Canada. Men of education are more generally inclined to try experiments, and adopt improvements, than persons who are not well educated, and when these experiments and improvements are worked out by experienced farm laborers, superintended by the master, they can be worked with as much probability of

success, as they would be with the generality of practical working farmers, and we conceive, with a better chance of success, because there probably would be no want of capital. The greatest danger with gentlemen farmers, however, would be their extravagant employment of capital over what would be *actually* necessary. When this is the case, that money is expended without any regard to what the returns are likely to be, it is a great check to gentlemen becoming farmers, and brings farming into disrepute with all who can subsist without it. The conclusion that it must be a losing business, is often come to, on very insufficient and false grounds, and we have no doubt that if all the cases of failure were to be thoroughly enquired into, it would be found that in most of these cases, the want of success might be attributed to other causes, rather than that of farming, being generally unprofitable. Farming has frequently proved unsuccessful, in consequence of the attention being given to other things, and other business carried on. Also, when gentlemen farmers are so unfortunate as to employ men who are not properly qualified as stewards, ploughmen or foremen. Officers who have spent all their early lives in the army or navy, sometimes make excellent farmers, and we have the pleasure to know some of them, who are as attentive to their establishments, as any practical working farmer in Canada, and are much more particular about every work that has to be done. The system adopted by some of these gentlemen, in regard to making experiments, and keeping regular accounts, is calculated to produce much general benefit to agriculture, and how few of our practical working farmers would take the trouble to do anything of this sort? In the British Isles, most of the recent improvements in agriculture, have been introduced by others than practical working farmers. Von Thear, who so long and successfully conducted the Model Farm in Prussia, was a doctor

by profession in early life. The Count Chaptel, a French nobleman, was another most successful farmer, and the late Earl of Leicester, and many other noblemen and gentlemen in England, have done more for promoting the improvement of husbandry, than any farmers in that country. As we before observed, gentlemen farmers should be most particular to employ efficient stewards and ploughmen, not idle stewards, but men who will work, and teach others how to work. If they do this, there will not be much danger of failure, provided there is a prudent, but sufficient expenditure to work and cultivate the land judiciously. We introduce this subject to attention, in order that gentlemen who may be disposed to live in the country, and carry on farming, should not be deterred from doing so, by the fear of losing largely by it. We do not dispute that heavy losses have been incurred by gentlemen farmers in this country, but were we acquainted with all the circumstances of each case, we are almost certain that we could show and prove the cause of such losses without attributing any part of them to agriculture, being actually a losing business. Agriculture must constitute the chief employment of the inhabitants of this earth, and it is absurd to suppose that it cannot be carried on without loss to those employed in it. It may not in any case produce such large profits as other business and professions, but the cause of this is, that those who are engaged in other business, professions and trades, combine better together to raise the price of what they have to dispose of, than the farmers can do; in consequence, first, of the perishable nature of the produce they raise; secondly, their not being so well educated generally, as other classes; and thirdly, their residences being scattered over a wide extent of country, that will always prevent any effectual combinations to raise prices and profits, as it is in the power of other classes who live together in cities and

towns. Agriculturists must, therefore, be content to submit to some disadvantages that are inseparable from their profession, and consider that these disadvantages are amply compensated to them by the healthfulness and pleasures of a country life, surrounded constantly by all the beauties of nature.

#### AGRICULTURAL STATISTICS.

We copy in the present number the printed circular of the Board of Registration, which we understand has been addressed to all the Agricultural Societies in Lower Canada, to the Municipal Councils, the Clergy, and other influential parties throughout the country. It is very satisfactory to see that agricultural statistics have at last obtained the attention of the Government; and no doubt these Circulars will elicit replies that will afford a vast amount of useful information on the present state of agriculture in Lower Canada. We have for a long period endeavored to advocate the necessity of obtaining the statistics of our agriculture, as the best means of acquiring a correct knowledge of its real condition. This would enable us to determine what remedies and improvements would be necessary to be introduced. The statistics of agriculture would be as useful and interesting to a vast majority of the population of Canada, as the statistics of trade and commerce would be. We are rejoiced to find that the interests of agriculture are now beginning to obtain the attention which they are entitled to, although we know many would-be public men, who are perfectly indifferent to the interests of agriculture, except so far as they may express it in words to forward other views. Happily for the country, however, a great majority of our public men are now convinced of the importance of agriculture, and of the wisdom of fostering and encouraging it by every possible means. What advantage would it be to the inhabitants of Canada that they should possess a most fertile

soil, and an excellent climate, if this soil was not improved and made productive? What would be the use of our magnificent rivers, lakes, canals and railroads already made, and proposed to be made, if not as a means of transport of our own productions, and the productions we would receive in exchange for them? For our part, we should not value them very highly, except for these purposes. It is only by an improving and flourishing condition of agriculture that the general prosperity of Canada can be permanently secured, and whoever may question this proposition, there is no doubt of its truth.

#### FLAX.

We would advise farmers to sow flax if only for the seed, as we are certain it would have paid better this year than wheat, although the straw should not be made any use of except for manure. In sowing for raising seed, it would require only half the seed that would be necessary for a crop grown for the fibre. More than 20 bushels of seed is obtained from an acre in England, and we believe this country as favorable for producing flax seed as England is. There is constantly a demand here for this seed, and a good price. We do not despair of having many flax mills very soon that will purchase all the fibre we can grow. We certainly cannot grow large quantities of flax for the fibre, with any prospect of profit, until we have flax mills to purchase it from us. The cultivation of flax is not more expensive than many other crops, and far less expensive than some crops. The soil is kept clean by it if properly managed, and we do not believe it to be a scourging crop to the land.

#### LEICESTER SHEEP.

This breed of sheep is being rapidly introduced both in this country, and the United States, and we believe there has been a great demand for sheep of this breed in Canada this year for the neighbouring

States of the Union. This is another branch of business that will probably increase every day. We have already in Canada many fine flocks of the Leicester breed, although the number in each flock may not be large, but they are being augmented every year by new importations. We can sell to the United States sheep of this breed of excellent quality, at a much more moderate price, than the same description of stock could be imported from Britain. We have a few excellent South Dawn sheep also which we conceive to be a very good breed for this country, as a variety. We are undoubtedly making some progress in our agricultural improvement. When we first came to this country, there was not a pure Leicester or South Dawn sheep to be seen. Now they are to be found in every direction, and crosses between the Leicester and native sheep has vastly improved the sheep of the country generally. Canadian farmers are now as anxious for improved breeds of sheep as any old country farmer.

