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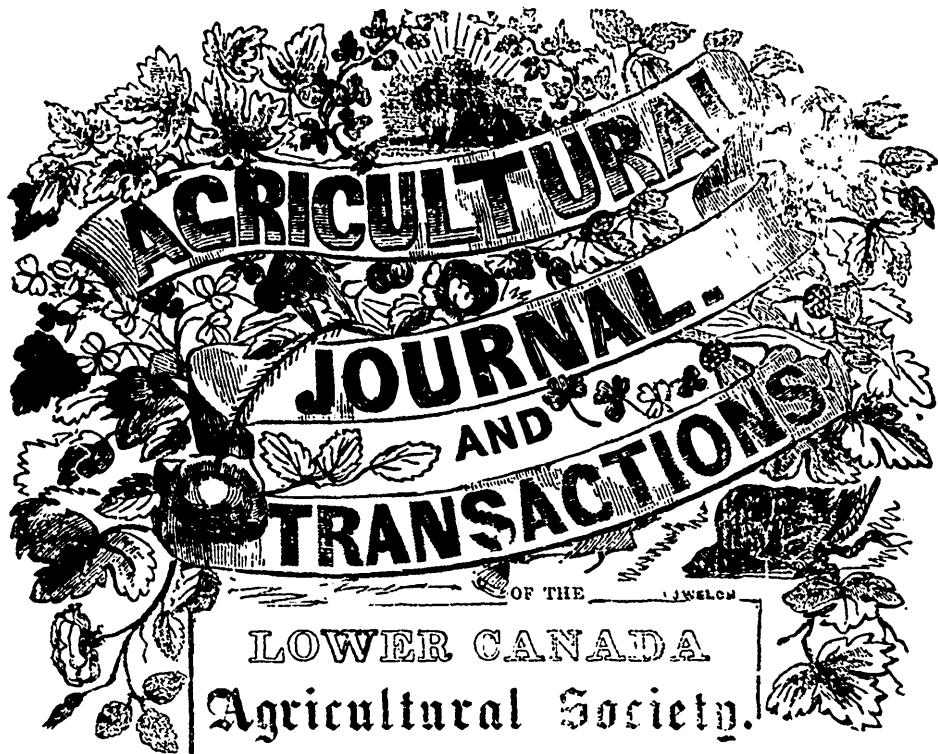
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**AGRICULTURAL**  
**JOURNAL**  
**AND**  
**TRANSACTIONS**  
OF THE  
**LOWER CANADA**  
**Agricultural Society.**

Vol. 4.

MONTREAL, MAY, 1851.

No. 5.

**AGRICULTURAL COLLEGE AND MODEL-FARMS.**

It is so essential to the permanent prosperity of Lower-Canada, that one Agricultural College and Model-Farm should be established, that we feel it our duty to advert to the subject in every number of the Journal. There has not been one objection made to their establishment that could not be answered satisfactorily. Indeed we cannot imagine any possible objection to means being provided for educating agriculturists suitably to enable them to practise their profession successfully; and if any public aid is to be afforded for the support of education, in justice to the rural population, let it include that sort of education that will be the most useful to the sons of farmers, and those who wish to become farmers. We have been repeatedly applied to by respectable parties for information respecting Agricultural Schools, and Model-Farms, if there were any such

establishments in Canada or the United States, where young men might be suitably instructed, and to all such enquiries we had to reply that we did not know of any. This want is most injurious to the general interests of the country, and more particularly to Agriculture. Parents of respectability and wealth, who would be anxious that some of their sons would become agriculturists, are prevented from providing for them in this way, because they have no opportunity of previous instruction in the science and practice of husbandry. Hence agriculture loses the advantage of having men of education and capital to become farmers, who would be able to set an example of good farming to all around where they might settle. There is another evil, that those young men who would become farmers if they had an opportunity, and add to the production and wealth of their country, are forced to crowd other professions, and are often useless consu-

mers instead of producers. The farmers throughout the country, when they see that the wealthy classes bring up their families to any business or profession rather than farming, begin to think that if they can educate any of their sons, they would be doing them injustice by making farmers of them, and they also help to crowd other professions. This matter is of much more importance to the welfare of the country than is generally supposed. In Ireland, several Agricultural Schools, Colleges, and Model-Farms have been lately established from public funds with every prospect of advantage to that country. In England, they have an Agricultural College, and several Agricultural Schools and Model-Farms. Such institutions are a thousand-fold more necessary in Canada. In England, there are Model-Farms in every direction, and young men requiring instruction stop with a respectable farmer for one, two, or three years, and understand in that time the business of agriculture sufficiently. Noblemen and other landed proprietors, generally have farming establishments conducted in every branch, in the most perfect manner, and hence their sons are instructed, and become attached to agricultural pursuits, as the most honorable, pleasing, and healthful employment a gentleman could be engaged in. In Canada, matters are exactly reversed, and any village shopkeeper considers himself much superior to a farmer. Is it justice to withhold from agriculture the same advantages that other businesses and professions always have had—suitable instruction? We know that farming is not highly estimated in Canada, and we might suppose, to hear the observations of some parties, that if there was not such a being in existence as a farmer, the wealth and prosperity of other classes would be quite as well secured. A farmer in the country may feel that he is deficient in agricultural skill, and wish to have his son better informed on the subject if there was any institution to receive him, but as there is not, the consequence

is, that the son is no better informed than his father, and he follows the same system of agriculture when he gets a farm of his own. The expense of introducing Agricultural Schools, Colleges, and Model-Farms is the grand objection; but if a portion of the Revenue was applied to this purpose, it would, we humbly conceive, be a very judicious application. It would be only loaning it to instruct the people how to produce the means of a vastly augmented Revenue. If there was an Agricultural School and a Model-Farm established to commence with, this might be a Normal School, where persons could be properly instructed to conduct other establishments, and we should then have one Institution in Lower Canada where respectable young men might receive an Agricultural education. It would be a safe experiment to make, and as useful an employment of Revenue as has ever been made in Canada. There is no necessity for a very large expenditure, and whatever would be expended would be a profitable investment. The land managed as a Model-Farm would necessarily be always improving. It would not be expedient to erect extensive or expensive farm buildings, they are not required for Canada. We should recommend that the Farm should contain about 500 arpents of land, to admit of future extended operations, and it would be a safe speculation to buy this quantity. It may not, however, be possible to obtain conveniently more than 200 arpents and we shall assume this to be the extent. In purchasing, there may be buildings upon the premises that would come into use, and it would only be necessary that such additions should be made as would be required. There is no necessity to build a palace, and out-buildings in proportion. It would be much more prudent to have such an establishment as a farmer of moderate means might take as a model, and suitable for 200 arpents of land, and buildings in proportion to the produce that could be obtained from that extent of land.

A farm of 200 arpents, with some buildings upon it that might come into use, could be purchased, we believe, in a suitable situation for £500, or £600. Farm buildings might be constructed, at least 300 feet in length, with cellars under 100 feet of them for roots, for about £400. For a dairy and garden £100. For improving and adding to the dwelling house £500. For this amount, £1600, a farm of 200 arpents and every necessary building for a farm of this extent might be had.

For furniture, books, and chemical apparatus, we shall set down,..... £400 0 0

FARM STOCK.

|  |     |    |   |
|--|-----|----|---|
| 4 horses at £20 each,.....£                  | 80  | 0  | 0 |
| 12 milch cows at £6 each,                    | 72  | 0  | 0 |
| 1 bull,.....                                 | 20  | 0  | 0 |
| 20 3-year old steers for stall feeding,..... | 100 | 0  | 0 |
| 20 ewes and 1 ram,.....                      | 35  | 0  | 0 |
| 2 breeding sows and 1 boar,.....             | 10  | 0  | 0 |
| 24 fowls and 4 cocks,.....                   | 2   | 10 | 0 |
| 6 geese,.....                                | 1   | 0  | 0 |
| 6 turkeys,.....                              | 1   | 0  | 0 |
| 12 ducks,.....                               | 1   | 0  | 0 |
| Farm stock.....                              | 322 | 10 | 0 |

FARM IMPLEMENTS.

|                                       |    |    |   |
|---------------------------------------|----|----|---|
| 2 swing ploughs of iron,.....£        | 15 | 0  | 0 |
| 2 wheel ploughs of iron,.....         | 12 | 0  | 0 |
| 1 drill plough,.....                  | 5  | 0  | 0 |
| 1 grubber,.....                       | 8  | 0  | 0 |
| 1 drill harrow, iron,.....            | 3  | 0  | 0 |
| 1 double Scotch harrow, ..            | 4  | 0  | 0 |
| 1 double seed harrow,.....            | 4  | 0  | 0 |
| 1 bush harrow with wheels,            | 2  | 10 | 0 |
| 1 roller,.....                        | 2  | 10 | 0 |
| 1 wheat drill, American make,.....    | 20 | 0  | 0 |
| 1 horse hoe,.....                     | 10 | 0  | 0 |
| 1 turnip drill, English,.....         | 10 | 0  | 0 |
| 1 drill barrow for small seeds,.....  | 5  | 0  | 0 |
| 1 corn sheller,.....                  | 4  | 0  | 0 |
| 1 grain crusher, for cattle use,..... | 10 | 0  | 0 |
| 1 straw cutter,.....                  | 8  | 0  | 0 |
| 1 root slicer,.....                   | 5  | 0  | 0 |

Carried forward,.....£128 0 0

|  |     |    |   |
|--|-----|----|---|
| Brought forward,.....£   | 128 | 0  | 0 |
| 6 spades,.....   | 1   | 10 | 0 |
| 6 shovels, three of them with long handles,.....                     | 1   | 10 | 0 |
| 6 digging forks,.....  | 1   | 10 | 0 |
| 1 set draining tools,.....   | 2   | 10 | 0 |
| 1 dozen hoes, various sizes,   | 1   | 5  | 0 |
| 1 set garden tools,.....   | 1   | 10 | 0 |
| 4 dung carts,.....   | 30  | 0  | 0 |
| 4 hay-cart bodies, to be put on dung cart wheels when required,..... | 10  | 0  | 0 |
| 4 wheel barrows,.....  | 5   | 0  | 0 |
| 1 horse hay rake,.....   | 4   | 0  | 0 |
| 2 large hand hay rakes,...   | 0   | 10 | 0 |
| 6 common hay rakes,.....   | 0   | 5  | 0 |
| 12 hay forks,.....   | 1   | 10 | 0 |
| 6 dung forks,.....   | 1   | 10 | 0 |
| 1 horse power thrashing machine,.....                                | 50  | 0  | 0 |
| 1 fanning machine,.....  | 7   | 10 | 0 |
| 1 set of wire sieves, various sizes,.....                            | 1   | 10 | 0 |
| 4 sets cart harness,.....  | 15  | 0  | 0 |
| 2 double sets sleigh harness,.....                                   | 15  | 0  | 0 |
| 2 sets plough harness,....   | 5   | 0  | 0 |
| 5 sets whipple trees,.....   | 5   | 0  | 0 |
| 2 double sleighs,.....   | 10  | 0  | 0 |
| 2 single sleighs,.....   | 7   | 10 | 0 |
| 1 market cart,.....  | 7   | 10 | 0 |
| 2 sets light single harness, scythes and sickles,.....               | 1   | 10 | 0 |
| 50 bags holding 2 minots each,.....                                  | 5   | 0  | 0 |

DAIRY UTENSILS.

|  |    |    |   |
|--|----|----|---|
| 2 churns of different sizes,                           | 7  | 10 | 0 |
| 1 cheese press,.....                                   | 4  | 0  | 0 |
| 1 set milk dishes, and vessels for keeping cream,..... | 5  | 0  | 0 |
| Kegs and crocks for butter, and other utensils,.....   | 7  | 10 | 0 |
| For articles not enumerated,.....                      | 12 | 0  | 0 |

|  |     |    |   |
|--|-----|----|---|
| Implements of all descriptions,.....                       | 364 | 10 | 0 |
| Seeds for first year,.....£                                | 40  | 0  | 0 |
| To purchase special and other manures for first year,..... | 100 | 0  | 0 |
| Seed and manure first year,.....                           | 140 | 0  | 0 |

## RECAPITULATION OF WHOLE EXPENSES.

|  |       |    |   |
|--|-------|----|---|
| 200 arpents land, supposed to cost   | £600  | 0  | 0 |
| Farm buildings and root cellars,....   | 400   | 0  | 0 |
| Dwelling house,.....   | 500   | 0  | 0 |
| Dairy and garden,.....   | 100   | 0  | 0 |
| Furniture, books, and chemical apparatus,.....   | 400   | 0  | 0 |
| <hr/>  |       |    |   |
| Farm buildings, furniture, &c....  | £2000 | 0  | 0 |
| Farm stock,.....   | 322   | 10 | 0 |
| Farm implements, utensils, &c.,....  | 364   | 10 | 0 |
| Seed for first year,.....  | 40    | 0  | 0 |
| Manure for first year,.....  | 100   | 0  | 0 |
| <hr/>  |       |    |   |
| Total capital permanently employed,.....   | £2827 | 0  | 0 |
| It might be necessary to have the first year, until there would be some returns from farm, ..... | 100   | 0  | 0 |
| Allow for contingencies and extras, 73   | 0     | 0  | 0 |
| <hr/>  |       |    |   |
| Total expenditure,.....  | £3000 | 0  | 0 |

We can take upon us to state that £3000 would be amply sufficient for an establishment of this extent, and that a larger expenditure would be more hurtful than useful, and would only be an example of extravagance, which Canadian farmers would at once object to. It would not be difficult to enlarge the establishment at any time it might be required. We have no hesitation in saying that such an establishment would pay the interest of the capital employed, and at any time the whole of the capital might be again realized. We would propose that no persons should be kept in the establishment (except the professor or superintendent) who did not work. The parties who would come for instruction would of course pay for their expenses, and those who would not do so, would pay by their work for their maintenance. We have thus endeavoured to submit a fair statement of what the expenses would be. In the next number of the Journal we shall state what returns might be expected under ordinary circumstances. If £20,000 could be had to-morrow for such an establishment, it would be much more prudent, and forward the object proposed

more effectually, by having one upon a moderate scale, and be infinitely better adapted to the circumstances of Canada. The number of sheep set down may be thought too few, but any farm that can be purchased will not be in the best condition to keep stock the first year, and the amount assigned for labour the first year, when returned to the funds of the Institution may be employed to increase the stock of sheep and neat cattle, if considered expedient to do so. It would be a great mistake to over stock in the commencement. It would be much a better plan to summer fallow at once any of the land that would require it, and bring it into condition as soon as possible. The steers proposed to be purchased, might be bought during the summer and fall as opportunity would occur, for putting up to stall-feed before the winter commences. The number of stock we have put down may be too many for the first year, but it will depend upon the state of the farm. From the amount proposed for labour, and the balance for contingencies, the support of the horses should be taken, until the farm produces food for them. We think, however, that by judicious management, £3000 would be amply sufficient for the establishment of an Institution, that would answer the country under our present circumstances. The salary of the professor or superintendent, is a separate affair, which we have not estimated in our calculation.

## ON DRAINAGE.

The first regular meeting of the Chippenham Hundred Farmers' Club, was held on the 17th Dec., 1850. Mr. ROBERT DAVIS LITTLE in the chair.

The subject of "Drainage" having been fixed on for discussion, and Mr. T. C. Scott, (agent for Joseph Neeld, Esq., M. P.,) having agreed to open the question, rose and addressed the meeting as follows :

Gentlemen—I feel highly complimented in being called upon by you to introduce the first subject appointed for discussion at this Club. At the same time, I feel some diffidence in bringing forward a subject so important, especially as it is one that has lately undergone so much discussion by men of

ability and scientific knowledge. A sincere desire, however, to impart whatever practical information I possess on this important subject, has alone induced me to undertake this duty.