We are sorry to hear from all quarters that the fall ploughing is far from being finished this year, even with farmers who had ample means to do so. Some allege that the land was not in good order for working until late in October, and that the winter set in too early in November, to admit of much ploughing being done. From the shortness of our working season in spring, it is of great consequence to have the ploughing finished up in the fall, and no doubt strong soils, and almost every soil is improved by being exposed to the influence of winter's frost and snow, when in a ploughed state, particularly if the land is to be sown with grain in spring, without any further cultivation, except harrowing in the seed. There are many causes which may have retarded the ploughing this fall, and the absence of sufficient drainage, we believe to have been one of the chief causes, and the remedy for this might have been in the farmers own power.

David Laurent, Esq., of Varennes, has left at the Rooms of the Lower Canada Agricultural Society, a sample of wheat in the straw, grown this year by J. N. A. Archambeault, Esq., N. P., of Varennes. He calls it the "Laurent Wheat, No. 2," free from the slightest spot of rust. It was sown on the 22nd of June, 1851, and comes to maturity in three months from the time of sowing. It is a very fair sample, and appears to be a very suitable wheat for Canada. It is not liable to lodge, is easy to thrash, easy to grind, and makes excellent flour. These are all good qualities; and the best of them is, that it does not rust, although sown at so late a period as the 22nd of June; but we would not recommend that the sowing should be put off past the first of that month, as there would be a great risk in deferring the sowing to so late a period, should the season be very dry. All that is required is to sow it sufficiently late, to escape the fly, and sown at any time after the 21st of May, will generally secure the crop from this pest. At a meeting of the Hamilton Township Farmers' Club, on the 6th of September, 1851, the Laurent Wheat, which in Upper Canada is called the "Fife Spring Wheat," is described in the following terms by one of the gentlemen present:—

"Before sitting down, allow me, sir, to state a fact well known to the farmers of Northumberland, that is, the complete success of the "Fife Spring Wheat." It may truly be designated the golden grain, for I venture the assertion, that a fairer crop never gladdened our hearts than universally prevails in Canada, and in our neighborhood much of our success depends upon the general adoption of this variety. I wish this fact to be known to the country, sanctioned by the approval of the Club, and for this purpose I beg to move:—That the Township of Hamilton Farmers' Club are unanimous in recommending the "Fife Spring Wheat" for cultivation, as regards productiveness, flouring qualities, perfect

freedom from rust, and easy to thrash, it is out of comparison the best ever introduced in this District, for strong clays or low lands.'” Passed unanimously. We have copied this extract from the “Cobourg Star” of September 17th, 1851. Mr. Laurent has, we believe, a considerable quantity of this wheat for sale.

#### CANADIAN MANUFACTURES.

We are rejoiced to find that we are progressing in our manufactures as well as in agricultural improvement, and we hope that Canadian manufactures will be crowned with the most complete success wherever established. We had occasion some short time ago, to visit in Montreal, two manufactures of thrashing mills, that of Paige & Co., in Griffintown, and that of Mr. Paradis, in the St. Joseph Suburbs. In both these establishments first rate thrashing mills are manufactured. There is a steam engine in each, to do all the work possible in preparing both iron and wood for the thrashing mills, and every part of the machinery is made upon the spot. We shall not certainly have occasion in future to import thrashing mills, as we have them made in Canada of very superior quality. The establishments of Paige and Paradis, are well worth a visit, by farmers particularly. Mr. Paradis we consider a most ingenious and industrious man, self-taught we believe, and he is truly a credit to his country, and we wish him all possible success. We have another thrashing mill manufactory at Terrebonne, belonging to Mr. Moody of that place, who also makes excellent mills, and other agricultural implements. There any many other manufactories starting up in every direction, and we shall endeavor to describe them in some future number. We have two first rate manufacturers of ploughs, grubbers, harrows, &c., in or near Montreal, Mr. Fleck and Mr. Jeffries, who can furnish these implements of the very best description.

#### TRANSPLANTING TREES.

The holes should be made larger than the stretch of the roots and the earth broken up as small as possible, and placed in a heap on one side. Trees or shrubs should not be placed deeper in the earth than they stood originally. If the earth be dry at the time of transplanting, it is a good plan to wash in the soil among the roots with plenty of water. If due care is taken in transplanting trees they will generally succeed, provided they are also taken up as carefully as possible, without breaking the roots too much. We would recommend that this work should never be done without the personal superintendance of the party most interested in its success.

#### DESTRUCTION OF SHEEP BY DOGS.

A gentleman residing in the neighborhood of Montreal, who has an excellent stock of Leicester sheep, had no fewer than nine rams of that breed destroyed in one night by a dog or dogs, in the latter end of September. These rams, we understand, were worth over £50; a very serious loss to a farmer. But it is not only an injurious loss to a farmer, but to the country generally, to have valuable stock destroyed by such means, and we are sorry to say, that it is a matter of frequent occurrence to have sheep killed by dogs. It is a well known fact, that the dogs that would be the most useful to the farmer such as the Shepherd's dog and the colly, never destroy sheep, or injure cattle. The keeping of a great number of useless dogs, is a common nuisance in Canada, and we would respectfully suggest that there should be some law passed to check this serious evil. It is most annoying when a farmer has been at the expense and trouble of importing sheep to improve the stock of the country, to have them killed perhaps, by a neighbor's dog. When there were very few of the Leicester breed of sheep in Canada, an emigrant on arriving at Montreal requested us to keep a ram he had brought, for a few

days, until he would take a place ; we did so, and before the expiration of a week, the ram was killed by a dog belonging to a laborer who was passing through the farm, within a few yards of our door. We hope that some measures will be adopted to prevent parties keeping useless dogs, unless they confine them in their houses or yards.

We give insertion to a very interesting Metereological Table of Ch. Smallwood, M. D., of St. Martin, Isle Jesus. Such Tables kept carefully, as we are sure this was, possess great interest for Agriculturists, and we hope Dr. Smallwood will continue to keep them, and send them to us for publication. Their simplicity and clearness are admirable.

Mr. Boa's letter we also publish. That gentleman has left at the Rooms of the L. C. A. S., samples of the wheat referred to in his letter, both in the grain and in the straw. With one exception, the whole of the samples of straw are more or less marked with rust, some very much so.