The more the subject of drainage is discussed, the better it is likely to be understood, and it is absolutely necessary to fix its general principles clearly in our minds, to enable us to settle to our work with that degree of confidence which is essential to success in practice.

The records of the application of drainage to the improvement of land go back to a very remote period. We read in the writings of Virgil and others of drainage operations carried on by the Romans nearly two thousand years ago, and they appear to have been familiar with it as a system. Two hundred years ago, Blythe, in his "Improver Improved," addressed to "Cromwell," strongly urged the necessity of carrying out a system of drainage there laid down. In Essex, nearly 150 years ago, furrow or parallel drainage was practised; and about 50 years later, it was applied, to some extent, in several of our southern counties. We hear little more of it until it was again revived, upon a new principle, by Elkington, in Warwickshire, about the year 1770; and after his day, it seems to have lain almost dormant for half a century. Elkington's system being that of tapping springs, sometimes at great depths, and of bringing up the water, as we do in wells, and then carrying it off by an ordinary drain, was not generally applicable, only a comparatively small portion of farm land being subject to wet from this source; and I believe the celebrity which this system procured for Elkington, coupled with a large grant of money from Government, was owing more to his personal ingenuity and skill in carrying it out, than to the value of the principle involved. We may naturally infer that disappointment in its results must have occurred early after its introduction; for its practice generally was soon abandoned, although there was no rival system at that time ready to supersede it. After that period the science and practice of drainage remained in a comparatively quiescent state for nearly 50 years, or from about 1780 to 1830. No doubt, many individual cases of spirited attempts at draining, during this interval, could be traced out; but it was a mere groping in the dark, no principle or system being under discussion, or settled in men's minds. About the year 1830, Mr. James Smith, of Deanston, roused the country from its lethargy, and succeeded in producing what may be more correctly designated a *revival of an old*, rather than a new system. The good he did, however, cannot be easily overestimated, as he inspired an interest in other means of improvement, as well as in drainage; and, by his writings and example, gave a legitimate direction to the capital and en-

terprise of the landholders throughout the country, and caused much labour to be absorbed, with great benefit to the nation, if not in all cases to individuals. But though Mr. Smith was a man of science, as well as of practice, his principles have undoubtedly been lately superseded (by fair reasoning and detailed experiment) by those of Mr. Josiah Parkes; and within the past six years most practical men, who have given consideration to the subject, have had their minds fully set at rest as to the true principles of drainage.

The necessity of drainage is now so generally admitted, that I need not enter at length into its merits. When I state that nearly one-fourth of the area of the United Kingdom, or 20 millions of acres, require drainage—that it would employ 100,000 men for 50 years, and require an outlay of £80,000,000 to accomplish the work—you will see how important it is to have its principles correctly understood, and its practice properly carried out. It may be long before this gigantic task is accomplished; but as upwards of *three millions* has already been granted by Government on loan, and greater facilities given for obtaining private loans for this purpose, we may conclude that capital will continue to be directed into this channel, in an increasing ratio, for national as well as individual improvement, and that it will obviate the necessity which, through the poverty of landlords, or the temporary interest of tenants, has hitherto confined it to such a limited scale, and induced a preference for cheap and superficial, instead of permanent drainage.

It is well established that drainage improves the climate, as well as the soil—that it is equally conducive to the health of beasts as of man—that it gives us an earlier spring, and brings an earlier harvest by at least 10 days—and it lengthens our summer by enabling us to turn our cattle out earlier and to keep them out later. Drainage also eradicates thistles and other weeds, and aquatic plants—cures and prevents rot in sheep, and brings inert vegetable matter into action. It is not, however, an antidote to poverty in the soil, but only brings it into a state of greater fitness to hold and distribute the proper food of plants.

I, and many others, have found that grass land, when drained and immediately broken up and sown with oats, produces, in an ordinary season, a smaller crop, both of straw and grain, than it would have done in an undrained state—that this does not hold good with other cereal or pulse crops; and for all bulbous and other root crops, which delight in vegetable matter, drainage is equal to an ordinary manuring, even the first year, and the soil is ever afterwards much more grateful for manure.

Nearly all manures are inoperative on wet land, and lime actually injures it. Wet clay lands are almost worthless until drained, but none are more grateful for drainage and

manure. Many porous and gravelly soils are also much benefitted by drainage, as I have proved in many cases where it was supposed that drainage was not required. Much stagnant water lies under such soils unseen and unsuspected, and no cereal pulse, or root crop is safe from its injurious influence until it is removed.

The working of land is also much easier after drainage, though the first ploughing will generally be found more difficult, in consequence of the contraction of the soil; but immediately afterwards it produces amelioration and facilitates disintegration.

The want of drainage on wet land being thus admitted to be a complete barrier to agricultural improvement, I shall now endeavour to explain the principles on which drainage ought to be conducted. I must beg you, at the same time, to bear in mind what I have found during 13 years' experience, that we must occasionally deviate in our practice to suit locality and other circumstances. Such deviation, however, is seldom caused by the want of fall, for in almost all cases a suitable out-fall can be obtained, and I would prefer a nearly dead level to giving up an inch of the depth I wished to obtain.

I put the above remark in, as a saving clause, in case any discrepancy between my practice and principles may be discovered in the extensive operations which I am now conducting for Mr. Need.

In the wet climate of the West of England, land requires more drainage than similar soil on the East coast, where the climate is drier; for it is advantageous to remove by filtration through drains—on the principle of irrigation—as much as possible of the water that falls on the surface, and to allow as little of it as possible to be carried off by evaporation. You will the more readily perceive this by bearing in mind that rain penetrating the soil carries ammonia and warmth along with it, to nourish and stimulate the growing plants; but what cannot escape by percolation becomes stagnant and injures vegetation, or goes off by evaporation, thereby lowering the temperature of the soil and the surrounding atmosphere; for it has been found, by actual experiment, that rain of an average temperature falling in summer raises the heat of the ground 3 degrees for 7 inches in depth; but, if carried off by evaporation instead of by drains, it lowers it, for the same depth, about 3 degrees below the temperature at which it stood when the rain began to fall. Now, as the average quantity of rain falling annually in England over an acre of land is about 110,000 cubic feet, equal to 3,000 tons, or nearly 8½ tons per acre per day, you will see the importance of drawing this off by drains, instead of allowing it to escape by evaporation. The importance of drainage is rendered still more striking when we know that five-sixths of the water falling on the surface of wet land is carried off by evaporation,

and only one-sixth by filtration. This has been proved by Charnock's Meteorological "Tables" published in 1843 or 1844. Therefore, on drained land, every drop of rain that falls carries food and air and warmth to all our cultivated plants; but on undrained wet land it produces cold, and promotes the growth of weeds and aquatic plants.

I shall now state a few of the reasons which have induced me to adopt and recommend the practice, generally, of deep drainage. I believe there are few, if any, soils on which it is not more generally applicable, if properly applied, than is usually supposed. I say this, notwithstanding a paper to the contrary, published by Mr. W. B. Webster in the Royal Agricultural Society's Journal, a year or two ago, wherein I conceive a very meagre and superficial reply is given to the astute and philosophic reasonings and facts of Mr. Parkes, supported as they are by the practical experience and opinions of men of the highest intelligence. I am also disposed to assert that uniform depth in drainage on all soils is more generally applicable than has yet been admitted, for depth is principally intended to counterbalance the power of capillary attraction and absorption, or the action of the earth and atmosphere in drawing up and holding moisture: these influences being nearly uniform in their action. But I do not contend for a uniform distance between the drains, because distance must be dependent on porosity, or the texture of the soil and subsoil, which vary from the almost impervious clay to the open gravels and running sands. You must here observe the distinction between common attraction and capillary attraction: the first brings moisture from above in the shape of dew, &c., and nourishes plants; the other draws it from below and injures vegetation; and the latter influence being greater in porous than in retentive soils, the porous soils should be drained the deeper of the two, where a distinction is to be made in depth. Capillary attraction is also greater in an open than in a covered drain, as may, for example, be seen by the moisture which rises up the sides of an open ditch, or around a common pond, and it is therefore unnecessary to keep drains open for a time after they are cut, as they sometimes are, to allow them to "draw," as they will "draw" more rapidly, and retain the water below more effectually, when covered than when open. Further, capillary attraction and absorption have the power of drawing water lying at a depth of four feet below the surface, about 12 inches above its bed in porous, and 10 inches in clay soils.

An allowance in depth must also be made for the subsidence of land after drainage; in proof of which, I have laid upon the table a letter from one of the largest occupiers of land in the Lothians, stating that above 100 miles of drains put down under my superin-

tendence 10 and 12 years ago, at depths varying from 17 to 36 inches deep, are now being taken up and relaid from 42 to 48 inches deep, in consequence of its having been found that they had been raised, through such subsidence, to within 20 and 30 inches of the surface. The subsidence of soils will of course vary; as, for instance, on soils of a peaty or spongy nature, it will be greater than on clays; and the drains ought to be laid deeper in proportion to its probable extent; shallow drains, or drains stoned too near the surface, are objectionable, as they carry off the substance of manures, as well as the ammonia contained in the rain water, and proved by analyses of water discharged by such drains, and which water has been frequently found to contain a considerable quantity of nutritive matter; whereas the water discharged from deep drains is perfectly pure, having left all its good properties behind it.

Deep drains, likewise, remove stagnant water from below which shallow drains do not, and they are more secure from being injured by the roots of trees, sediment, fungi, &c., and also less liable to be burst by severe frosts or other causes.

The first case which I shall adduce is a fair average of the others.—It is a *thirteen acre* field of stiff brown loam, resting on tenacious blue clay and marl, and had been let at 17s. 6d. per acre; it was drained early in 1842, with 2½ inch tiles and soles, laid 3 feet deep and 22 feet apart; it cost—

|                        |         |
|------------------------|---------|
| Labour.....            | £24 1 4 |
| 23,000 tiles and soles | 40 10 0 |

£64 11 4, or nearly £5 per acre.

It had previously been cropped as follows, without manure:—In 1838, wheat; 1839, oats; 1840, bare fallow; and 1841, wheat. After drainage it was deeply ploughed and worked by Finlayson's grubber, and sown with Swedish turnips, manured with 160 cubic yards of good well-rotted cow-dung, 3 cwt. of guano, and two tons boiled bones. The produce averaged 30 tons per acre, and some of the bulbs weighed 17½ lbs. They were all pulled and consumed by cattle in the house. The next crop was wheat, sown on the 7th March, producing 290 bushels, equal to *twenty-three* bushels per acre. It was sown down with permanent grass seeds, and let for grazing with ewes and lambs at £30, or 46s. per acre. The party who paid this rent, having sold all his stock and made a fair profit, obtained permission to sublet the field from 6th October to 6th December, and obtained for these twelve months, a rent of £10, which was nearly to the previous tenant's annual rent. In this case, the rent to the landlord was nearly three times its former amount, and the tenant's profits probably greater at that rent than his predecessor's at 17s. 6d. per acre. The original annual value of the field—

Being..... £12  
Its new value. 30

The difference. £18, or upwards of 25 per cent. per annum on the outlay of £64 11s. 4d.

The next field was of the same value, was drained in the same way, broken up from grass, and the first year produced oats worth £1 5s. per acre; 2nd year, potatoes, sold at £20 10s.; 3rd year, wheat, valued for tithes at 30 bushels per acre, worth, according to the then value, £10 10s. The cost of drainage was £4 15s. per acre, and the field was valued the third year by a land surveyor at £2 10s. per acre, thus yielding 20 per cent. on the outlay for drainage. In both these cases the crops repaid the manure, labour, and current expenses, and the land was not, therefore, liable to be charged with anything beyond the outlay for drainage.

The CHAIRMAN reviewed, in a clear and dispassionate manner, what had been stated, and summed up very ably; and the following resolution was then agreed to:—

“That in the opinion of this meeting a good system of draining, liberally carried out, would be highly beneficial to this neighbourhood; that the variety of soil in the district precludes the possibility of adopting any general principle—pipe, stone, and turf drains having the advantage according to circumstances. That the most permanent system of draining known at present is when done with PIPES, at not less than *three* feet, and distances to suit the soils. That in open or porous subsoils, collars should be put on the pipes; and in clay soils, six inches of stones broken to pass through a *three-inch* ring, should be laid over the pipes, and the clay returned on them.”

## PHILOSOPHICAL ESSAYS.

BY JACOB THOMPSON DUNNE.

Hail usually precedes rain, often accompanies it, but seldom follows it. The hail-shower continues generally only for a few minutes, seldom longer than a quarter of an hour. The quantity of ice that falls in so short a time is prodigious, the ground being often covered several inches in depth. The clouds that produce hail are of peculiar gray, or reddish colour, often of a deep, black blue; their lower surfaces present enormous protuberances, while the edges exhibit deep and enormous indentations. How the cold is produced which causes the congelation of the watery particles, and how a hailstone, after acquiring a sufficient size to fall through the atmosphere by its own weight, remains suspended a sufficient time to acquire a volume of twelve or fifteen inches in circumference, are questions which have not as yet been satisfactorily explained; in fact, “the theory of hail is still involved in great obscurity.” Some countries are more subject to hail than



others—France for instance. In England, also, from Dunmow, in Essex, to the hills of Hertfordshire, hail-storms are very prevalent in the Spring and Summer seasons. "The devastation and ruin caused to the farmer by these storms have caused the establishment, by the Farmer's Insurance Society, of a branch for the insurance against hail-storms."—See *Brande's Dict. of Science, and Pouillet's Elements de Physique t.ii, &c.*

A dreadful hail shower was part of an Egyptian plague, Exod. ix. 24; by terrible hailstones, God discomfited the allied army of the Canaanitish kings, Josh x. 11; God's judgments on nations are likened to a hail storm, Isa. xxviii. 2 Rev viii. 7, and xi. 17, and xvi. 12. Bluish hail-stones of a vast size destroyed cattle, &c., in Italy in 1510.

*Thunder and Lightning.*—The ancients had two opinions respecting the cause of thunder; some of them assigned it to inflamed exhalations rending the clouds wherein they were confined; others ascribed it to the higher and condensed clouds falling suddenly on a lower stratum with such force as expelled the intermediate air, which vigorously expanding itself, in order to occupy its former space, put all the exterior air in commotion, and produced the reiterated claps we call thunder. The latter of these opinions was held by Aristotle and Anaxagoras, the former by Leucippus, and partly by Democritus and Seneca. Chrysippus taught that lightning was the result of clouds being set on fire by violent winds, which dashed them one against another.—See *Mr. Deuten's Inquiry into the Origin of the Discoverie, attributed to the Modern; and Mr. Wesley's Nat. Phil.* vol. 4, 159, *Dub. Edit.* 1810.

Among the moderns it is supposed that the air or atmosphere is not of one uniform electrical state, from the bottom to the top of it, but rather composed of a succession of positive and negative strata; the mixing suddenly of one stratum of these with the other is thought to occasion thunder and lightning; or rather the rush together of clouds of a positive and negative character. Others affirm that the sudden combination of oxygen and hydrogen gas in the higher regions of the air occasioned by an electrical discharge into them, when mixed, but not combined, occasions thunder and lightning; and the combination of the gases, water, or the heavy showers that accompany the phenomenon. The rattling noise we hear is owing to the sound being excited among clouds hanging over one another, between the arches of which agitated air irregularly passes; it also partly depends upon the reverberations from neighbouring objects.

When thunder explodes high in the air it is harmless, but when it bursts on or near the earth, it often destroys trees, cattle, and human beings. The proximity or distance may be estimated by the time that elapses between seeing the flash of lightning and

hearing the thunder, for every second that intervenes 1,121 feet are counted— $3\frac{1}{4}$  seconds show it is about one mile distant from us, 7 seconds two miles, and so on. Dr. Wallis observes that 7 seconds usually elapse between seeing the flash and hearing the clap, but often one second does not pass, which shows it is very near, or perhaps among us. To avoid the effects of this awful phenomenon Dr. Franklin advises to apply metal conductors to the roofs of houses, masts of ships, &c., so that the conductor's sharp point at the upper end may reach two or three feet above the summit of the object, and continue from thence down till the lower part be buried below the surface of the earth or water. Copper wire, about one-fourth of an inch thick, is generally used in these conductors. The safest place, during thunder, according to the Doctor's advice, is the middle of a room, if in a house, on a chair placed on two or three beds or mattresses placed over each other; or in a hammock suspended from the middle of the ceiling by silken cords.

Dr. Priestly says the middle of a cellar is a securer place. We never should have about us any metallic substance, nor stand near metallic bodies—workmen ought to lay down their scythes, sickles, and spades, &c., and go a distance from them during thunder and lightning; ploughs, iron ones especially, should be unyoked. Men ought not to run up close to trees, hedges, walls, &c., but rather to stand a few yards from them, for these objects attract lightning, and it is better to be wet than struck by the fluid. When lightning levels spires, trees, &c., or scatters them greatly, it is called a thunderbolt, which the common people suppose to be a hard mass, like iron or stone; but this is a very wrong conception; gunpowder, fulminating-powders, electricity, &c. perform often as awful consequences as thunderbolts, so there is no need of hard, solid bodies to perform the effects we often see after thunder. We know that stones or bricks when struck with lightning often present a vitrified appearance, and the common people finding such here or there in the earth, after a thunder-storm, supposed that they were thunderbolts which fell during the phenomenon. This is, I believe, a remark of Beccaria on this subject. Thunder and lightning sometimes occurs in a clear and serene firmament; Horace says he was convinced of the existence of a deity from witnessing such a phenomenon, and pretends that he therefore renounced E; curism:—

For angry Jove, with mighty force,  
Whilst all the skies were bright and clear,  
Shot thro' the heav'n with pointed flame,  
And shook the universal frame:  
He lately drove his thund'ring horse  
And flaming chariot thro' the air.

*Creech's Hor., Book I, Ode xxxiv.*

The reason why thunder is more common in July and August is not on account of the great heat of these months altogether, for we often have a continuance of heat without any thunder, and sometimes we have thunder, in cold weather. Perhaps it may arise from the E. or S. E. wind, which generally blows off and on, from April to July—meeting with the westerly winds, which then set in. The clouds driven together by these winds, if thunder clouds generally explode in the contest of these winds for superiority. Whence we often hear that “thunder clouds move against the wind.” If the west wind prevails, the thunder moves eastward; if the east wind prevails, the thunder advances west-ward. But whatever way it goes, we cannot help observing a resistance to it in the atmosphere. When flashes of lightning move in an angular path, zig-zag manner they are accounted more dangerous, especially if red and pointed broad, orange-coloured sheets of lightning are less dangerous. Wet clothes are safer than dry ones whilst we are exposed to thunder storms.

Thunder storms are great purifiers of the atmosphere, and often banish plagues and epidemics, as they destroy what we call “dry fogs.” In Dr. Prout’s Bridgewater Treatise we find an account of one of these “dry fogs,” which, in 1782-3, extended over all Europe. It was of a blue colour; and the sun, at noon, appeared through it of a reddish dye. This haze had a peculiar odour, and deposited in several places a viscid liquid of an acid taste and unpleasant smell. At the time there were earthquakes in Calabria and Iceland, and volcanic eruptions. An epidemic catarrh, or influenza, prevailed through Europe during the continuance of the haze, till thunder annihilated the foggy vapour, and cleansed the air in the Summer of 1783.

#### MANAGEMENT OF PIGS.

In selecting a stock of pigs, attention ought to be given to the method of rearing, feeding, and to the application of the animal: and as a general rule, it will be found that the fine small breeds carrying but a small quantity of hair, as the Suffolk, Improved Essex, Neapolitan, Sussex, &c., are the best when early maturity is required, and are the kinds best adapted for pork.

Those approved on account of their superior size, and usually reared for the purposes of making bacon, as the Berkshire, Hampshire, Shropshire, Cheshire, Herefordshire, &c., though of slower growth when young, yet fat readily when they arrive at their full growth.

It will be sufficient to take the Suffolk pigs, as examples of the smaller porking kinds, and the mode of converting them into use employed in that country; and for

the larger kinds, to show the Hampshire method.

The Suffolk is a small delicate white pig, of good make, with a quantity of hair; they are good breeders; and though not so hardy as the Berkshire, they fatten more readily, and are applicable both for bacon and fresh meat; and the large proportion of lean roasting meat which they afford are advantages which make them a very useful breed of pigs for general purposes; they will fatten early for porkers, and also with equal advantage to a large size for pickling and roasting pork. On the whole there are, perhaps, few better breeds to be found in the kingdom than the improved Suffolk, being well formed, compact, short legged, hardy animals, equal in point of value to the Essex, with the advantage of being hardier. Youatt says that the greater part of Prince Albert’s pigs at Windsor are of this breed, crossed with the Chinese and Berkshire.

The process of killing, cutting-up, and curing, in Suffolk, differs altogether from that employed in Hampshire, and is as follows:—

The pig to be slaughtered is laid on a board or table, and scalded with water, nearly but not quite boiling hot, and well scraped to get off all the hair and bristles. The next thing to be done is to take out the entrails, and well wash the inside of the body with lukewarm water, so as to remove all blood and impurities, and afterwards dry it with a clean cloth; the carcass should then be hung up in a cool place for 18 or 24 hours, to become set and firm. The next day the feet are first of all cut off, so that they do not disfigure the hams and hands, and plenty of knuckle left to hang the former up by; the knife is then inserted at the nape of the neck, and the carcass divided down the chine; the head is then separated from each side close behind the ears, and the hams and shoulders taken off and trimmed. The loins and roasting parts are cut away, leaving no lean meat when the side which is cut in pieces to be salted and preserved in barrels. The hands and sometimes the hams, then called legs, are also salted. Some butchers take out the chine and upper part of the ribs in the first place, but almost every locality has some slight difference.

A very common method adopted by pork butchers when killing pigs, is to send the bones that is, the loins, spare-ribs, and legs, to London, to be sold as fresh meat, and to pickle the bacon and preserve it in barrels for home consumption. A pig that is to be killed should be kept without food for nearly a day. The season best adapted for killing is in the cool months of the year; the flesh in the warm months not becoming sufficiently firm, and is then liable to be fly-blown before it is cured. For fresh pork, the season of course does not signify; Christmas is a good time for curing hams. In slaughtering pigs, care

should be taken that the animals receive no bruises before being killed, as the flesh, where bruised, will become *blood-burned*, and not take the salt.

The Suffolk mode of curing bacon and hams is as follows :—

The pickle for the flitches consists of 3lbs. of white and 2lbs. of bay salt, 3lbs. of coarse brown sugar, 4 oz. of saltpetre, 2oz. of sal-prunella, a few grains of black pepper, a few grains of whole Jamaica ginger, and a quart of very stale strong ale; the whole purified by heat and skimming, boiled till nearly dry, and rubbed into the hams in as hot a state as the hand can bear. Both flitches and hams are prepared for the pickle by salting, and 24 hours disgorgement, and are wiped very dry before the pickle is applied; the flitches are rubbed, basted, and turned every day during five weeks, and both are eventually smoked, either in chimnies where wood is consumed, or otherwise with leaves, brushwood, and branches of trees mixed with litter. There are curing houses that smoke hams, &c. for farmers and others as cheap, and better than they can be done at home. For tongues,  $\frac{3}{4}$  a cake of salprunella,  $\frac{1}{4}$  lb. of bay salt,  $1\frac{1}{2}$  lbs. of sugar are used, and will serve for two tongues.

**PICKLED PORK.**—For the pork of a large pig, 14 lbs. of common salt, 1 lb. saltpetre,  $\frac{1}{2}$  lb. bay salt; rub the pork with this thoroughly; put it down tightly into a tub kept for the purpose, having a lid to fit tight on, also an inner cover, which rests on the pork and presses it tight down as it diminishes. Before the salt is used, it should be damped with about a quart of cold boiled water. As soon as the weather becomes hot, the brine should be poured carefully out of the tub, boiled and well skimmed; when cold, be again poured over the bacon.

**HAMPSHIRE.**—The superiority attributed to the bacon of this county, arises from circumstances which may be imitated in any other locality; for although the old forest breed of pigs, and the food obtained by them (beechmast, acorns, &c.) is not much dissimilar to the Westphalian, yet the following account will show the general practice in Hampshire :—

Pigs, either pure Berkshire or a cross from it: the store pigs are allowed the run of the yard until the autumn, having a supply of the washings from the house. They are then put up to fatten upon barley and pea meal. The curing season continues through the winter up to March and April; the hogs are killed at from 12 to 16 score; the hair is singed off them either with a wisp of straw, or the hog is covered with straw, to which fire is applied. The hair or dirt that remains after this singeing is removed by a slight dressing with a knife. The hog is then hung up to cool, and the next morning it is

cut out, the head being removed. The chine piece of about  $2\frac{1}{2}$  inches in width along the back, is taken out; this is either salted or eaten fresh, and forms two or four useful pieces. The spare-rib, loin, and blade bone are cut off, but a good deal of the lean meat is left upon the gammon, and the roasting meat forms but a trifling portion of the whole; the legs are cut off for making into hams by some, but more generally they are allowed to remain upon the side, and together with the hand, are cured and dried with it.

The pickling trough is of lead or wood, with grooves to carry off the brine.

The sides of bacon are laid in this, and from  $\frac{1}{2}$  lb. to  $\frac{3}{4}$  lb. of saltpetre, and from  $\frac{1}{2}$  bushel to 1 bushel of salt are used for each hog. The saltpetre is used at first; the salting continues for three weeks or a month the bacon being turned every three days and fresh salt added. The next operation is drying. In many parts the bacon is merely placed upon a rack in the kitchen, or any other dry situation but in Hants, two or three weeks smoking up a chimney, where a wood fire is kept burning, is considered a great improvement to the flavour of the bacon,—and the bacon lofts in the farm houses are built capacious enough to accommodate 10 or 12 large hogs. Bran or sawdust is sprinkled over the bacon to prevent the soot from giving it a disagreeable flavour.

After the smoking, the bacon is hung up in any place sufficiently dry to prevent the salt turning moist. A sprinkling of pepper is sometimes given, to keep away the *hoppers* (maggots,) though a covering of mortar, applied to the joints of the leg bones, is considered an equally efficacious preventative. Hams are cured and dried in the same manner, though some add sugar and spices. They are generally hung up in brown paper after smoking.—G.

#### ON THE REMARKABLE EFFECT OF CROSS BREEDING.

BY ALEXANDER HARVEY, M. D.

Blackwood and Sons: Edinburgh and London.

The following are the opening remarks of this pamphlet ;—

“There is a circumstance connected with the process of breeding in the highest classes of animals, which seems to me to merit a larger share than it has yet received of the attention of the agricultural body. It is this—that a male animal, that has once had fruitful connection with a female, may so influence her future offspring begotten by other males, as, to a greater or less extent, to *engraft* upon them *his own distinctive features*; his influence thus reaching to the subsequent progeny in whose conception he

himself has had no share—and his image and superscription being, so to speak, more or less legibly inscribed upon them.

“Accordingly, if the female be of a *different* breed or species from that male, and have thus borne a *cross* or a *hybrid* by him, her subsequent offspring, got by males of the *same* breed or species as herself, may yet have, more or less, the characters of a cross or hybrid.

“It seems not improbable, indeed, that on every occasion of fruitful intercourse between a male and a female, some effect of this kind is wrought on the breeding powers of the female; but it would appear that the *greatest* effect results from the *first* sexual connection. Whether the effect is absolutely permanent, and might shew itself in all the offspring which the female is capable of subsequently producing, is at present uncertain: but it would seem, in some instances at least, to disappear after a time.

“Of this singular phenomenon examples will presently be given. That it is not less practical in its bearing than singular in its character, must be evident to every one; If it be a *general* fact—that is to say, a fact having the character of a *law* of nature, it is one obviously of practical application in the breeding of stock. It will at once appear how important it must be that care be taken in the selection of the male, and particularly of the first male, in the coupling of animals even of the same breed; and, if the preservation of a pure breed be an object of regard, that *crossing* be in every instance religiously eschewed. Whether it be a fact of that description, cannot, in the meantime, with any confidence be alleged. At present, the fact itself is probably known to comparatively few, and what is known regarding it is deficient both in scientific accuracy and in practical value. But the conjecture may be hazarded, that were the subject brought prominently under the notice of breeders, and were the communication of illustrative cases solicited by the Agricultural Societies of the United Kingdom, a large collection of examples, presently known only to individuals, and therefore lost to science, might be obtained, sufficient to exhibit the *commonness* of the fact, and thus to *enhance* its importance in public estimation.”

He then gives examples of the phenomenon known to himself in illustration. We quote the first:—

“A young chesnut *mare*, seven-eighths Arabian, belonging to the Earl of Morton, was covered in 1815 by a quagga, which is a sort of wild ass, from Africa, and marked somewhat after the manner of the Zebra. The mare was served but once with the quagga, and, in due time, gave birth to a *hybrid*, which had distinct marks of the quagga in the shape of its head, black bars on the shoulders, &c. In 1817, 1818, and 1821 the same was covered by a very fine

black Arabian horse, and produced, successively, three foals, all of which bore unequivocal marks of the quagga.”

He likewise gives examples of the same kind in sheep and other animals, as well as in the human species. The pamphlet is most valuable to our agriculturists who are breeders, the subject being one of great practical importance.

#### PURGATIVES FOR PIGS.

The most convenient purgative for pigs is croton oil in doses of 20 to 30 drops, which may be put on the end of a table spoon, and then wiped or laid on the back part of the animal's tongue; although not apparently swallowed at once, it will in almost every case cause purgation. Glysters are useful in unloading the bowels in these animals. Pigs are growing rapidly into favor as *fanciful* and profitable stock: pig farming, if accounts are to be credited, is a particularly *inviting* system of making both ends meet in these times, and we trust the above hints on physicking these creatures may be of service.

#### EXPOSITION OF THE NATURE AND OBJECTS OF THE SCOTCH BANKING SYSTEM.

AND ITS APPLICABILITY TO THE WANTS AND CIRCUMSTANCES OF THE TRADING CLASSES OF ENGLAND.

By ARCHIBALD KINTREA.

A small pamphlet has just made its appearance, of great utility. Its object is to show the nature, character, and successful adaptability of the Scotch system of banking to the *trading*, however, in their behalf, that cannot be applied with equal, if not greater force, to the peculiar position of the *agricultural* classes. The elements of safety, upon which successful banking chiefly relies, are found to exist in a greater degree in country than in town. In stance the personal knowledge of the property, responsibility, prudence, perseverance, and profit or loss of farmers, in comparison to what may be known or found out as to these several important circumstances in connexion with trades. If, therefore, the Scotch banking system can be successfully applied to English towns, how much more might it be successfully employed in rural districts! The metropolis, it appears, is to have a bank, or rather a series of banks, under the name of the “London and Suburban Banking Company,” and already public meetings are being held by multitudes of shopkeepers and others, in different districts, eager and anxious to avail themselves of the new system.