We perceive by our exchanges that the "New York State Agricultural Society" have advertised their annual fat cattle show, to take place at Albany, on the 20th, 21st and 22nd days of January next, 1852. There is also a show of grain, seeds, and other products at the same time. There are about 60 premiums offered, varying from 15 dollars to one dollar. The exhibitions of this Society are always interesting, and well worth attending by the friends of agriculture.

#### YOUNG BULLS.

In the British Isles, they are very careful in the feeding of these animals for the first year. They generally give them the whole of the milk of the dam in the summer, and continue to give them from three to four gallons of milk daily during winter with three lbs. of linseed made into jelly,

mixed with the milk. They also give them sliced turnips or mangolds. By this means they are brought to a great size the first year. Breeders, however, are particularly careful in selecting calves, to keep for breed only the finest and most perfect. They seldom keep a coarse animal however large they may be when calved.

Both chalk and salt should be given the calves occasionally. The chalk should be constantly left in their troughs, both in lump and powder ; it keeps the milk from coagulating in their stomachs. The breeding of Bulls or Rams requires the greatest care and attention, and should not be undertaken by any except those who are good judges of particular varieties of stock, and understand thoroughly the principles of breeding, and are practically acquainted with its management. We have seen many failures in Canada in this branch of husbandry by persons undertaking to breed superior stock who did not know what constituted a superior animal to breed from.

At the last Exhibition of Agricultural Produce, by the Royal Dublin Society. A lady, Mrs. Evans of Portrane, in the County of Dublin, was awarded the prize for the best collection and most extensive variety of farm produce grown by the exhibitor. They were said to be a most superior collection comprising 26 varieties of roots, grain, &c. This lady took besides eight or ten prizes. We mention the circumstance to show what ladies may do in farming. A Mr. Kelly is steward to Mrs. Evans, and is said to be a superior Agriculturist, Mrs. Evans was a competitor with several noblemen and gentlemen of the first rank and fortune so that she could not have been awarded the prize for the best general collection of farm products without great merit. We give a Report from Mr. Kelly on the cultivation of some of the Root Crops at Portrane, addressed by him to the Committee of the Agricultural

Museum, Royal Dublin Society. We would remind the reader that it is the Irish acre that is intended, and that the English acre makes only five-eighths of the Irish acre, but the produce is extraordinary notwithstanding. The mode of cultivation would succeed well in Canada, varying the time of sowing to our climate, and we recommend the Report to the attention of farmers.

This number completes the fourth volume of the Agricultural Journal and transactions of the Lower Canada Agricultural Society. We have the satisfaction to know that the publication has been approved of by many of the subscribers, and we hope that all who receive it are satisfied with it. We do not pretend that it has been without faults; on the contrary, we are aware it has had many defects. The subscribers, however, have too much good nature and good sense, not to be disposed to be indulgent to the faults they may perceive, knowing as they do, that we have for a very long period been sincerely devoted to the cause of Agriculture, and advocated its interests and improvements to the best of our ability. If we have been frequently in error, it was not intentionally; and, perhaps, had the Journal been conducted by others, it would not have been faultless, any more than in our hands. We can assure subscribers, whether they may have approved or disapproved of our conduct as Editor of the Agricultural Journal, it never can be under the charge of any Editor who will be more anxious to advance the improvement and prosperity of Canadian Agriculture than we have ever been. We confidently hope that we may be able to give the subscribers more satisfaction the ensuing year, than during any previous year, as our means of doing so will be more ample than heretofore.

#### AGRICULTURAL REPORT FOR NOVEMBER.

With the exception of a few days in the beginning of November, there was not any field work or ploughing done during the month, and this circumstance must cause serious inconvenience to many farmers who were backward in their fall work when the winter commenced, which it may be said to have done on the 11th or 12th of November, although snow did not fall until the 15th. We have seen the winter commence on several occasions, at an earlier period than this year, but the work, notwithstanding, is said to be unusually behind this fall, from some cause we cannot satisfactorily account for. It would be well that farmers should always be prepared for the commencement of winter about the middle of November, and if they have any opportunity of executing field work after this period, they should only consider it as work done in advance. The greatest inconvenience of the early commencement of winter this year is—that the draining may not have been completed on land that was proposed to be ploughed. The drainage was very probably put off until the ploughing would be done, and where this latter work was not executed, the soil will remain undrained until the spring, and this cannot fail to act injuriously, as well upon the soil, as by delaying the work in spring. It is favourable that the ground has been covered with snow before we had severe frost. The mercury did not fall below  $12^{\circ}$  or  $14^{\circ}$  up to the 1st of December, and was only on one occasion at these figures. We believe several farmers have sown fall wheat this year, and it is fortunate that snow covers it so early. It is in the spring, however, that fall wheat is most liable to be injured, if the snow thaws before the weather is settled fine, and thus exposes the wheat plants to severe frosts and thaws, without any covering. This is the principle objection to fall wheat, as it is so difficult to guard against it, but in



almost every part of Canada, and in a large section of the United States, there is the same difficulty. Perfect drainage would be one of the most effectual remedies, because if the drainage is good, the water produced by the thawing of the snow will run off, and the soil will not be too much saturated with excessive moisture, and consequently, will not be so much expanded by severe frost, which has the effect of tearing out the roots of the wheat from the soil, and thus destroying them. There is also some danger from rust, but under ordinary circumstances, it is not, perhaps, greater than to spring sown wheat, and the latter is much more liable to be injured by the fly. Farmers should be prepared to sow a fair proportion of barley next spring, provided they have soil fit for it, indeed we think it would be much more likely to pay than wheat, and is not so subject to casualties. The ravages of the fly has made wheat a precarious crop with us, but fortunately our climate and soil are extremely favorable for almost every other grain, green, and root crop cultivated by the husbandman. Thrashing, attention to cattle, providing fire and fence wood, disposing of spare produce, procuring manure, and placing it in the most convenient situation, for future use, are the only general works upon the farms at present. But these works, with various other little jobs always requiring to be done about the farm house and buildings, will fully occupy the winter season, and it would be advisable that any work that can be done in winter, should not be left over to spring, as there will be ample employment for that season, that is generally a short one. The prices of produce in our markets are not so remunerative as to make farming very profitable, but we do not make this remark by way of complaint. We should never complain of the low prices of agricultural products, provided the articles that farmers had to purchase, could be had on equally favorable terms. It is a well established fact,