It has often astonished superficial observers, that a less fertile soil than England, and without half the agricultural capabilities of Ireland, should, nevertheless, surpass

both in successful farming. The possession of a banking system which accommodates all is perhaps the principal cause of this apparent anomaly. "Money," says Lord Bacon, "is like manure—good for nothing unless it be spread." The Scotch banking system spreads it: the English does not. Our author points out, we fear too truly, the reason why this system has not been, until very recently, introduced into this country.

"That the wealthy capitalists and merchant princes should wish to perpetuate the system now in operation in England can readily be understood, because its tendency and practical effect is to place the trade of the country more exclusively, year by year, into their hands; but that the classes possessed of moderate capital and limited means should ungrudgingly acquiesce, can only be accounted for by the fact that the mass of the people have always evinced great reluctance to investigate the subjects of currency and banking; and are not, therefore, generally aware how useful an engine, banks can be made, when conducted on sound principles, in fostering and encouraging commerce; in creating employment for capital and labour; in advancing civilization; and in promoting the comfort and well-being of all classes of society."

The following observations are sound, practical, and demonstrable, and with them we must close this notice:

"The increasing difficulty which small capitalists experience, in holding their ground in the field of competition against larger capitalists, renders the present a most favourable opportunity for drawing their attention to an easy and practicable method, by which they may be enabled to enlarge their operations to a safe and prudent extent, and thereby meet decreasing profits.

"The system of banking which has existed in Scotland for upwards of a century and a half has the high merit of having been the means of raising that country from a state of almost semi-barbarism and the deepest poverty, to its present advanced condition of wealth and prosperity. It has cultivated and made rich an almost barren soil; it has reclaimed waste lands, deepened rivers, built ships and towns, introduced a flourishing foreign and colonial trade, and, by the hopes which it inspires, and the rewards which it secures to industry and perseverance, it has given to the name of Scotchman a character everywhere respected.

"A Scotch bank may simply be described as an agent between lenders and borrowers of all classes, accessible alike to all; using the surplus wealth of its deposit customers in granting to the deserving and enterprising amongst its less wealthy clients what are termed 'Cash Credits,' and in discounting bills of small as well as of large amount.

"By these means, the wealth of the rich is made to assist in helping forward the

poorer classes, who would otherwise be unable to procure, from private sources, the powerful aid of capital; and money is kept in constant and rapid circulation, as it ought to be, extending to all, in turn, the benefits of its functions; and, by every change, adding to the wealth and comfort of mankind."

#### LIME.

There can be no greater proof of the importance attached to agricultural chemistry, than the multitude of books which yearly issue from the press on this and kindred subjects, both in our own and in the various Continental languages. Though many of these works are but compilations, and some of them but a jumble of the opinions of other writers, still there are but few of them from which some information may not be gleaned. Having met with some sensible remarks on the action of lime, in one of these works, from the midst of a great deal of nonsense, we make the following extract:—

"The properties of lime arise from the force with which it attracts carbonic acid from the atmosphere or soil to which it may be exposed. This attraction for carbonic acid is so powerful, that if lime be placed in contact with animal or vegetable matters, they are decomposed with great rapidity, for the purpose of furnishing it.

"It is for this reason that we see such good results from the application of lime upon soils where green crops have been consumed on the land, or where any of the various plants used for that purpose have been ploughed in green. It produces equally good effects, and for the same reason, in soils newly broken up: in fact, in all soils rich in vegetable matter. When this powerful decomposing action of lime is known the necessity for caution in applying it upon land about to be sown, becomes at once, apparent. Time should be allowed for the lime to exhaust itself, or a sufficient depth of soil should be interposed between the lime and the seed, to protect the latter.

"We cannot too strongly insist upon the fact, that the use of lime does not enable the farmer to dispense with the use of manure. On the contrary, the more lime is used, so much the more manure is necessary.

"But the chemical action of lime is not confined to the decomposition of vegetable matters. It appears to be clearly established by the experiments of M. Fuch, of Munich, and those of Liebig, that this substance has also the property of setting at liberty the alkalies which are present in exceedingly small quantities in the soil, favouring the formation of soluble silicates, which are so useful to the cereals. The science of chemistry does not, as yet, explain to us how these decompositions take place; we only know that they do so. Such is briefly all that is at present known of the chemical

properties of lime; and the perfect elucidation of the subject, the result of which would be the establishment of rules to guide the farmer in the use of lime, is well worthy the attention of the highest scientific attainments.

“Lime, however, not only acts chemically, but, to a certain extent, it is also useful by altering the mechanical nature of the soil. For instance, it renders clay soils less tenacious; and it is also said (though we think erroneously) to make light soils firmer. This mechanical action of lime can, however, be but slight, as the tillage soil of the usual depth weighs nearly 1,000 tons. Upon such a quantity, five or six tons of lime cannot produce any change which will be perceptible in the working of the land.”—*Agricultural Journal of the Highland Society of Scotland.*

CATTLE FEEDING AND HARVESTING IN NORWAY.

The accommodation for cattle is excellent. They stand in a single row, in the middle of a wide house, with partitions between each, and room before and behind greater than is occupied by the animal itself. The cow-house is lighted by good glass windows on each side. The cattle stand on a wooden floor, below which is a vault, into which the dung is swept by a grated opening at the end of each stall. One woman will keep twenty or twenty-five head of cattle quite clean, instead of its requiring six hours' work of two men, as in cleaning out our ill-constructed byres. All the cow-houses in Norway are on this roomy, convenient scale, built over a vault, and with wooden floors, so that the animals, both cows and horses, require no litter, having the dry, clean boards instead of damp stones or earth beneath them. This is a saving of fodder, where it is so valuable, from the length of the winter. To all large farms the water is brought by pipes, or there is a pump in the cow-house; and the woman who attends the cows sleeps in the corner of the cow-house. The harvest work all over Norway is well done, and parts of their management might be adopted with advantage in our late districts, where so much grain is lost or damaged almost every autumn by wind or rain. For every ten sheaves a pole of light, strong wood, about the thickness of the handle of a garden rake, and about nine feet long, is fixed in the ground by an iron-shod borer; it costs here almost nothing. A man sets two sheaves on the ground against the stem, and impales all the rest upon the pole, one above the other, with the head hanging downwards. The pole enters before the band of each sheaf, and comes out at the bottom; the sheaf is put on with a pitchfork, and a whole field is picketed this way with

the greatest ease, and as fast as cut. The crop is in perfect safety as soon as it is on the poles; no rain or damp can heat or make it grow—only a single sheaf is exposed to the wet. It hangs with its head downwards, is open at all sides to the air and wind, and thus dries as fast as the rain wets it. Gales of wind cannot shake it, making the heads of sheaves dash against one another, which often happens to corn standing in stooks; there is also not half of the handling and pitching about the sheaves as in our harvest work, in which each sheaf is first dragged to the stook, and afterwards thrown into the cart. Here a sledge or car on low wheels comes along the pole, which is lifted with all the sheaves and laid into the cart at once, and each pole when in the barn is a tally for a threave of ten sheaves. The sheaves are somewhat smaller than ours.—*Luing's Residence in Norway.*

LIST OF GOOSEBERRIES.

List of 36 varieties of Gooseberries, and their maximum weight, from the *Gooseberry Growers' Register for 1850.*

| —REDS.          |          | YELLOW.         |          | dwt. gr. |  |
|-----------------|----------|-----------------|----------|----------|--|
| London          | .. 27.10 | Leader          | .. 25.14 |          |  |
| Companion       | .. 25.3  | Catherina       | .. 26.4  |          |  |
| Wonderful       | .. 23.5  | Peru            | .. 21.14 |          |  |
| Conquering Hero | 22.19    | Pilot           | .. 21.11 |          |  |
| Slaughterman    | 23.8     | Dublin          | .. 23.12 |          |  |
| Lion's Provider | 25.0     | Gunner          | .. 22.1  |          |  |
| Guido           | .. 23.0  | Two-to-one      | .. 21.23 |          |  |
| King Cole       | .. 24.0  | Game Cock       | .. 22.2  |          |  |
| Ricardo         | .. 23.12 | Teazer          | .. 23.0  |          |  |
| GREEN           |          | WHITE.          |          |          |  |
| Thumper         | .. 23.8  | Freedom         | .. 25.20 |          |  |
| Queen Victoria  | 22.0     | Queen of Trumps | 24.0     |          |  |
| Rough Green     | 21.5     | Lady Leicester  | 22.10    |          |  |
| Gretna Green    | 21.5     | Snow Ball       | .. 22.15 |          |  |
| Random Green    | 21.0     | Snow Drop       | .. 22.4  |          |  |
| Green Wonderful | 22.10    | Tally Ho        | .. 21.8  |          |  |
| Weathercock     | 20.4     | Lady Stanley    | 20.11    |          |  |
| Turn out        | .. 19.21 | Cossack         | .. 20.23 |          |  |
| General         | .. 19.18 | Jenny Lind      | .. 21.0  |          |  |

LONG LISTS—GOOSEBERRIES.—The catalogue of the London Horticultural Society enumerates 149 sorts of the Gooseberry regarded as worthy of notice; and Lindley gives a list of more than 700 prize sorts. A selection of probably one dozen might be made from these, which would embrace all that is desirable, the others either very closely resembling them, or else being inferior in quality.

*Tainted Butter.*—Some good cooks say that bad butter may be purified in the following manner: Melt and skim it, then put into it a piece of well-toasted bread; in a few minutes the butter will lose its offensive taste and smell; the bread will absorb it all. Slices of potato fried in rancid lard will in a great measure absorb the unpleasant taste.

## APPLE-MURK.

APPLE-MURK—the refuse or solid portion of the apple, after the compression of the juice in the making of cyder—has received little attention, and has been considered of little or no value. By a friend in Herefordshire, who has supplied me with a small portion for examination, I am informed that it is occasionally burnt, and that the resulting ashes are applied as a top-dressing to grass lands. That it is a matter deserving of consideration I have no doubt; had I any doubt before, the few experiments I have made on that sent me would have removed it.

The result of these trials I shall briefly notice, with the hope that, imperfect as they are, they may prove of some use, and lead to further and more minute inquiry.

The murk I received was from a cyder apple, and obtained in making cyder last autumn. The variety of fruit that yielded it was not mentioned by my friend. In its dry state it was slightly acid: this was indicated by its effect on litmus paper. Incinerated, after having been thoroughly dried, it afforded 34 per cent. of whitish ash, of which the greater portion, viz. 3, was soluble in an acid. The small portion not so soluble, viz. 4, appeared to be chiefly adventitious siliceous matter, in the form of fine sand and gravel. The soluble portion tested was found to consist principally of phosphate, and sulphate, and carbonate of lime—of carbonate of potash, with a little magnesia. The proportions of each were not ascertained: the phosphate and sulphate of lime, and the carbonate of potash, appeared to preponderate.

The composition of the ash will account for its proving serviceable as a top-dressing, and be admitted as proof that it may be applied with advantage to almost any crop. It also shows that the apple tree, in bearing fruit, draws from the soil a notable portion of its inorganic elements, exercising thereby an exhausting influence, and consequently, unless manure be used to restore these elements, in process of time the soil will become so impoverished as to lessen greatly the production of fruit, or even to render the trees altogether barren. Such an effect appears to be little thought of by the ordinary owners of orchards. How often do we see these left as it were to nature, rarely pruned, and never dug about or manured, excepting accidentally, when some garden crop is grown beneath the shade of the trees. Is it surprising, then, that orchards are so often little productive, and that in so many parts of the country their valuable fruit is so scantily grown?—*J. D., Lesketh How, December 5th, 1850.*

Silence is sometimes more significant and sublime than the most noble and most expressive eloquence

## QUASSIA A SUBSTITUTE FOR TOBACCO IN GARDENS.

Do you know that a decoction of Quassia is as effectual a remedy for green fly as tobacco liquor: and at the same time much less expensive, and a more cleanly thing to deal with? I have tried it here, and found it to answer well; it was, I believe recommended originally in Mrs. Loudon's book, but I saw it first in the *Midland Florist*. Now (when tobacco is much dearer than it used to be) is a good time to recommend a substitute; a quarter of a lb. of Quassia (value 3d.), will make a decoction sufficiently strong, if mixed with from three to four quarts of water: to make the decoction, pour about three pints of boiling water on the Quassia, and let it simmer before the fire for two or three hours. When about to use it add the remaining quantity of water, and either dip the shoots or pat on the liquid with a feather or brush. It is advisable to syringe the plants a day or two afterwards; not that I ever knew the application do harm without such precaution.

AN AMATEUR.

DWARF FRUIT TREES.—It may be questioned whether a very extensive introduction of dwarf trees will succeed so well in this country as some anticipate, until those generally who plant trees, learn to give them better cultivation than they now commonly receive, dwarfs indispensibly requiring good treatment. And yet they may prove better adapted to some soils than trees on common stock. Dwarf pears have in various instances withstood the severity of winter, or made fine growth, in localities where trees on pear stocks have perished or not flourished. Lindley found that in the chalky soil at Rouen, the cherry on cherry stock was languid and sickly, while it was healthy and vigorous on the Mahaleb stocks. Would not this stock be worthy of trial in those portions of the western States where the cherry has proved so difficult of culture?

HOUSE-KEEPER.—A correspondent of the *London Times*, says:—"The following method of dressing potatoes will be found of great use at this season of the year, when the skins are tough and potatoes are watery. Score the skin of the potato with a knife, length-ways and across, quite around, and then boil the potato in plenty of water and salt, with the skin on. The skin readily cracks when it is scored, and lets out the moisture, which otherwise renders the potato soapy and wet. The improvement to bad potatoes by thus boiling them is very great, and all that have tried it have found a great advantage in it." It is worthy a trial.

## THE GREAT EXHIBITION.

WHILE the Crystal Palace rapidly approaches the stage at which it will be ready for the reception of goods intended for exhibition, the Executive Committee, having taken possession of their offices within the premises, are busily engaged in completing all the arrangements requisite with reference to space. From the maps which we have seen, France, will be far the largest contributor of any foreign country. Next to it will come the Zoll-Verein and Austria; then Belgium. To these succeed Russia, Turkey, and Switzerland. Holland, its commercial importance considered, will occupy a very small space. The Northern States of Germany not included in the Zoll-Verein, Egypt, Spain, Portugal, the Brazils, and Mexico, have confined themselves within still narrower limits; and China, Arabia, and Persia have the smallest sections on the east side of the transept assigned to them. Of the British dependencies, the East Indies claim the lion's share of room; and of the whole ground assigned to industrial products of the United Kingdom, nearly one-half has been appropriated to machinery. As far as possible, the different nations have been arranged in a manner corresponding to their distances from the Equator; the products of Tropical climates being brought nearest to the transept, and those colder regions being placed at the extremities of the building. While the exhibition lasts, the Crystal Palace will be treated by the Customhouse authorities as a bonded warehouse. The reception of articles will commence, it is believed, on the 10th of next month; and a large party of Sappers and Miners, intended to assist in this portion of the work, have already had quarters assigned to them in Kensington Palace. The first and most difficult step in the necessary preparations for a great industrial exhibition, the erection of a covered space within which it could be conveniently and suitably held, has now been accomplished. Other and hardly less arduous labours remain to be achieved. An elaborate system of decoration, extending internally and externally over eighteen acres of ground; the entire filling up of that vast space with stalls, tables, cases, &c.; the preparation of walks and avenues, ornamented with statues, fountains, and other objects of artistic beauty; the entire arrangement of the countless number of articles brought forward to be exhibited; the fixing of an immense mass of machinery of the most complicated description; the covering of the structure with a monster shade of calico, to exclude the sun's rays; the organization of the modes in which visitors are to be admitted, property to be protected, and all the business details of the Exhibition, strictly so called, to be managed—these form an imperfect summary of what must be done within the next three months.—*Times*.