that few farmers in this country accumulate money, and keep it idle, all they receive for their products is expended in one shape or another, and consequently, the whole product of the land, except what supplies food and clothing to those employed in husbandry, is paid away to parties not agriculturists. A large proportion of the clothing and of the food is also purchased by the farmers, and those who sell have their profits upon them. Hence, the whole of the products of the land, whatever their value, is made use of, and circulates for the general benefit of the whole community. It appears to us, therefore, that it is very unjust to levy any taxes upon farmers, *in any shape*, when coming to market, for the privilege of standing in the street to sell their produce. For any service rendered to farmers for measuring or weighing what they had to sell, or for giving them any convenient covered accommodation for selling their products, it would be very proper that they should pay a reasonable compensation, but to oblige them to pay any thing more than this, for standing in the streets, or at the market places, we conceive to be levying of taxes without the shadow of an equitable right to do so. Farmers who bring their products to cities and towns to sell, (certainly as much for the advantage of those who purchase from them, as for their own.) are obliged to contribute to the revenues of those cities and towns, without receiving adequate service for the amount they are forced to pay, on the simple authority of corporations, in whose election they have no share whatever. We should be the last to offer any objection to paying amply for any service directly rendered to farmers, but we deny the right to tax farmers to the amount of one farthing over a reasonable compensation for direct service or accommodation rendered to them, not the accommodation of standing in the open streets or market places, but for covered places, made expressly for them, and for weighing, measuring, or any other direct

service, let them pay what is reasonable and proper, but no more. We have a great objection to taxation without representation, and this is strictly the fact, where taxes are levied upon farmers by corporations in whose election they have no vote. If there is a right to tax them to the amount of one penny, they can tax them by the same right to any amount they think proper. It is quite sufficient for farmers when expending the price of what they sell, to pay, as they always do, indirect taxation, without obliging them also to pay direct taxes towards the revenues of cities and towns. The charges for weighing hay and straw, and for weighing and marking the carriages that carry these articles to market, are more than double what they should be, no matter that similar charges are made in other cities and towns as well as in Montreal. The amount of taxes paid towards the General Revenue by the authority of Provincial Statutes, would be only trifling, compared to the constant contributions levied upon farmers who would attend the markets daily. There cannot be any objection to local taxation for local and useful purposes, and for the benefit of those who pay the taxes, but we protest against any taxes levied upon farmers, unless by direct authority of Parliament or of Municipal Councils, the members of which are elected by themselves. We feel it our duty to advocate what we conceive to be the rights of agriculturists as well as the improvement of husbandry.

#### THE PRESIDENT'S MESSAGE.

There was one portion of this able document which afforded us particular satisfaction, the President's recommendation for the establishment of an Agricultural Bureau. The following is a copy of the part we refer to, and we respectfully recommend it to the attention of our Legislators. The Lower Canada Agricultural Society have endeavored to perform most of the duties which the President assigns to the Bureau, by the publication of their Agricultural

Journals, and circulating them extensively, and by the appointment of a properly qualified seedsman, and there is no question that much good has resulted from those measures:—

“Agriculture may justly be regarded as the great interest of the people. Four-fifths of our active population are employed in the cultivation of the soil, and the rapid expansion of our settlements over new territory is daily adding to the number of those engaged in that vocation. Justice and sound policy, therefore, alike require that the Government should use all the means authorized by the Constitution to promote the interests and welfare of that important class of our fellow citizens. And yet it is a singular fact that, whilst the manufacturing and commercial interests have engaged the attention of Congress during a large portion of every session, and our statutes abound in provisions for their protection and encouragement, little has yet been done directly for the advancement of agriculture. It is time that this reproach to our legislation should be removed and I sincerely hope that the present Congress will not close their labors without adopting efficient means to supply the omissions of those who have preceded them.

“An Agricultural Bureau, charged with the duty of connecting and disseminating correct information as to the best modes of cultivation, and of the most effectual means of preserving and restoring the fertility of the soil, and of procuring and distributing seeds and plants, and other vegetable productions, with instructions in regard to the soil, climate, and treatment, best adapted to their growth, could not fail to be, in the language of Washington, in his last annual message to Congress, a ‘very cheap instrument of immense national benefit.’”

#### POTATOE ROT.

We perceive by late accounts from England that mixing peat or wood charcoal, with potatoes when storing them preserves them from the rot. A farmer put up potatoes taken from the same field, of the same variety, and in every respect the same, and divided them in three pits. With the potatoes put up in one pit, he mixed charcoal, and did not put any charcoal in the other two. On examining them lately he found a large proportion of the potatoes stored without charcoal rotten, but in the pit where charcoal was mixed with the potatoes, there was not one rotten. We believe there is not any doubt that wood

charcoal, mixed with potatoes when storing, provided they were sound and dry when putting up, would tend to preserve them from the rot.

SIR,—In a late number of your valuable Gazette, you describe the plan by which a respectable gentleman saved a pit of potatoes from rotting, which was by means of peat charcoal sprinkled among the tubers in the pit; while two-thirds of other two pits of the same sort, lifted at the same time, and treated in the same way, excepting the charcoal not being used, were rotten. As to the good effects of charcoal from wood, in preventing disease among potatoes, I can bear ample testimony; and I think this a matter which should not be lost sight of. For two years, I have had a large border cropped with Early Frame and Prince Regent potatoes. These were planted with charred brushwood, and I believe not two dozen diseased tubers were found amongst them; while those planted without charcoal were very much diseased, especially where dung was made us of. I had a border of potatoes planted with soot as manure, which grew very luxuriant, but was very much diseased. In planting with the charcoal, no dung was used. The sets were planted in drills across the border, two feet apart, and eight inches in the drill, with a large handful of charcoal laid carefully above each set; then covered with the mould in digging, to the depth of four inches. It is a generally ascertained fact, that damp is a promoter of the potato disease, proceeding from a cold, retentive soil, or from a cold, still, damp atmosphere; and, as charcoal has a great affinity for damp, being placed above the set, the collar of the stem, which is commonly attacked by the disease before it descends to the tubers, has to pass through the charcoal, and hence the superabundant moisture is absorbed by the charcoal, and afterwards, in dry, clear weather, sucked up by the spongioles of the fibrous roots, in due proportions. I had a quantity of potatoes last year pitted in the ordinary way; there was very little disease among them when put up. When the pit was opened for a supply, about a month hence, a fourth part was found to be quite rotten, and many tainted. The bad were all picked out, and the good laid on a thick bedding of coal cinders, and along the centre, a row of large flower pots, filled with dry, slaked lime, covered over with slates. This had the desired effect in drying the potatoes, and preventing any further decay. Lime is a first-rate absorbent of moisture. Around the flower-pots the potatoes were as if they had been dried on a kiln. Boarded floors, raised a little above the ground surface, so as to allow a strata of air to pass below, and up through the tubers, have been recommended, as also a row of drain tiles along the centre of the pit. Admitting air from

both ends, which pass upwards through the potatoes, and thence to the exterior, by vents of straw, vents along the centre of the ridge of the pit, charred faggots of wood or charred peat, forming, as it were, a drain along the centre of the pit, among or below the potatoes, and left open at both ends, with a series of straw vents, I think would be of great service.