**PREPARATION OF FLAX BY THE UNNTREE-HEEL PROCESS.**—A Meeting of noblemen and gentlemen interested in the prosperity of Ireland, and the extension of flax culture, was held lately in London, for the purpose of inspecting the new process, by which the flax straw is taken from the field, and converted into an available article of commerce without resorting to the present obnoxious process of steeping. The whole of the process of separating the straw from the fibre was most minutely inspected, and the company present expressed their surprise at its extreme simplicity, and the facility with which the separation was effected, and considered that the discovery was one eminently calculated to bring about that much desired end, the extension of flax culture throughout the United Kingdom.

**EXTRAORDINARY SHEEP.**—The largest animal of the above kind killed this Christmas, was slaughtered last week by Mr. Hardcastle, butcher, of King street, Portman-square, the same being a ewe of the old long-woolled Gloucester breed, and fed on the estate of Mr. C. Large, of Broadwell, Oxfordshire. This specimen was 14 years old, and had been the prolific parent of 17 lambs, the weight of the carcase, exclusive of the offal was 27 stone, (8lbs. to the stone,) and the admeasurement over the saddle was 2 feet 6 inches. This is equal to 54 lbs. the quarter—for a ewe 14 years old, that had 17 lambs. It will be a difficult matter to find a sheep to exceed this.

**HOW TO MAKE A GOOD CUP OF TEA.**—Mr. Soyer recommends that, "before pouring in the water, the tea-pot, with the tea in it, shall be placed in the oven till hot, or heated by means of a spirit lamp, (try it on the stove) and when thus heated, the boiling water may be poured in. The result, he says, (and very truly) will be, in about a minute, a most delicious cup of tea, much superior to that drawn in the ordinary way. "We, however, beg to remark, that this delicious cup of tea, can only be obtained from tea of good quality—although this management of any description of tea may be the best. A delicious cup of coffee, can only be obtained from coffee of good quality properly roasted, and unmixed with any other substance except water until poured out for use.

The following singular custom as connected with tithes is worth recording. The parishioners of Cumner, in Berkshire, England, who paid tithes, had a claim of being entertained at the vicarage on the afternoon of Christmas-day, with four bushels of malt brewed into ale and beer, two bushels of wheat made into bread, and a half cwt. of cheese. A very good old custom.



**A SHORT-HORNED PRIZE COW.**—*Painted from life, and drawn on stone, by W. H. Davis, Church-street, Chelsea.*—This truthful and beautifully-executed engraving of the short-horned prize cow, 7 years old, which was bred and fed by Mr. Richard Hickson, Hougham, near Grantham, is one of the best coloured-lithographs we have seen for some time. This animal won three first prizes in 1849 at the following meetings, open to all England, viz.: at Oakham, Dec. 5th, in class 3, seven sovereigns; at Leicester, Dec. 7th, in class 6, ten sovereigns; and at the Smithfield Club Cattle Show, Dec. 11th, in class 9, twenty sovereigns. A silver medal was awarded to the breeder. When slaughtered, this extraordinary animal weighed 122 stone 12lbs. of 14lbs. to the stone.

**AGE OF ANIMALS.**—A bear rarely exceeds 20 years; a wolf, 20; a fox, 14 or 16. The average of cats is 15 years; of a squirrel and hare, 7 or 8; and a rabbit, 7. Elephants have been known to have lived to the great age of 400 years. When Alexander had conquered Porus, King of India, he took a great elephant, which had fought valiantly for the king, and named him Ajax, dedicated him to the Sun, and let him go with this inscription:—"Alexander, the son of Jupiter, hath dedicated Ajax to the Sun." This elephant was found with this inscription 350 years after. Pigs have been known to live to the age of 30 years; the rhinoceros to 50. A horse has been known to live to the age of 72, but averages 25 to 30 years. Camels sometimes live to the age of 100. Stags are long-lived. Sheep seldom exceed the age of 10. Cows live about 15 years. An eagle died at Vienna of the age of 104 years; ravens frequently reach the age of 100; swans have been known to live 300; pelicans are long-lived. A tortoise has been known to live above 190 years.

**MICE POWER.**—A gentleman in Kirkcaldy, Scotland, has trained a couple of mice, and invented machinery, enabling them to spin cotton yarn. The work is so constructed, that the common house mouse is enabled to make atonement to society for past offences, by twisting twine, and reeling from 100 to 126 threads per day. To complete this, the little pedestrian has to run 10½ miles. A halfpenny worth of oatmeal, at 1s. 3d. per peck, serves one of these tread wheel culprits for the long period of five weeks. In that time it makes 110 threads per day. At this rate a mouse earns 7s. 6d. per annum. Take off 5d. for board, and 1s. machinery, there will arise 6s. clear for every mouse annually. The mouse employer was going to make an application for the lease of an old empty house, which will hold 10,000 mouse mills, sufficient room being left for keepers, and some hundreds of spectators.—*Mining Journal.*

**SOMETHING LIKE A STORM.**—Letters from St. Petersburg of the 25 ult. say that, on the 3rd of October, a terrible tempest broke out at Kirgis, where the horde of Korin generally establishes its camps, and 168 persons were killed, as also 205,600 sheep, 1,292 horses, 490 camels, and 360 oxen. During eight days the soil was covered with snow to the depth of 5½ yards.—*Galignani's Messenger.*

**THE "TIMES" NEWSPAPER.**—In one of its leading articles, on Wednesday last it is stated that, besides paper and advertisement duty, amounting to £35,000, this journal annually pays £60,000 for stamps alone.

Powdered charcoal, placed around rose-bushes and other flowers, has the effect of adding greatly to the richness of the flower.

The terror of being thought poor has been the ruin of thousands.

The soul is rather where it loves, than where it lives.

Men dare not, as bad as they are, appear open enemies to virtue; when, therefore, they persecute virtue, they pretend to think it counterfeit, or else lay some crime to its charge.

If present good is around thee, it may be well to look for change; but to trust in a continuance is better.

The meanest abuse in our enemies will not hurt us so much in the estimation of the discerning, as the injudicious praise of our friends.—*Eliza Cooke's Journal.*

## DROOP NOT UPON YOUR WAY.

BY JOHN BARNES.

Ho! ye who start a noble scheme,  
For general good designed;  
Ye workers in a cause that tends  
To benefit your kind!  
Mark out the path ye fain would tread.  
The game ye mean to play;  
And if it be an honest one,  
Keep steadfast on your way!

Although ye may not gain at once,  
The points ye may desire;  
Be patient—time can wonders work,  
Plod on, and do not tire;  
Obstructions too may crowd your path,  
In threatening, stern array.  
Yet flinch not! fear not! they may prove  
Mere shadows in your way.

Then, while there's work for you to do,  
Stand not despairing by.  
Let "forward" be the move ye make,  
Let "onward" be your cry;  
And when success has crowned your plans,  
'Twill all your pains repay.  
To see the good your labour's done—  
Then droop not on your way!

# Agricultural Journal

AND  
TRANSACTIONS  
OF THE  
LOWER CANADA AGRICULTURAL SOCIETY

MONTREAL, MAY, 1851.

## PRESENT STATE OF AGRICULTURE IN LOWER CANADA.

We could not in a short article, pretend to give an accurate description of the state of Agriculture in Lower Canada, but we may submit such an outline as will induce others to come forward with their ideas on the subject, as it is of considerable importance that we should be thoroughly acquainted with the real state of our Agriculture. It cannot be denied that the general system of Agriculture in Lower Canada is far behind the most improved systems practiced in the British Isles, but we have, notwithstanding, some excellent farming here that would not be a discredit to any country. The most objectionable feature in our husbandry is the practice of alternate cropping and pasturing, without sowing any clover or grass seed upon the part pastured, until again ploughed up after remaining nearly a waste for one year. Also, the neglect of any regular rotation of crops, or adaptation of crops to the soil, and to the circumstances of the farmer, and the absence of green crops or summer fallow in due proportion to the grain or white crops cultivated. The land under this system of management cannot produce good crops, and the pasture, in most instances, is not sufficiently good to keep the necessary number of stock to advantage. We do not say that the land is greatly exhausted by this system, but we do say that the farmer cannot be made rich by it—as neither his crops nor his cattle can yield remunerating returns. The system we have described is the foundation of all that is objectionable in Canadian Agriculture. It prevents the proper cultivation

of the soil, particularly when there is not much green crops cultivated; it encourages the growth of weeds, when there is no summer fallow, and renders it impossible to have a good stock of domestic animals. We have many years ago, in our Agriculture Treatise, pointed out the defects of this system, and recommended that each farm should have the division made cross-ways, instead of length ways, and that each should be divided into six or nine fields, according to the system of rotation it would be proper to adopt, and in which green crops or summer fallow should be in due proportion to the other crops cultivated, but though some farmers have adopted this plan, the old plan prevails very generally. Our business on the present occasion, however, is to describe our Agriculture as it is. The state of draining is another defect and is very insufficiently executed generally. We do not say that the English system of thorough draining would be necessary for us, but sufficient open draining we must have or we need not expect profitable farming. We are glad to be able to report that farmers are giving much more attention to draining now, than they were accustomed to do heretofore. It could not be expected that in a new country like this, our system of Agriculture would be as perfect as that of England, where both skill and capital are brought into action to any extent required. There are many difficulties to contend with here. It was no trifling affair to bring the forest of Canada into a state of cultivation—and we have now in Lower Canada perhaps 4,000,000 arpents of cleared land without the root of a tree to stop the plough. It may be the opinion of superficial observers, that a large portion of this land is exhausted and worn out by constant cropping and bad management. We beg to state, however, that there is not in North America, any country of the same extent, and cultivated for the same length of time, that is less exhausted and worn out, than Lower Canada, or that could be more

readily brought into a state of profitable productiveness. This ascertainment may be doubted by many, but we maintain that it is perfectly correct. The farmers of Lower Canada have been reproached and condemned for over cropping and exhausting the lands, but we can state, that the greatest fault was that the lands were under cropped, only yielding one crop in two years, and consequently they are not exhausted now, and may be very soon brought into a profitable state of productiveness under a judicious system of husbandry. However defective our Agriculture may be, we are not in a worse position to commence an improved system, than our neighbors south and west of us. We again maintain that our lands are not more exhausted than any other land in North America that has been settled for the same length of time, and that they may be easily restored to a high state of fertility. The ravages of the wheat fly we conceive, has caused a loss to the people of Lower Canada within the last sixteen years, of at least £10,000,000. This has been a great injury to our farmers, which no other country was subjected to—to the same extent. This evil is now considerably diminished because the farmers, are able to prevent or remedy it in some degree. Our Agriculturists have no cause to dispond as their condition is fully equal to that of our neighbors on every side of us, but of course we must make the best use of the advantages that are in our power. We must not allow the land to produce only one crop in two years; but, by a better system, we must prove that the soil is not exhausted and worn out, and is yet capable of producing excellent crops. Our soil has only been idle, and not half worked—consequently it retains its natural strength and fertility. The poorest farm in the country is capable of being rendered productive, and at an expense that would not be large. It may be a very strange ascertainment to make, but nevertheless we believe, that a skillful farmer

would have a better chance of success in going upon one of those farms that are reputed to be exhausted and worn out, than upon a farm that has been some years under good cultivation and yielding large crops. We have thus given our humble ideas of the state of Agriculture in Lower Canada. We know that it is improving because green crops are being cultivated, and clover and grass seeds are sowing in every part of the country—and when farmers see the favorable results from this practice it will no doubt extend. There is another favorable circumstance—that men of respectability and capital are becoming farmers, and they will bring skill and capital into active operation in Agriculture. We can see that better days are coming for Agriculture—and may God speed the Plough.

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#### COMMUNICATION BETWEEN ENGLAND AND BRITISH AMERICA.

We were very much interested in reading an article on "The St. Lawrence Route," abridged by the *Pilot*, from the *Journal de Quebec*. This subject, is, perhaps, considered by many, as one that agriculturists have nothing to do with, but we conceive, on the contrary, that no class of the community are more deeply interested in it. Ample means of rapid and cheap communication throughout British America, and to the Ports of Britain, is of the utmost importance to every man that has anything to buy or sell in this country, and as the products of agriculture are the most bulky, in proportion to their value, difficult means of access to market, in many instances, diminishes their value to the farmer by one half. If the rates of Freight from Quebec to England are high, of course they must be deducted from the value of the produce sold by the farmer, which constitutes this freight. Lumber is also a Canadian product, and the high rate of freight diminishes its value to our lumberers. Canadian producers, of whatever description, are deeply interested in having

our means of communication easy and cheap, and it will, so far as agriculture is concerned, act as a premium to encourage its improvement. Commercial classes may estimate the value of our majestic rivers, lakes, and canals, by the amount of foreign products that may be transported upon them to our sea ports—but agriculturists value them chiefly for their being the means of encouraging the improvement of this fine country, and increasing its productions and wealth. Agriculturists should take an active part in all these matters, and show that they understand their true interests. The rail-road from Quebec to Halifax, is so, beyond all question, a necessary work, that we cannot believe its construction will be put off for any length of time. If it was only to open out the vast extent of fine land, through which it is proposed to pass, for settlement and production, it would justify the expenditure. The construction of this rail-road would be the means of completely connecting British America with the British Empire, and would at once place this country in a position to compete with any portion of America. Let us only imagine complete means of communication from Halifax to Lake Superior, a distance of nearly 2,000 miles, by rail-road, and by a river, lakes, and canals that are unequalled on earth. This would be something to be proud of, and for a country that was formerly described, as almost uninhabitable, and as covered with snow and ice, the greater part of the year. Fortunately, the country is becoming better known every year, and the representations of ignorance and prejudice, will no longer find credit with strangers. All the mis-representations that can be made, will not, however, change the country from what it is, or lessen its great natural advantages, although the improvement of its natural resources have been, and may be further retarded by such misrepresentations. The establishment of a regular line of Steamers direct to Quebec, during the period of the season the navigation would

be open, (and this would be nearly eight months of the year,) and for the remaining period to Halifax, would be another advantage we ought to have. It is absurd to suppose that such a vast extent of country as British America, could not support such a direct line, and if it could not, England might well afford the assistance that would be required for such an object. We have our Mails conveyed to us through a foreign country, and by a much longer route, when they might come to us directly through our own territories, and by a much shorter route. We content ourselves with things as they are, although by due exertion and representation of the subject in the proper quarter, there is very little doubt, we should have the necessary changes very soon. We recommend this matter to the attentive consideration of the readers of this Journal.

#### MILCH COWS.

It is of considerable consequence that farmers should have Milch cows that will be suitable, and profitable for the dairy. The best should be selected; and any that did not give a reasonable quantity of milk, should be fattened, and sold to the butcher. It is easy to see whether heifers, at two years old, are likely to be good for the dairy, and if they have not a promising appearance at that age, they should not be kept to breed or for milk. A well selected stock of Milch cows, will yield double the quantity of milk, and butter, that a mixed and inferior stock will do. There is a certain form of carcass, and some other marks that will indicate in the heifer whether she would be a profitable Milch cow or not, and it is in consequence of those marks not having been paid any attention to, that we may see almost upon every farm, mixed and inferior dairy stock, that are anything but profitable to their owners. No milch cow should be kept for milk unless the owner finds she will yield during the year what will pay for her keep. If cows are not kept as they

should be, and suitably provided with food, they cannot be expected to yield milk and butter, however perfect their form as dairy cows, but there is no doubt that cows of equal size, and fed in the same way will yield very different returns of milk and butter. It is the farmers interest to keep the good, and sell off the inferior, although at a sacrifice. If the stock is once well chosen, and care observed that the bull shall be of good form, there will not be much difficulty in keeping a good stock. In this country where the great proportion of the pastures are poor, and become very much dried up in the month of August, it would be necessary to have a supply of green food for milch cows to keep up their condition and milk when pastures fail. Where the farmer has not clover to cut, he should have some substitute. In England, rye is often sown to cut as green food for cattle, in the early season. It is a plant of rapid growth and if it were sown here the latter end of May or about the 1st of June, it would yield a considerable supply of green food in August. If the farmer cannot get rye conveniently, oats, or Indian-corn sown broadcast might be substituted. There could not be any difficulty for a farmer to adopt this plan. Two or three acres would keep a considerable stock in good condition during the month of August and part of September, until they would have the after grass. It is a great defect in farming here, that no provision is made for the support of the stock when the pasture begins to fail, and while this is the case, the best animals we could get, would decline in value and be unprofitable.

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#### SALE OF HAY AND STRAW.

The sale of hay and straw may be perfectly consistent with good farming in certain situations, while in other situations it would be at variance with all the principles of good husbandry. Cities and towns have to be supplied with hay and straw,

and as both are bulky articles, they cannot be advantageously carried a great distance to market. Within the distance which it would be convenient to carry hay and straw to market, it should be convenient to bring manure from the cities and towns where the hay and straw was consumed, and thus the fertility of the land that produced the hay and straw, could be maintained. There are many situations where it would be impossible to sell hay or straw, unless when farmers sell to each other. In such situations the farmers should manufacture their hay into beef and mutton, and their straw into manure. The only means a farmer has of making a profitable use of hay, when at a great distance from market is, by fattening cattle, or by keeping milch cows, and making cheese and butter. On every farm a due proportion of hay should be raised, and this will give the farmer the means of keeping a stock of animals, which will give manure to keep the land in condition, and productiveness. "No cattle, no corn," will apply as correctly in Canada, as in any other country, for, without a due proportion of cattle, we cannot raise profitable crops of grain, or anything else. A uniform system of agriculture is not suitable for all parts of the country. It is not so necessary to make manure upon a farm near a city or town, as upon one at a distance from town, where a supply of manure could not be purchased. In the first case, all the produce of the farm might be sold, and manure purchased and carried to keep up this produce, but in the case of a farm a great distance from town, the supply of manure must be made upon the spot, and a proper proportion of animals must be kept to yield this supply. Thus it is in all good systems of husbandry—if manure cannot be had to bring upon the farm to replace the produce sold off, the necessary quantity must be made upon the farm, and this cannot be done without keeping cattle to make this supply, assisted by compost.

## USE OF SALT IN AGRICULTURE.

We have frequently recommended the use of salt in Agriculture; the high price of the article, however, has prevented its employment to any extent in Canada, and we believe it is a great loss to the farmer that he cannot obtain it on such moderate terms as would justify his making use of it in Agriculture. At a meeting of the Council of the Royal English Agricultural Society in March last, there was an interesting discussion on the use of salt in Agriculture. One of the Council, Sir Thomas Acland, remarked:—"That it was an acknowledged fact in the West of England, that corn grown on the North Coast of Cornwall, and several miles inland from it, not only fetched the best prices, but made better and lighter bread than the corn grown in other parts of that district. He attributed that effect to the briny matter brought on that coast and its neighbouring county by the heavy gales from the Atlantic Ocean, to which that portion of the West of England was most exposed. In proof of the extent to which the briny exhalations from the sea could be carried by the wind under such circumstances, he adduced the instance of Lord Clinton's residence, which, though situated 20 miles from that element, had often its windows covered with saline incrustations, after a storm from the West." Our own experience, by a residence in a county exposed to the briny exhalations of the Atlantic Ocean, fully confirms the statement of Sir Thomas Acland. The wheat grown in that part of the country was most superior, never rusted, and the bread made of it was light and excellent. The usual course of tillage with small farmers was to manure the land with seaweed, which they spread upon the soil in winter, and where they could obtain it; they put a small quantity of farm yard manure over the sea weed, and planted potatoes on this in ridges, covered with the spade. On this land they sowed wheat immediately after the potatoes were taken

out, and the crop was generally very fine. We admired it particularly for its clear, bright colour, always free from any appearance of disease, and requiring no drying to prepare it for the mill, as most wheats do in moist climates. Several gentlemen at the meeting we referred to, gave their opinion of the great benefit of using salt in Agriculture, particularly in the cultivation of the soil for green crops. It not only acts very beneficially upon the green crops, but upon the succeeding crop of grain. It stiffens the straw of wheat and barley, and prevents its lodging: it is also said to prevent rust. Mr. Hobbs, an eminent Agriculturist, said he generally applied two cwt. of salt to the acre for wheat; but at different times, namely, one cwt. before ploughing, and one cwt. after ploughing, but before depositing the seed. He found this a better plan than applying all the salt at once, as the salt became thus more intimately mixed with the soil. Beets, mangel-wurtzel, carrots, turnips and potatoes, would all be the better for having three or four bushels of salt applied to the acre of land in the previous cultivation of it for these crops, and the succeeding crops of grain would also be better for it. We are so far from the sea in Canada, that we have no chance of the advantage of briny exhalations from it, and we should therefore supply this want by artificial means. Lime and salt, mixed together in a heap for three or four months, under cover, would be an excellent application to the soil. Three parts lime is generally put to one part salt. Even ten or twelve bushels of this mixture to the acre, would be an excellent application to the soil for wheat, barley, or any description of green crop. Any of these substances may be usefully employed in this country, particularly where they have not been already made use of in Agriculture. They would have a much more beneficial effect here, than in countries where they have been long in use, or those that have been sup-

plied in the soil, or by the briny exhalations from the ocean.

**CHEVIOT BREED OF SHEEP.**—We very much regret that the wood-cut of two sheep which appeared in the March number of this Journal, was described in the few lines under the illustration, as the "Cheviot Breed of Sheep," when in fact they were intended to represent South Down Sheep. We gave the copy from the *London Farmers' Magazine*, to the engraver, with the description as South Down Sheep; but by some mistake, the description which appeared in the Journal of March, alluded to above, was copied from an American Agricultural periodical. We shall endeavour to make up for this mistake, by giving in the June number of the Journal an illustration of the Cheviot Breed of Sheep, copied from a beautiful engraving in the *London Farmers' Magazine*. Subscribers to the Journal will consider the illustration in the March number as of "South Down Sheep," and not of the Cheviot Breed.

#### AGRICULTURAL REPORT FOR APRIL.

Since our Agricultural Report for March was prepared for the English Journal, we have to state, that by the 1st of April nearly all the snow had disappeared from the fields on the Island of Montreal, and south of the River St. Lawrence. The snow thawed rapidly this Spring, as there was not any previous thaw during Winter. We were glad to perceive there was scarcely any frost in the ground, and this is a great advantage, as the land will, in consequence, soon become dry and fit for working. When the frost is deeply in the soil at this season of the year, it requires a long time to thaw, and will keep the soil wet and cold so long as any frost remains in it. So far, we have no reason to be dissatisfied with the season, and if the weather becomes fine now, we may be able to have considerable sowing done

before the 1st of May. In sowing wheat, peas, or oats, if the harrow do not cover the seed perfectly, the furrows should be shovelled, and all the loose soil that could be got in them, thrown over the ridges. There is a great loss of seed, and shortness of crop, in consequence of the seed not being properly or sufficiently covered.

If farmers should be unwilling to risk sowing wheat before the 20th of May, oats, peas, beans, and potatoes might be sown at once where the land is fit to work. All these crops will have a better chance of success by early sowing. We have seen a report of an experiment with potatoes in England, some were planted whole in drills three feet apart, and each whole potato was planted three feet apart in the drill, some of the seed were cut in the usual manner, and planted in drills thirty inches apart and each seed six inches apart in the drills. The result was, that the crop from the whole potatoes was about double the quantity of that from the cut seed. A similar experiment should be made in Canada. We should much prefer special manures, or compost for potatoes, to manuring in the drill with farm yard dung. It will require great exertion on the part of the farmers to get all their spring work completed by the end of May, and it should be done if possible. Any land ploughed last Fall, should be sown as soon as it is in a fit state to harrow, unless where it may be necessary to defer the sowing of wheat to the latter end of May.

We have seen a very interesting article on "Different Varieties of Wheat" in a late number of the "*North British Agriculturist*." A gentleman states that he imported two quarters of different varieties of wheat from England, and sowed them in Scotland, in the same field and at the same time, and that the crop from the sample considered the inferior of the two, yielded double the produce of the other when thrashed, although it did not show any marked superiority during the growth.

This same gentleman grows all the good varieties he can procure, but never sows, or sells for sowing, however fine the quality, any that he finds to produce indifferently. He states that of two varieties of wheat in the same field in fact growing in the next drills, and sown the same day, one was entirely exempt from the attack of the fly, while the other was very much damaged. These two wheats sown the same time, came into ear the same time, and the preference of the insect for one over the other could not well be accounted for. It appears, however, that the long strawed wheat is more injured by the fly than the short strawed, and it has been observed that the long strawed wheat remains longer by three days in bloom than many varieties of the short strawed, and this circumstance will satisfactorily account for some varieties of wheat being much less injured by the fly than others, because it is when the wheat is in bloom, the fly can do the most damage. We know by experience, that it is of great importance, that the wheat should come rapidly into ear and bloom, when the ear first makes its appearance. Long strawed wheat, or that of very luxuriant growth, will not do this and continues for a much longer time in a green and soft state, than the short strawed varieties. It would therefore, be very desirable to procure seed from varieties that come early to maturity, or from farms that have an early harvest of wheat. The stiff and short strawed wheats would undoubtedly be the best for Lower Canada, and we should by all means endeavour to have several varieties to find which would answer the country best. As to fall wheat, we are certain it could be grown if sown in time, on summer fallowed land, and in drills, leaving the soil between the drills three or four inches deeper than the drills after the seed is covered. This would be a protection to the plants, and the soil would be constantly coming down into the drills, and moulding the wheat.

Land that is ploughed for a long time,

is likely to have grass and weeds take root and sprout in it, that will always keep ahead of the seed sown in it for a crop. It is also very difficult to harrow properly, if it passes the exact time it is fit to harrow. The land becomes so hard and lumpy, that it is impossible to break it down and pulverise it by the harrows, without using a heavy clodcrusher, of which we believe there are not half a dozen in Lower Canada. The Grubber would be a very useful implement in such circumstances, to stir the soil without turning it over. It is a very great absurdity to attempt to grow crops unless we cultivate properly for them. And it is a great loss to plough, harrow, and seed land, that will not yield a remunerating produce. The wheat fly ravaged the farmer's fields, and destroyed the well cultivated as well as the ill-cultivated crops, but this was an infliction that could not have been prevented when the fly first appeared, and no farmer was to blame for it. It is not so, when farmers have poor crops from insufficient cultivation and manuring, they are then to blame for wasting land, seed, and labour, when all of this might be profitably applied.

Mangel-wurtzel, carrots, and parsnips should be sown early if possible, and Mangel-wurtzel seed should be steeped for forty-eight hours previous to sowing.—The sooner all these seeds are sown after the land has been drilled and prepared for them the better. While the soil is fresh and recently worked, there should not be an hour lost until the seed is put in, and it will then have a fair chance to grow. Where the drills have been made some time, and the soil becomes perfectly dried up before small seeds are sown, it is very frequently the cause of their failure. Meadow and pasture lands have not as yet, much appearance of vegetation, although they were green and healthy looking, when the snow went off them. This is the trying time for cattle, if they have not been well kept during winter, and abundant food



for them now until the pastures are good. We would recommend farmers who have an opportunity to test fairly for twelve months, milch cows of the pure Canadian breed with any other breed of cows. There should be three of each at least, experimented upon—they should have the same pasture—the same quality and quantity of food in winter, and the same care in every way. In selecting for the experiment, a fair average of each breed should be chosen. The age should be the same, and the keep for the previous winter should have been as good for the one breed as for the other. It would not be a fair experiment if cows that were fed insufficiently the year previous, should compete with cows well kept. Experiments that are not made with the greatest care and attention, and with animals fairly selected, tend only to lead into error and give no correct idea of the comparative merits of different breeds of animals. Farmers should be very particular to have male calves and lambs not required for breeding, castrated when young, the first at a week old, and the latter at four or five weeks. Past neglect in castrating calves at the proper age has given a bad character to beef of Canadian oxen. We never can have good stock of either cattle or sheep while the males are not cut when young, and the females of cattle or sheep should not be allowed to breed at an early age if not of good size. It is impossible for us to have a good stock here in the way they are managed and fed. The dairy should have due attention and the butter if put up in casks should be carefully packed close together, and all in one cask should be of uniform colour, quality and saltiness.

It is a great pity to lessen the value of our cows' produce by mis-management of it. We see every day in the market, butter of the very best quality, and some of the worst quality. This is not to be attributed to any defect in the milk of the cows of one dairy more than another—but

it is dairy managers who are to blame for making bad butter from good milk—when it might have produced good butter. It is the same case in cheese. We have seen excellent cheese of Canadian make, and we have seen very inferior, and it is the cheese makers who produce these results, some understanding the business, and others not. The markets have been well supplied, and prices moderate. The demand is principally for Montreal. With the exception of wheat, there is not much produce sold in the Montreal market at present for exportation. What is the cause? or what should the farmers produce that would be in demand at remunerating prices, for exportation? This is an important question, and we beg it may be answered by parties who can reply to it. We hope we may have an interesting Report to make for the next month. It is not in our power to Report the state of crops, as we have none at present, but we submit suggestions that may be useful for the production of crops, and which may increase the profit of domestic animals. In sowing grass seeds, it might be useful to know that a gentleman has stated before an Agricultural Society in Scotland, the result of a trial he had made with clover seed, and had ascertained that one pound of red clover seed to the acre, would give 6½ grains to the superficial square foot, and the same quantity of white clover would give 16 grains to the square foot, and as timothy seed is much smaller than the white clover, we believe that 1 lb. weight of it would give double the number of grains to the square foot. If this calculation be correct, it would not require as much seed, as is generally sown, provided the seed be all good, and the land in proper order for it. But farmers often sow clover seed that is mixed with seeds that never come to maturity, and consequently, will not grow, it is also the case with timothy seed, a large portion of which, is unproductive.

· April 21, 1851.