TO THE COMMITTEE OF THE AGRICULTURAL MUSEUM, ROYAL DUBLIN SOCIETY.

GENTLEMEN,—During the last twelve months there have been various and contradictory opinions published as to the advantages that would result to the Irish farmers from cultivating the sugar beet; and in the course of last spring, I was requested by several farming friends to try some experiments, and ascertain, as far as I could, the relative merits, as an agricultural crop, of the sugar beet and the commonly grown varieties of mangel wurzel. I have done so with all the care I could; but extended my experiments to several other roots crops; and as I will exhibit these roots at your show of farm produce, I consider that it is to you I should address a statement of the results I have obtained.

The land upon which I grew the different root crops which I shall exhibit, is an alluvial deposit of a darkish colour, varying from six to twelve inches deep, resting, in some places, on a subsoil of waxy, blue clay, in other parts on sand, and again on yellow clay and gravel, worked together so as to be perfectly impervious to water. The whole field (nine acres, Irish) produced a crop of oats last year; and immediately after the oat crop was removed, about three acres were ploughed, harrowed, and the weeds picked off, again cross-ploughed and harrowed, and the weeds picked off perfectly clean; the ground was then marked into ridges seven feet from centre to centre, and about thirty tons of good dung per acre laid on, which was ploughed in. This ground was sown, in spring last, with carrots and parsnips; that part of it intended for mangel-wurzel was merely ploughed in November, harrowed in March, and the weeds picked off, cross-ploughed and harrowed, and again the weeds picked off, then marked into ridges the same width as before stated, and ploughed, when about forty tons of dung per acre were laid on, and covered with the spade and shovel from the furrow. The carrot ground was merely turned over and harrowed in March, and the furrows dug and shovelled on the ridges.

The parsnip were dibbled in the first week in March in rows, across the raised beds, eighteen inches asunder, and nine inches asunder in the rows. The carrots were sown first week in April, in rows fifteen inches asunder and eight inches asunder in

the rows. The mangel-wurzel and sugar beet were sown the last week in April, three rows, lengthways in each bed, and eighteen inches asunder in the rows. The chicory was sown the first week in May in rows across the beds twelve inches asunder, and six inches in the rows. The potatoes were planted in beds the second week in February. The after culture of the parsnips and carrots was merely thinning, and weeding; and the first week in August, digging between the rows, in addition to which the mangel-wurzel got two dressings of liquid manure the first week in August and first week in September. The sugar beet, I must remark, was sown in alternate beds with the different varieties of mangel-wurzel. On yesterday I had a square perch taken us of potatoes, which I left undug till then, for that purpose, of the different varieties of mangel-wurzel, of sugar beet, chicory, red and white carrots, and of parsnish. The leaves were taken off carefully, and weighed separately in the most careful manner; the roots were then taken up and weighed, and the following is the result:—

Crop.	Tops, per perch.		Roots, per perch.		Tops, per acre.		Roots, per acre.	
	st. lb.	st. lb.	tns. ct.	tns. ct.	tns. ct.	tns. ct.	tns. ct.	tns. ct.
White Carrots, . . . . .	10 7	32	2 10 10	32 3				
Red Carrots, . . . . .	0 0	25 0	9 0	25 0				
Chicory, . . . . .	—	9 2	—	9 3				
Sugar Beet, . . . . .	25 1	36	4 25 1½	36 5½				
Yellow Globe Man- gel Wurzel, . . . . .	18 12	47	8 18 171-7th	47 11½				
Red Globe Mangel- Wurzel, . . . . .	13 8½	51	6 13 121-7th	51 8½				
Long Red ditto, . . . . .	15 3	47	5 15 4½	47 71-7th				
Potatoes, (Ballygaw- ly Pinks), . . . . .	—	16 3	—	16 4½				
Potatoes, (Broccoli Bank Seedlings), . . . . .	—	12 4	—	12 5½				
Parsnips, . . . . .	—	26 0	—	26 0				

The money value, per acre, of these roots will be about as follows:

	£	s.	d.	£	s.	d.
White carrots, tops, 10½ tons, at 4s per ton	2	2	0			
White carrots, roots, 32 tons 3 cwt., at 35s per ton	51	5	3	53	7	3
Red carrots, tops, 9 tons, at 4s per ton			1	16	0	0
“ roots, 25 tons, at 45s per ton	56	5	0	58	1	0
Chicory. (I do not know the value.)						
Sugar beet, tops, 25 tons 1½ cwt., at 4s per ton	5	0	6			
Sugar beet, roots, 36 tons 5½ cwt., at 15s per ton	22	4	3½	27	4	9½
Yellow globe mangel, tops, 18 tons 171-7th cwt., at 44 per ton	3	15	4½			
Yellow globe mangel, roots, 47 tons 11½ cwt., at 15s per ton	35	13	7½	39	9	0
Red globe mangel, tops, 13 tons 121-7th cwt., at 4s per ton	2	14	5			
Red globe mangel, roots, 51 tons 8½ cwt., at 15s per ton	38	11	9	41	6	2
Long red mangel, tops, 15 tons 4½ cwt., at 4s per ton	3	0	19			
Long red mangel, roots, 47 ton 71-7th cwt., at 16s per ton	35	10	4	38	11	2

Potatoes, Ballygawly pinks, 16 tons 4½ at 5s per ton	64	18	0
Potatoes, Broccoli Bank seedlings, 13 tons 5½ cwt., at 100s per ton	61	8	9
Parsnips, roots, 26 tons, at 50s per ton	65	0	0

I have myself sold, nearly every day last week, in the Dublin market, parsnips for 50s. per ton; and I am selling red and white carrots at the prices set down above. I think the mangel-wurzel tops and roots would be value for the prices set against them to the farmer, for feeding. I know that roots have been sold at 10s. per ton, but I have myself sold mangel roots generally for 20s. per ton; but as my object here is, to compare the relative value of the sugar beet and mangel-wurzel, it will make no difference what price is set down against either. However, the returns for these crops are very great indeed; to be sure they are large crops, but I have frequently raised very much larger; but to raise large crops, large expenses must be incurred, and to say otherwise would, in fact, be no less than a fraud on both landlord and tenant; I will, therefore, give the expenses, for carrots, parsnips, &c., per acre—

	£	s.	d.
Two ploughings, harrowings, and pickings	3	0	0
Thirty tons of dung at 3s. 6d. per ton	5	5	0
Carting out dung, and spreading	0	12	0
Ploughing in the dung	0	15	0
Ploughing and harrowing in spring	0	17	6
Ri-king, and preparing the ground for seed	2	0	0
Seed	0	6	0
Sowing	0	3	8
After culture	0	1	5
Topping and digging	0	16	8
Delivery to market, 7s. per ton, say	10	0	0
<b>Total</b>	<b>21</b>	<b>0</b>	<b>10</b>

The cost of mangel-wurzel and sugar beet will be about £30 per acre; and of potatoes, owing to the extra expense of seed taking up, &c., will be about £34 per acre. This much however, must be considered, that on lands not suited to these roots the expense would be exactly the same, and perhaps greater; and the produce, even with good management, not, perhaps, half so much; and hence there would be no profit at all. In conclusion, I have to state, that in weighing the roots, they were cleaned fully as well as if perfectly washed. The sugar beet and mangel-wurzel were taken in a line across the fields, ridge after ridge; and the carrots (not growing in the same part of the field), have been taken off a similar soil as that on which the mangels grew.

I am, gentlemen,  
your obedient servant,  
WILLIAM KELLY.

Portrane, Nov. 5, 1851.

An English wag thus describes the seasons: Autumn—wheezy, sneezy, freezy; Winter—slippy, drippy, nippy; Spring—showery, flowery, bowery; Summer—cropy, hoppy, poppy.

## CULTIVATION FOR CORN.

It is a curious fact and not easily explained, that whilst improvement has constantly of late years been making in the machinery and implements of the farmer to lessen his labour, and notwithstanding that ploughing is done with half the strength, and the produce is prepared and marketed, at the present day, at half the cost of 70 years ago, there are still many instances of land being worked with the spade, and without the advantages of machinery, competing in its returns with the most intelligent farming. To what is this owing? The last edition (the 8th) of the Rev. Mr. S. Smith's work, "A Word in Season," informs us that his sixth running crop of wheat has yielded upwards of five quarters to the acre, and a margin for rent and profit of £8 an acre. What farming with the plough approaches this spade husbandry? The only explanation I can offer, and this accords greatly with my own experience, is, that whilst the farmers have been seeking reduction of cost in their ploughing, they have been overlooking the value of deep cultivation and fine comminution of the under strata into which the seed has to push its roots. I have long seen the value in this respect of the Kentish turnwrest plough, which breaks up the bottom and sifts the crumb it makes underneath; and after using almost every plough, I still work it whenever I think the crop will be the better for two or three inches of fresh soil, pulverised bed, and a permeable subsoil in place of the five or six inches of block and the hard pan underneath, left by the cutting ploughs. I had the pleasure of seeing Mr. Smith's crop in the spring, and I was much struck with it; I spoke of it when looking at the crops of one of our finest agriculturists, where the wheat was all drilled 14 inches apart, and with only three pecks of seed on an acre. The impression on him of what I told him I had seen, was such that he immediately had an acre of his wheat measured off, and every other of the rows upon it dug in, so that on this acre the wheat stood in rows at 26 inches apart, and only with 1½ peck of seed to the acre. The effect of the digging very soon showed, although the wheat over the rest of the field presented an appearance of luxuriance I believe seldom seen; still this acre was distinguishable by its superior growth, and in the summer it became apparent there would be far too much to stand till harvest, and such proved the fact: for before harvest its great length of straw brought it to the ground. The fault was over luxuriance. Here the grower had to complain of his land being too rich—a fault it does not cost money to cure; and to what was this owing, but to the larger amount of food opened to the roots by the turning in of the intermediate space. The value of such instances as these lies not so much in them as examples to follow, as

in throwing light on the mysteries of vegetation, and showing the importance of better cultivation. We are here taught how land may be enriched—not by costly manures, but by more effective labour; and, if rightly viewed, we shall see from Mr. Smith's crops, and the instance mentioned, the direction to which our attention should be turned for giving greater fertility to our land. Numerous instances in confirmation of these examples present themselves to me. I can here but mention two. A large landed proprietor, desirous of clotting the open ground round his house, planted, about 30 years ago, numerous clumps of trees, and anxious to give a rapid growth to those nearest his mansion, he for many years had their beds turned in annually. These took the lead, and are now double the size of the beds that were not so treated, and have had to be thinned five or six times; and there can be no question, on looking at the two, that the extra growth has more than doubly repaid the labour upon them. The other case is that of a farmer in Hertfordshire, who, having a poor side of a field that he would not make productive, one winter, 20 years ago, being overseer, put all the able paupers to work upon it in trenching it: and this side of the field has ever since been the most productive of the two. These are cases I can vouch to; but who is there that does not know the difference that an old garden or hop-ground ever shows; it cannot be the manure, for the difference is seen after any number of years: it lies in the greater depth of soil given by the culture to the plants to feed from.—*Hewitt Davis, 3, Frederick's-place, Old Jewry, London, October 13.*

## LINEN MANUFACTURE—IMPORTANT DISCOVERY.

We have learned that one of the first linen houses in this part of the country has discovered an invaluable process, by means of which linen goods can be bleached and finished within from ten days to a fortnight. And let it not be imagined that the vast and manifest importance of this discovery is in any degree diminished by the least inferiority in the article produced. The reverse is the case. We are assured that, so far from the new process tending to injure the fabric, or deteriorate its commercial value, it greatly improves the quality of the article, being unattended with any of the injurious effects produced by the old process. Of the nature of this process it is not within our power to speak; we can only state, with the utmost certainty and confidence of its effects, and of the great advantages it will confer upon the community. By improving the quality of linen fabrics, it will place them once more far ahead of the competition of cotton goods and cotton mixtures, which has latterly run them so close; by the unlocking so large an amount of slumbering capital, it will give greater activity to the linen trade, afford a large margin of profit, and, by consequences, a wider field of employment; whilst it will also have the effect of enabling the manufacturer to supply his goods to the public at a

cheaper rate—thus conferring a lasting and general benefit upon the country at large. In short by its means, an entire revolution in the condition of the trade will be effected. The time, too, is most propitious for the development of this astonishing discovery, and its practical operation on the largest scale; for we learn, with the most sincere pleasure, that the advices from the East and West Indies, as well as from South America, are exceedingly favourable for this particular branch of our native manufactures; and we have no doubt that we shall soon have a start in the supply of linens to these markets, which will enable us to distance all competitors.—*Belfast Newsletter.*

**NEW PROCESS OF PREPARING FLAX**—An experiment is at present being tried in the county goal, under the direction of the governor of that establishment, Mr. Farmer Lloyd, which, if successful, will open a new era in the manufacture of flax.