### ASSOCIATION OF AGRICULTURAL CREDIT.

The establishment of these associations would be of great advantage to the rural population of Lower Canada, and enable them to obtain banking accommodation upon the security of their lands, and upon such favorable terms as would be suitable for agriculturalists, whose returns are only annually. The principle upon which these associations are established, we conceive to be unobjectionable; and in this new country it would be affording agriculturalists who most require it, the advantages which other classes always had. It would give them the means of improving their lands, and causing them to produce what they are capable of doing. We have seen numerous instances where the produce of a farm might be doubled, if not more, by the judicious expenditure in improvements, of what the increased produce would refund in one year, and the improvement would besides be permanently beneficial to the land. We also know many cases where farms require improvement, and would be improved if money accommodation could be obtained on such terms as are granted by Associations of Agricultural Credit, where they have been established in other countries. It would be imprudent for farmers to borrow money upon a short credit to make improvements on land, but obtaining a credit upon the terms it is given by these Associations, could scarcely fail to be successful in the hands of any prudent and industrious farmer. There would be an annual percentage to be paid for a certain number of years, and this would be easy to accomplish, if the money borrowed was employed in necessary and judicious improvements on the land. In the British Isles, several millions have been loaned to landed proprietors for draining and other improvements on land, and with the most favorable results. Associations of Agricultural Credit, established upon the security of all the lands of the country, would undoubt-

edly be as safe a Banking Association as any that exists in Lower Canada. We have already so often introduced this subject that it is not necessary for us on the present occasion, to do more than bring it again under the notice of the friends of Agricultural improvement.

### THE MANUFACTURE OF SUGAR FROM THE BEET.

Canada, we have no doubt, would produce the sugar beet in great perfection, and we do not see why the farmers should not cultivate this plant for the manufacture of sugar. In France, this sugar is manufactured to a great extent, nearly sufficient to supply the country. We have seen very fine samples of beet sugar manufactured in France, equal to any sugar. The residue of the beet after the sugar is extracted is said to be excellent food for cattle, nearly as valuable as the raw beet would be previous to manufacture. The Silesian Beet is said to be the best for yielding sugar. It would be very desirable that we should cultivate any new plants, that would be likely to succeed here, and pay the farmer, and the beet would be cultivated as a green crop. We shall in the next number state the mode of cultivation adopted in France for this plant. Like the cultivation of flax, we need not expect to see much of this plant cultivated until we have manufactories for making sugar from it. They would be true benefactors of this country who would establish manufactories from our own products for the supply of our wants. This would be the proper course to adopt for the improvement of the country. The maple-tree produces sugar, but not in sufficient quantity for the wants of the country. A larger quantity might be made from it, but it is rather an uncertain supply—and would not have the same influence on agricultural improvement, as the cultivation of the beet as a green crop would have. We have seen a fine sample of maple sugar, made at Major Campbell's Seigniory at St. Hilaire, this

spring, and if all maple sugar was to be manufactured with the same degree of care and attention, it would greatly augment the value of this Canadian product. It is a great benefit to the country, when gentlemen take the trouble to show an example of what can be done, to increase our production, and the value of it. The products of Canada are capable of being vastly increased in quantity and value, and we confidently hope that the time is not very distant when Lower Canada shall equal any country in North America in the quantity and value of her products—and also in her superior system of husbandry.

#### FLAX.

We have the satisfaction to state that William G. Knox, Esq., of Lachine Mills, whose letter on the subject of flax appeared in the April number of this Journal, has offered us eight pounds, currency, for one acre of flax, cultivated in a proper manner, and to be given up to him when pulled, dried, and stacked in the field, next harvest. This is certain encouragement for the cultivation of this plant, and if Mr. Knox erects a mill, &c., for the dressing of flax, we hope he will be supplied. A flax-mill is necessary to encourage the farmer to grow flax, but it is also necessary that such an establishment shall be provided with the material that is to keep it at work. We are convinced that flax can be grown to advantage in Canada if the farmer cultivates his land properly for it, has good seed, and keeps the crop clean—but he will not do this unless he is certain to sell the crop on the field at a fair price to a party who has a mill for dressing it. We hope this matter will not be any longer neglected, and that we shall have flax-mills in every section of the country, and an abundance of flax grown to supply them.

*To the Editor of the Agricultural Journal.*

Sir,—I have learned from the last number of the Journal that the men of L'Islet have

found the cure for the potato disease, as also means of producing that valuable root in greater quantity.

Now, sir, I hope you will lose no time in obtaining from "*Un Ami Du Progrès Agricole*," what the cure is, and communicate the same immediately, as the time of planting is drawing nigh, and the cure may be connected with the preparation of the seed, or the land to receive it. Let us have the cure at any rate if it should be at the expense of a supplement to the Journal, I hereby subscribe for myself *trente sous* to pay the printer.

We are glad to see that the farmers of Lower Canada are beginning to think of matters connected with Agriculture, and that the men of L'Islet have been discussing the pamphlet of His Excellency the Governor General, and your own treatise on Agriculture, but all this is as nothing to the cure for the mysterious disease of the potato. Tell your L'Islet correspondent if he will send us the cure for the potatoes, we will tell him before the 1st July, where he will find the first edition of the Governor's pamphlet written on a sheet, of what was a few years ago some sixty or seventy arpents of almost barren land. We will also give him the best ram lamb of our flock for the cure for the potatoes, it must be no quack medicine but the real cure.

A LOVER OF AGRICULTURE.

Island of Montreal, April 11th.

*To the Editor of the AGRICULTURAL JOURNAL.*

SIR,—Although not myself at present a farmer, I still cannot but feel greatly interested in every way connected with farming. Your valuable Journal supplies to my fullest satisfaction that desire of Agricultural knowledge, the attainment of which is at once pleasing and useful. Now though, as yet, my knowledge does not extend to the depths of that science, I flatter myself I know a little of "first principles"—that is to say—I know what is right and what is not right to be done to a certain extent. It has often astonished me to see the utter want of care in our farmers, near the City more especially. And the force of this remark will be evident, when I draw your attention to the immense waste of good manure which every

Spring regularly takes place. When the snow leaves the streets it leaves them covered with a rich manure, the gatherings of a whole Winter. This is heedlessly carted away by the Corporation and flung into some out of the way place, instead of being employed in enriching the land, and making it more productive in yielding the fruits which a bountiful Creator has given us—but given us to be obtained only by the sweat of our brows, and by the most diligent, careful and assiduous attention and toil. Besides, the sweepings of the macadamized streets, make a most valuable manure, which at home, I mean in Scotland, would be bought up with avidity, and at almost any price, so sensible are the Scotch farmers, that a little outlay at first will give them treble profits in the end; and in their opinion, manure is the principal means of making their farms more productive, and consequently more profitable.

I am sure, Sir, if you would agitate the truths I have stated, you might be the means of effecting a great change in the Agricultural policy of our Lower Canadian farmers; for, believe me, a good system of manuring will do more than irrigation or all the draining or ploughing you can give it.

Writing these few lines as a hint to you, you may publish them if you see fit, or, clothing them in language so much more appropriate than I can, you perhaps had better write on the subject yourself.

In the meantime,

I beg to remain, Sir,

AMATEUR.

MONTREAL, April, 1851.

### THE RUTLAND PLOUGH.

The *Plough with Land and Furrow* possesses advantages over any other, inasmuch as it can be used either as a *swing* or *wheel* plough, and, being simple in its construction, and easy of management, is adapted to the ready instruction of boys in the art of ploughing. I have not been able to ascertain, with sufficient correctness to speak with certainty, the county in which this mode of using the wheels originated, but they were attached to the double furrow plough invented by Lord Somerville, and the plan has obtained extensive use, particularly in the midland counties.

I select for illustration a plough with a body of the same mechanical construction as those of the swing and wheel ploughs, the

wheels being attached to the beam in a very different manner from the wheel plough with high gallows. Of late years many Scotch ploughs have been made with wheels fixed in the manner about to be described, and the plough so altered goes by the name of *Improved Scotch Plough*; but strong and constant as has ever been the attachment of the Scotch ploughman to the swing plough, I have never found a Scotch advocate for the use of wheels. The following cut represents a plough, which, from its having been noticed at several public trials both in England and in Scotland, is the more eligible for the purpose of description.

It will be observed that the two wheels fixed at the fore part of the beam, constitute the difference between this and the swing plough. One of the wheels, about twelve inches in diameter, is fixed on the land side of the plough, and runs upon the unploughed land; the other wheel, about twenty inches in diameter, is on the opposite side, and runs in the furrow. The latter wheel is upon a sliding axle, which admits of its being set to any width of furrow. The upright shanks regulate the depth by means of screws and sockets on the beam.

All that has been previously said in favour of the wheel plough with high gallows, may be said of this; but it is more simple in its construction, and, if requisite, the wheels may be taken off, and the plough used as a swing plough without them.

It has been objected that the wheels require frequent adjustment, which occasions loss of time, and that unless the furrow be ploughed beyond the length required, the large wheel must be raised at each end of the field just before the plough comes out of the furrow, or it will be taken gradually out of the ground, and the land will not be ploughed to its full depth. The usual plan is to extend the common furrow two feet, or thereabouts, beyond its ultimate length into the headlands, and afterwards to set this right by the cross plough at the top and bottom of the field.

The loss of time involved by the alteration of the furrow wheel may be overcome by a simple mechanical contrivance; with a lever, the longer end of which reaches the handle of the plough, and by it the wheel can be adjusted to any depth instantly. The invention of the late Henry Osborne, a Suffolk farmer, effects this purpose, and answers admirably.

### LEVER PLOUGH.

In the *Report to the Board of Agriculture* from the county of Leicester, published in 1808, it is stated, "that more than thirty years ago, wheels were first applied to the fore end of the beam, and it was found, by 'pitching' the plough a little deeper, and setting the wheels so as to prevent its draw-

ing too deep, the wheels were a sufficient guide, and the plough required no one to hold it except in places of difficulty." If a plough with land and furrow wheel be properly adjusted, a lad of fourteen years age can manage it easily; and I once saw, at a ploughing match, a lad, having the only plough of this kind in the field, walking frequently at leisure beside it, to the great astonishment of his many competitors with other ploughs, and from whom, to their still greater astonishment, he carried away the prize. This lad had been taught ploughing only a few months.

When one wheel only is attached to the plough, some persons give the preference to the small one to run upon the unploughed land, as it is less likely to clog up, and requires no alteration towards the end of the furrow; but others prefer the larger wheel which runs in the furrow, as it has an even surface to travel over, and at the same time correctly regulates the width of the furrow-slice. It also more effectually facilitates the turning round at the head land, particularly if the horses have to go to the right hand. The larger wheel to run in the furrow, therefore, is best for general purposes, and with a lever attached to it, as described, it is rendered very easy of adjustment.

In the use of a gauge for the depth of ploughing, whether of two wheels, one wheel, or a foot, the plough should be so regulated as to press but lightly on the ground when passing over it; thus admitting as little counteracting force between the wheel and share as possible.

In the Prize Essay by Henry Handley, Esq., the advantages of wheels are clearly set forth, and his arguments in favour of their use have since been very strikingly confirmed by the trials made under the direction of Philip Pusey, Esq.

**MANUFACTURE OF SUGAR FROM THE SILESIA BEET.**—It is with great satisfaction we state that the new Beet-root Sugar Company is now permanently formed, and have secured the patents of all the new improvements in the manufacture of that article. The shares for that entire capital of £1,000,000 are already allocated and subscribed for, and a full working staff expected in Dublin in a week or ten days.

From the facility with which, by the new process, sugar of equal quality to that produced from the cane, can be obtained from the beet-root, a great addition to the profits will be the result. Under former systems, in the manufacture of the article, several weeks were taken up in the different processes. Now, it appears that in three or four hours from the root entering the manufactory the process will be completed; and not only is this great saving of time effected, but a

vastly greater amount of the saccharine matter is extracted.

It is found also that the roots can be cured and preserved for almost any length of time without any loss or deterioration of the saccharine matter, so that the new factories to be erected must contain curing and storing apartments, that the manufacture may be continued throughout the entire year, and not be confined to a few months while the roots are fresh, and by this the quantity that may be purchased will be almost unlimited.

Thus it appears, that while a vast impulse will be given to a new article of farming produce on an extensive scale, at a remunerative price (for we understand that the price calculated on, will be from 15s. to 20s. per ton), diffusing the blessings of well-paid industry throughout the land, the speculation is almost morally certain to turn out highly remunerative to the company.

To secure these blessings in any locality it is only necessary for the gentry and landed proprietors, interested in the establishment of a manufactory, to determine amongst themselves that, at least, 150 acres shall be devoted to the production of Silesian beet. The company upon being assured of this, and the price fixed on, will proceed forthwith in the necessary arrangements for the establishment and erection of a suitable factory.

The season is now advancing fast, and it is necessary that all parties interested should take the matter into their most serious consideration. The cultivation of the plant differs in nothing from that employed in the production of mangel-wurzel. As far as that part of the matter goes, there is nothing new to learn; the only difficulty that presents itself is, in obtaining seed of the true Silesian beet, which, as the matter of course, all respectable seedsmen will take care to procure, or probably the company will take this office on themselves, and, through their officers, distribute genuine seeds. We shall feel pleasure in giving further information on the cultivation of this valuable root, to such as may require it.

#### WAY OF PAINTING FARM-BUILDINGS.

Having some years ago, to superintend the erection of a great number of farm-buildings, and it being the particular wish of the nobleman on whose estate they were built, that they should be rendered as durable as the material employed would admit, viz, timber in all parts, with the exception of the roof and foundation, I had all the body of the buildings done over with a mixture of gas-tar, two parts; pitch, one part; the other part half quick-lime and common rosin, put on quite hot; it requires two coats at least; three is better, the first to be perfectly dry and hard before the second application: while the last coat was still soft I had dashed on it, with a trowel, well washed

sharp sand, or more properly minute flint stones, which remained after several washings: this we managed by the assistance of a fine wire sieve, and a stream of water with a good fall: this forms a perfect stone face to the timber; and from the appearance of them when I last saw them, they were likely to last many years longer. The sand should contain no stone more than three lines in diameter, in fact, if all the earth be washed out, the smaller the better. The window frames and doors were done over with the commonest paint I could get in London, a stone-colour, three coats besides the priming; the paint mixed thick, and dartered over in the same manner as the rest of the building, with a still finer sand; this also appeared to stand well; the sand must be made perfectly dry before it is used. The expense I cannot exactly state, as, I cannot lay my hand on the book just now, but I know it was not much, and has given great satisfaction. It is right to state that the wood-work must be perfectly dry and well seasoned before this mixture should be applied; it is better to wait a year to effect this end than put it on green wood.—*E. X., in Gardeners Chronicle.*

#### ADVANTAGE OF WARMTH TO SHEEP.

One would naturally suppose that, if kept dry, sheep would be always warm enough with their woolly coats; experience has convinced me of the contrary. I have two sheds—one slated and not boarded, the other slated and boarded under the slates. The latter is some feet lower, and closely confined by walling, having only an open window at one end, and an open door at the other. This shed also contains, besides sheep, a good many pigs, all on open boarded floors. We have all been forcibly struck by the superior progression of the animals in this close warm shed. So warm in fact, that on approaching the door or window, the warm blast oppresses you with its fulsome heat, and visitors naturally say this must be too hot and unwholesome. Animals are, however, always healthy here. We have occasionally removed sheep from the other shed, and they more rapidly progressed in the close warm one. I speak of Down sheep during the winter months. The comparison is worth making. So healthful are the open boarded floors, that with 500 head of animals—bullocks, sheep, pigs, calves, dogs, and rabbits, not a casualty has occurred for two months. I have a great aversion to slated roofs, if unprotected internally by boards, felt, or thatch. They are terrible conductors of heat, from the animals in winter, to them in summer. I find sheep, calves, and bullocks do extremely well on beans soaked 48 hours in cold water, until perfectly soft; they will absorb

an immense quantity of water. This saves waste and expense of grinding. We give, in addition, oilcake, straw chaff and some roots. Beans at £. 1 2s 6d. per quarter must make cheap beef and cheap manure. My horses have no hay, but 15lbs. of bean-meal, an ample supply of cut straw chaff, and 2 oz. of salt, daily. The chaff is moistened from a watering-pot, and the meal adheres to it. Cost of each horse 9d per day, or certainly under 10d.—*J. J. Mechi, Tiptree-hall, Feb. 25th.*

**THE FOLLY OF PRIDE.**—Take some quiet, sober moment of life, and add together the two ideas of pride and man; behold him, a creature of a span high, stalking through infinite space in all the grandeur of littleness. Perched on a speck of the universe, every wind of heaven strikes into his blood the coldness of death; his soul floats from his body like melody from the string; day and night, as dust on the wheel he is rolled along the heavens, through a labyrinth of worlds, and all the creations of God are flaming above and beneath. Is this a creature to make for himself a crown of glory, to deny his own flesh, to mock at his fellow, sprung from that dust to which both will soon return? Does the proud man not err? Does he not suffer? Does he not die? When he reasons is he never stopped by difficulties? When he acts is he never tempted by pleasure? When he lives, is he free from pain? When he dies, can he escape the common grave? Pride is not the heritage of man; humanity should dwell with frailty, and atone for ignorance, error, and imperfection.—*Rev. Sydney Smith.*

**IRISH PEAT.**—The process for obtaining chemical products from Irish peat will be commenced on a complete scale without delay. The Irish Peat Company is the title of the body by whom the patents are held, and they have received a notification from the Board of Trade that the application for a Royal Charter has been agreed to. The capital of the company is £120,000, with power of increase to £300,000, and under the charter the liability of the proprietors will be limited to the amount of their shares. The locality selected for the first operations is about 40 miles from Dublin, on the banks of the Royal Canal.