The new plan avoids the tedious process of bog-rotting, or the expensive one of hot-water steeping, the flax plant, as taken from the ground, being immediately submitted to a process of breaking and scatching, and the fibre spun and woven in almost the green state. Mr. Lloyd has prisoners employed breaking the straw, to enable the woody matter to be removed. This is effected by rude but simple implements; a block of hard timber, with a grooved face and a mallet or beetle, with a grooved head. The flax straw is laid upon the block, and beaten with the mallet until the fibre is partly detached from the shoves. It is then passed to other prisoners, who manipulate it until the shoves are almost completely separated. It is next scutched by the aid of the simple wooden implement, which has been in use in this country since the first introduction of the flax plant into Ireland. Thence it is taken to the spinning-room, where the fine flax and the tow are spun separately by women with the common wheel. This process, which is now in its infancy, may after experience lead to the invention of machinery for its execution, which will tend to its general adoption; but the plan carried on in the goal cannot be availed of to any extent outside an institution, the object of which is to create employment for idle labourers. If eventually the results are as favourable as it is to be hoped, the pauper labour of our work-houses may be employed in the manufacture of an article, the extensive growth of which has been so much encouraged in the south of Ireland. Mr. Lloyd is aware that by this process the glutinous matter, which connects the fibre of the plant, is not removed, and thereby leaves the fibre unsuited in some respects for adoption in fabrics; but he has reason to hope that he will be enabled to avail of a simple process that will remove this objection, while at the same time it will supercede the dangerous operation of either bog steeping or hot-water retting. By a calculation made, it appears that 22 lb. of flax have been produced from one cwt. of green straw, while the average produce after steeping is about 17 lb. to the 112 lb.—*Cork Constitution.*

#### INDIAN JUGGLING.

Forcing my way to one corner of the shed, I found a company of Indian jugglers, consist-

ing of two men, a girl, and a child of perhaps three years. The men were habited in strange uncouth dresses, with large strings of heavy black beads round their necks; the girl was simply and neatly clad in white, with silver bangles and anklets, and a necklace of native diamonds. It would be impossible to detail all their extraordinary performances, which far exceed anything I had ever read of their art. The quantity of iron and brass which they contrived to swallow was truly marvellous; ten-penny nails, clasp-knives, gimblets, were all treated as so many items of pastry or confectionary, and I could not but picture to myself the havoc a dozen of these cormorants would commit in an ironmonger's shop. Not the least remarkable of their feats was that of producing a sheet of water upon the sand close at our feet; and after conjuring upon its clear surface half-a-dozen young ducks and geese, suddenly caused it to freeze in such a solid mass as to allow of our walking across it without causing so much as a crack in its crystal body. One or more feats I must relate, which was suspending the girl, while seated on a sort of ottoman, to the ridge pole of the shed, and at a given signal, removing the rope by which she hung, leaving her still suspended in the air—not with a regular apparatus, such as is used by the performers of a similar trick in London and Paris, but apparently with no apparatus at all! For, to my exceeding amazement, a sword was given to me, as the only European of the company, and I was told to cut and slash as much as I pleased above and around the girl. After some hesitation, I hacked and hewed the air in every direction, around and close to the suspended maiden, with a vigour which would inevitably cut asunder any means of support; yet there she swung unmoved, without any sort of apparent agent of suspension except the air itself.—*Dickens's Household Words.*

**SOMETHING LIKE A FAIR.**—Some idea may be formed of the quantity of business transacted at the great fair of Nijny Novgorod, if we give the results of the fair in the year 1849. The transactions in that year are stated to have been less satisfactory than those of 1848. The price of tea was 20 per cent. higher, and injuriously affected the trade in other articles. Money was scarce, owing to the recent stagnation of the corn trade, and the payment for two-thirds of the aggregate purchases is said to have been deferred for periods of 12, 18, and even 24 months. With these drawbacks, the total value of the domestic articles at the fair was 7,916,016*l.* sterling. The following found a sale:—Raw materials, 1,917,940*l.*; provisions, 858,684*l.*; and domestic manufactures, 3,981,716*l.* the total sales of domestic articles amounting to 6,758,340*l.*

leaving 1,157,675*l.* unsold. The total foreign articles at the fair amounted to £2,430,191, of which 493,955*l.* worth of European raw materials found a sale; and 204,888*l.* of manufactures. Asiatic articles sold to the extent of 1,329,131*l.*; the total sales of foreign articles being 2,027,944*l.*, leaving 402,217*l.* unsold. So that in fact the total value of both domestic and foreign articles at the fair was no less than 10,346,207*l.*, of which 8,786,314*l.* found buyers, and 1,559,893*l.* remained unsold.

**THE SHEPHERD'S DOG.**—Without the shepherd's dog the whole of the mountainous land in Scotland would not be worth sixpence. It would require more hands to manage a flock of sheep, gather them from the hills, force them into houses and folds, and drive them to markets, than the profits of the whole stock would be capable of maintaining. Well may the shepherd, then, feel an interest in his dog. It is, indeed, he that earns the family bread, of which he is content himself with the smallest morsel. Neither hunger nor fatigue will drive him from his master's side; he will follow him through fire and water. Another thing very remarkable is, the understanding these creatures have of the necessity of being particularly tender over lame and particular sheep. They will drive these a great deal more gently than others, and sometimes a single one is committed to their care to take home. On these occasions they perform their duty like the most tender nurses. Can it be wondered at, then, that the colley should be so much prized by the shepherd; that his death should be regarded as a great calamity to a family, of which he forms to all intents and purposes, an integral part; or that his exploits of sagacity should be handed down from generation to generation, and form no small part of the converse by the cozy ingle on long winter nights?