**RIVERS' STUBBLE SWEDE TURNIPS.**—At the shop of Messrs. Dicksons & Co., 1 Waterloo Place, we were some days ago, shown several excellent specimens of this turnip, grown from sowings made at different seasons of the year. The variety owes its origin to a cross made in 1842, and while retaining the general character of a true Swede, it is said by Mr. Rivers to combine with it the "earliness of the White Stone Turnip." It is green-topped with yellow flesh, and is stated to be quite hardy, and to yield a large produce.

**CULTURE OF THE HOLLYHOCK.**—The hollyhock will grow best in good, old, garden soil, well trenched over to the depth of two feet, with plenty of thoroughly decomposed manure; such as old cucumber beds, or night-soil mixed with earth. Sandy loam they like, and if the subsoil be wet they will thrive remarkably well in the summer, but in the winter, wet is very injurious to them; to prevent which, I remove, to the depth of one or two inches, the mould round the neck of the plant, and fill up with white sand, about six inches round the stem, level with the surface: it is simply to preserve them from wet, insects, and slugs, from which, in the winter, they are apt to suffer very much, if not killed. They may be propagated by single eyes in July and August, also by cuttings in the spring, placed on a slight bottom-heat. Young plants raised from summer cuttings, are best preserved by re-potting them in October into large pots—the larger the better—in light, rich, sandy earth, and placed in a cold frame; thus they will grow during the winter. In March or April turn them out into the open ground, and they will bloom as fine and as early as if planted in the autumn. Plant them not less than four feet from row to row, and three feet apart in the row; if grouped in beds, not nearer than three feet each way. They will grow in the shade of distant trees, but by no means thin the roots interfere. In May, when the spikes are grown about a foot high, thin them out according to the strength of the plant; if well established and very strong, leave four spikes; if weak, two or three, or only one, at the same time placing a stake to each one separately. The most robust grower does not require a stake higher than three feet from the ground. Stake them before they get too high, and secure them well by tying, and they will grow erect. If the weather be dry at this season of the year, they must be watered with a solution of guano or any other liquid manure, poured carefully round the roots, avoiding pouring it on or too near the stems. To grow the flowers fine, cut off the lateral shoots, thin the flower-buds, if crowded together, and take out the top of the spike, according to the height desired, paying attention to the usual height and habit of the plant. Observe, by topping it you may increase the size of the flower, but at the same time shorten its duration in flowering, and perhaps disfigure its appearance.—W. CHATER, in *Flor. Cab.*

To decline all advice, unless the example of the giver confirms his precepts, would be about as sapient as if a traveller were to refuse to follow the directions of a finger-post, unless it drew its one leg out of the ground, or rather, hopped after its own finger.

The greatest truths are the simplest, and so are the greatest men.

## NOTICE.

The Annual General Meeting of the **LOWER CANADA AGRICULTURAL SOCIETY**, is to take place at their Rooms, in this City, on **TUESDAY, 20th MAY**, at **Eleven o'Clock, A. M.**, for the purpose of electing a Board of Directors for the ensuing year.

By order,

**WM. EVANS,**  
*Sec., L. C. A. S.*

Editor of the "Agricultural Journal and Transactions of the Lower Canada Agricultural Society," **WILLIAM EVANS, Esq.**, Secretary of the Society, to whom all communications connected with the *editorial department* of the Journal are to be addressed, and if by mail, post paid.

Complete files of the Agricultural Journal in English and French, from the commencement, unbound, and half-bound, may be had at the Office of the Society on moderate terms.

Also, half-bound copies of Evans' Treatises on Agriculture, with the supplementary volume in both languages, together with complete files of the Agricultural Journal, from 1844 to 1846, both included.

## AGRICULTURAL AND GARDEN SEED STORE,

No. 25, NOTRE DAME STREET,  
*Montreal.*

**T**HE Subscriber, SEEDSMAN to the LOWER CANADA AGRICULTURAL SOCIETY, begs to acquaint his friends and customers that he has an extensive assortment of **AGRICULTURAL and GARDEN SEEDS**, and **PLANTS**, new, and of the best quality, which will be disposed of on as favourable terms as any person in the trade. As he obtains a large portion of his Seeds from Lawson & Sons, of Edinburgh, Seedsmen to the Highland and Agricultural Society of Scotland, he expects to be able to give general satisfaction to all who favor him with their custom.

The following Seeds will be supplied to Agricultural Societies on moderate terms, viz:—

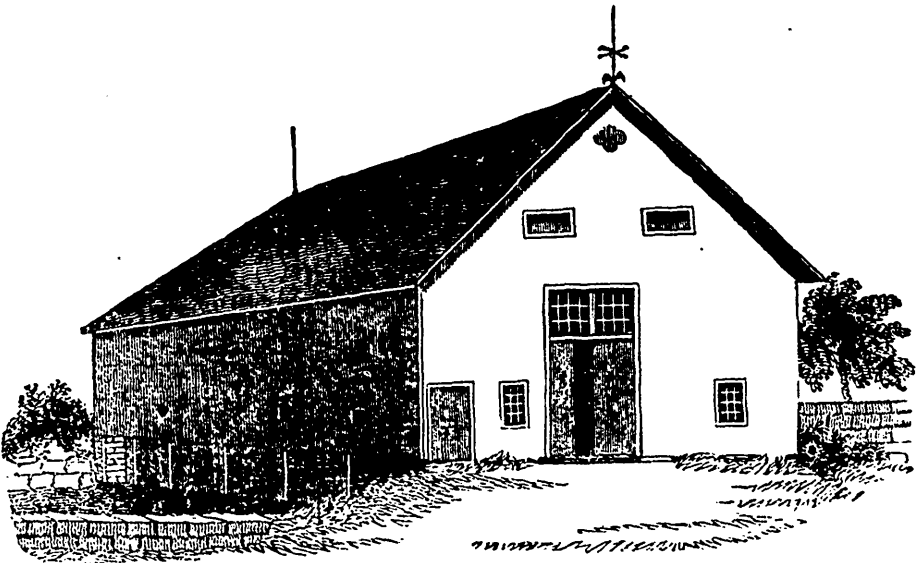
English Red Clover; Dutch Red and White Clover; Lucern; Skirving's Purple Top Swedish Turnip; Laing's do. do.; Skirving's Yellow Bullock Turnip; Long Red Mangle Wurtzel; Yellow Globe do.; Belgium White Carrot; Attringham Long Red Carrot; Long Orange Carrot.

A large proportion of the Carrot Seed has been raised in Canada and shown at the late Exhibition, for which a premium was awarded to the Subscriber.

The Subscriber has also imported Lydon's Patent Spades, Shovels, and Digging Forks, and he has also an excellent collection of Garden Tools.

**GEORGE SHEPHERD.**

Montreal, February 24, 1851.



MASSACHUSETTS' BARN.

GROUND PLAN AND FULL DESCRIPTION WILL BE GIVEN IN NEXT NUMBER.

**GATES.**—Every gate should be kept in good, self-shutting, self-latching order. A hole should be bored in the post of every gate, and filled with grease, for readily applying to the latch or hinge, when the one does not play freely, or the other creaks.

**DRAINING LAND.**—Many persons mistakenly suppose that it is not necessary to drain land in a dry climate. A want of draining is often the reason that land suffers from drought. When water-soaked early in the spring, it cannot be well plowed; or if plowed, it is worked into mud and bakes hard. But if well drained, it may be plowed early and deeply; and being thus made deep and mellow, it retains moisture through the summer.

A crop of oats or barley is some times one-half larger merely in consequence of being put in a fortnight earlier on well drained land, than can be worked at all times. Trying to farm well without draining, is like beating up stream against the wind—every thing tends to baffle the husbandman.

**DRAINING IN WESTERN NEW-YORK.**—A field of several acres in Cayuga county, was so wet that it scarcely produced eight bushels of wheat per year. It nevertheless contained a very fertile soil, but its fertility was locked up and rendered useless by being submerged in cold water during an important part of the year. The owner ran underdrains through every part, and the first crop of wheat after the operation, was *forty* bushels per acre.

**A NOVEL METHOD OF PRESERVING FLOWERS IN BLOOM.**—It is well known that a primary object of the existence of a plant is the proper *maturation* of its seed. This cannot be expected, as a general rule, unless the farina be applied to the stigma of the flower. It has, however, been discovered, that if this impregnation be prevented, the flower will retain its beauty for many days longer than would have been the case had impregnation been effected. To realize the advantage above stated, artificial means must be employed. This is readily accomplished by the removal of the stigma from the flower, as soon as the blossom opens. Even should farina be scattered upon the remaining style, no impregnation would be effected thereby. Such a simple process is very valuable, when it is desirable to prolong the beauty of particular flowers. The flower of pelargoniums being so treated, preserve all their freshness and beauty for at least ten days longer than if not done. This fact is not new, but it is not so generally known as it ought to be.—H. STILWELL, in *Flor. Cab.*

**ROOT CROPS AND WEEDS.**—Many farmers are deterred from raising ruta bagas, carrots, field beets, &c., by the labor and expense of hoeing and destroying weeds, although these crops often yield from 500 to 800 bushels to the acre. To avoid all this trouble, begin early in the spring, if for ruta bagas; and the year before, if for carrots or beets, and by repeated plowing and harrowing, clear the ground effectually of weeds.



This will save much labor. Then, when the young plants are up, hoe them *at all hazards*, by the time they are an inch high. This will require about one-fifth of the labor needed two weeks later, or when the weeds are a foot high.

**POTATOES.**—To clear these of weeds, where they are planted in drills, pass a fine-toothed harrow over the whole surface, just before the potatoes are up, which mellowes the soil and destroys the young weeds. When up, plow *from* the plants; then a light furrow towards them, leaving the hills or ridges *broad*.

### GREAT SALE OF SUPERIOR THOROUGH BRED SHORTHORN CATTLE.

THE subscriber having more stock than he can well sustain on his farm, will offer at public auction, about 30 head of his improved short, horn cattle, consisting of bulls, cows, heifers, and heifer and bull calves, on the 26th day of June next, at his farm  $2\frac{1}{2}$  miles from this city.

It is known to breeders of improved stock, in this country and in Canada, that the proprietor of this herd, during the past 12 years, has through the medium of importations from England, and selections from the best herds in this country, spared no expense to rear a herd of cattle from which superior animals could be safely drawn, for improvement and crosses upon other herds. His importations have been derived from that eminent breeder, the late Thomas Bates, Esq., of Kirkclevington, Yorkshire, England, which herd it is well known has recently been disposed of at public sale by his administrators and dispersed in many hands, and can no longer be resorted to as a whole, for improvement. The announcement of that sale, created a great interest, and all short-horn breeders in England seemed emulous to secure one or more of these animals, to mingle with the blood of their own herds, and at the day of sale, there was found assembled the largest audience ever before witnessed upon a similar occasion, numbering as was said from 400 to 500 persons, and among them the breeders in England, and several from other countries, some of the animals bringing prices that seemed incredible to many.

In the herd now offered for sale will be included, the imported Bull, Duke of Wellington, and the premium Bull, Meteor, these are Bate's bulls, and their reputation as stock getters are too well known to need any comment. I am, however, authorized by Dewis F. Allen, Esq., of Black Rock, one of the most prominent breeders in this country, and who has had ample means of forming a judgment, to say "that in no instance to his knowledge had these two bulls been bred to short horn cows of other herds, previously imported into the United States but what the produce were superior in general qualities to such herds."

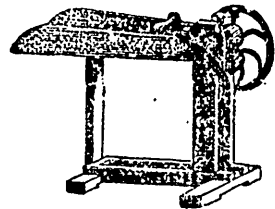
The most of the stock which is now offered for sale, have been bred from these two bulls, and the proprietor having a young Bull more remotely connected with that portion of the herd he retains, (being about 14 in number) can spare these two valuable Bulls. There will be in the stock offered for sale, seven young bulls from 8

months to about 2 years old, in addition to the two named above, and the remainder of the stock will be composed of Cows, (most of them possessed of extraordinary milking qualities,) Heifer and Heifer Calves. It is believed that no herd of short horns has ever been offered for sale in this country, exhibiting more of the valuable combinations of qualities which contribute to make up perfect animals.

A Catalogue containing the pedigrees of these animals, will be ready for delivery at an early period, in which the terms of the sale will be particularly stated. A credit will be given from 6 to 18 months. Gentlemen are invited to examine the herd at their convenience.

G. VAIL.

TROY, New York, 1st March, 1871.



### AGRICULTURAL WAREHOUSE.

THE Subscriber has constantly on hand, Samples of various kinds of AGRICULTURAL IMPLEMENTS, among which will be found, Ploughs, Cultivators, Seed Sowers, Straw Cutter, Corn Shellers, Subsoil Ploughs, Vegetable Cutters, Thermometer Churns, Horse Rakes, &c. &c. Expected by the opening of the Navigation, a large assortment of *Cast Steel Spades and Shovels, Cast Steel Hay and Manure Forks, Hoes, &c. &c.*

Agent for Sale of St. Onge's Patent Stump Extractor.

P. S.—Any kind of Farming Implements furnished to order, on the most reasonable terms.

GEORGE HAGAR,

103, St. Paul Street.

Montreal, 1st April, 1851.

THE AGRICULTURAL JOURNAL AND TRANSACTIONS OF THE LOWER CANADA AGRICULTURAL SOCIETY, in the French and English languages, will hereafter be published by the Subscriber, to whom all COMMUNICATIONS relative to SUBSCRIPTIONS, ADVERTISEMENTS, and all business matters connected with the past or forthcoming volumes of the Journal, must be made.

The Journal contains 32 pages Monthly, is published at \$1 per annum, and any one obtaining new Subscribers, on remitting \$4, will be entitled to Five Copies of the Journal for one year.

Agents and Subscribers are required to remit immediately to the Publisher the amount due the Society. Also, a CORRECT LIST of SUBSCRIBERS in their respective Localities.

Responsible Agents wanted to canvass for the SNOW DROP, AGRICULTURAL JOURNAL, and other Works, to whom a liberal Commission will be allowed.

ROBERT W. LAY.

193, Notre Dame Street, Montreal.

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