**PATENT ANTI-METALLIC CHURN.**—On Tuesday we had an opportunity of witnessing in operation Drummond's new churning machine, now in the hands of Messrs. C. D. Young and Co., Glasgow. Its peculiar advantages and points of superiority over every other yet offered to the public consist in the saving of time and labour in the production of butter. It is in form an elliptic or oblong square, or nearly so, and is divided in the middle, forming two compartments, which communicate with other by a series of holes perforated in the division. To each of these compartments belongs a lid, a staff, and a dasher, similar to those in the common churns. On the outside is an iron bracket supporting two wheels, the one a fly or driving wheel, and the other oscillating. Attached to the fly-wheel is a handle, by which it is driven round, acting on the oscillating

wheel by a connecting rod, effecting 200 strokes per minute with the utmost ease. It has had several trials in this locality, and we give the following results:—On Monday evening, at Mr. M'Whinnie's, Blairstone, before a number of respectable farmers, butter was produced from new cream in 4½, 5, 6, and 9 minutes respectively, with temperature varying from 55 to 66 degrees. The trials we witnessed in the Corn Exchange were also very satisfactory; although the cream was stale, yet it produced butter in six minutes, with temperature at 65 degrees. Several farmers, on witnessing the trials, gave orders for the churn, and we have no doubt it will soon supersede the ordinary plunge churn.—*Ayr Advertiser.*

**THE PREDOMINANCE OF WATER IN THE COMPOSITION OF VEGETABLES AND ANIMALS.**

—Potatoes contain 75 per cent. of water (by weight), and turnips no less than 90 per cent. which explains, by the way, the small inclination of turnip-fed cattle and sheep for drink. A beef steak, strongly pressed between blotting-paper, yields nearly four-fifths of its weight of water. Of the human frame (bones included) only about one-fourth is solid matter (chiefly carbon and nitrogen), the rest is water. If a man weighing ten stone were squeezed flat under a hydraulic press, seven and a half stone would run out, and only two and a half stone of dry residua would remain. A man is, therefore, chemically speaking, forty-five pounds of carbon and nitrogen diffused through five and a half paifuls of water. Berzelius, indeed, in recording the fact, justly remarks, that "the living organism is to be regarded as a mass diffused in water;" and Dalton, by a series of experiments tried on his own person, found that of food with which we daily repair this water-built fabric, five-sixths are also water. Thus amply does science confirm the popular saying, that water is the "first necessary of life."—*Quarterly Review.*

**PEAT CHARCOAL USEFUL IN PREVENTING THE RAVAGES OF THE POTATO DISEASE.**—A correspondent states that he lifted some potatoes the middle of August, pitted them carefully, in five pits, covered them with straw, and over that earth; over the potatoes, in one of the pits he strewed a small quantity of peat charcoal; to the rest he did nothing. On opening them this week, he found the pit to which the charcoal was applied perfectly safe—not a diseased one could be found; of the other four pits there were about two-thirds of them quite rotten. The potatoes were all of the same kind, and lifted and treated the same way.

**NEW EDITION OF DANA'S "MUCK MANUAL."**—We are glad to learn that a new and enlarged edition of this useful work is

soon to be published. The former editions were exhausted, and we have heard many calls for it which could not be answered. It contains many directions in regard to the use of peat or muck as manure which have been of great value to many farmers.

A SONG FOR MERRY HARVEST.

BY ELIZA COOK.

Bring forth the harp, and let us sweep its fullest,  
 loudest strings,  
 The bee below, the bird above, all teaching  
 us to sing  
 A song for merry harvest; and the one who will  
 not bear,  
 His gateful part, partakes a boon he ill deserves  
 to share.  
 The grasshopper is pouring forth his quick and  
 trembling notes,  
 The laughter of the Gleaner's child, the heart's  
 own music floats;  
 Up! up! I say, a roundelay from every voice  
 that lives,  
 Should welcome merry harvest, and bless the  
 God that gives.

The buoyant soul that loves the bowl, may see  
 the dark grapes shine,  
 And gems of melting ruby deck the ringlets of  
 the vine;  
 Who prizes more the foaming ale may gaze upon  
 the plain,  
 And feast his eye with yellow hops and sheaves of  
 bearded grain,  
 The kindly one whose bosom aches to see a dog  
 unfed,  
 May bend the knee in thanks to see the ample  
 promised bread,  
 Awake then all, 'tis nature's call, and every voice  
 that lives,  
 Shall welcome merry harvest, and bless the God  
 that gives.

AGRICULTURAL SOCIETY.

Office of the Society, at No. 25, Notre Dame Street, Montreal, opposite the CITY HALL, and over the SEED STORE of Mr. George Shepherd, Seedsman of the Society, where the Secretary of the Society, Wm. Evans, Esq., is in attendance daily, from 10 to 1 o'clock.

All communications intended for publication in the Agricultural Journal to be addressed, (post paid) to the Editor, Wm. Evans, Esq., Secretary of the Lower Canada Agricultural Society.

NOTICE.

AGENTS and Subscribers who have not yet paid their subscriptions, are earnestly requested to forward the same at their earliest convenience to the Publisher,

R. W. LAY.

193 Notre Dame street.

Montreal, 1st Dec., 1851.

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*Extract from Notarial agreement entered  
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**NINTHLY.** It is also further covenanted and  
 agreed by and between the said parties hereto,  
 that the said party of the second part (R. W. Lay)  
 is by virtue of these presents constituted, the  
 attorney of the said parties of the first part pend-  
 ing the present contract, and not further, for the  
 express purpose and with full power and authority  
 to collect all arrears for subscriptions due by sub-  
 scribers to said Journal while published hereto-  
 fore by the said parties of the first part.

(Signed,) **ALFRED PINSONEAULT, President.**  
**WM. EVANS, Secretary.**

**THE AGRICULTURAL JOURNAL AND  
 TRANSACTIONS OF THE LOWER  
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 to visit Agents and Subscribers to the Work, in  
 the different parishes in Canada, to ascertain the  
 interest felt in its prosperity, and awaken, if pos-  
 sible, a fresh zeal in the cause of Agricultural  
 improvement. This I have done to some extent;  
 but I regret that business here, obliges me to  
 defer for the present many of my proposed visits.  
 I have, therefore, conceived the idea of address-  
 ing a Circular to the Clergy and Agents, con-

fident that they will feel deeply interested in the  
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Anxious to avail myself of every facility to  
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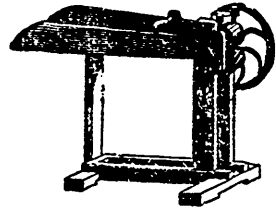
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