Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured covers/ Couverture de couleur
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☐ Bound with other material/ Relié avec d'autres documents
- ☐ Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☑ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☑ Quality of print varies/ Qualité inégale de l'impression
- ☑ Continuous pagination/ Pagination continue
- ☐ Includes index(es)/ Comprend un (des) index

  Title on header taken from:/ Le titre de l'en-tête provient:

- ☐ Title page of issue/ Page de titre de la livraison
- ☐ Caption of issue/ Titre de départ de la livraison
- ☐ Masthead/ Générique (périodiques) de la livraison

☐ Additional comments:/ Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
							✓				

AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2. MONTREAL, MARCH, 1849. NO. 3.

There has been considerable discussion lately on the subject of affording encouragement and protection to Canadian manufactures, but as we cannot argue these questions in this Journal, we would propose that some effectual steps would be taken to encourage the growth of flax and hemp, either for domestic manufacture or for exportation. We do not say that we should introduce the cultivation of these plants so extensively as to displace other useful crops, but we believe that, to a certain extent, the cultivation of these plants would be found very profitable, and would greatly augment the value of the general produce of the country. We have for many years recommended their culture, but, like all other improvements suggested, no action has been taken in the matter. The simple machinery necessary for preparing the flax and hemp, after it was grown, although it would not, we suppose, cost two hundred pounds, has not yet been put up in Lower Canada. The machinery for dressing the flax, and the newly invented vats for steeping, are said not to cost two hundred pounds in Ireland. It is not saying much for our inclination for improvement, when this trifling experiment would not be made; and no satisfactory experiment can be made to ascertain the value of flax without suitable machinery to prepare it, after it is produced by the farmer. We cannot imagine that it would be any very great sacrifice, or generosity on the part of our government, to provide at least, one set of machinery for that purpose, as no private individual or company appears disposed to risk even this small amount of capital for an object of so much importance to the country. Men may be inclined to flatter themselves, that they have it in their power to resort to many more easy methods of profitable employment than agriculture, and hence neglect the latter, but we doubt very much, that were we to discover mines of gold and silver in Canada, whether they would be found so permanently profitable for the country as the judicious cultivation and management of the soil; and we have no hesitation in saying, that the latter employment would be a thousand-fold more conducive to the true happiness of the inhabitants, than digging or washing for gold and silver. If we are sincerely anxious for the permanent prosperity of the inhabitants of Canada, we must do all that is in our power, by instruction and encouragement, to improve our agriculture.—We should never forget that the only legitimate means of revenue we can have at our disposal, must be from a production created annually by our industry, as it is such a production that can alone give us the means of purchasing and paying for commodities that are taxed for revenue. We can easily find employment for revenue, but the great point is to have it to employ and distribute. We do not raise revenue here by direct taxation, and therefore, the amount of our revenue must be in proportion to the means we create to expend on articles charged with duty, and cannot exceed this. Hence in Canada, the

products of agriculture are our chief sources of revenue, under our present circumstances; and we humbly conceive that it should be the chief object of the Government and people, that agriculture should be fostered and encouraged, and every possible means adopted to promote its improvement and secure it in a prosperous condition. Whatever mistakes we may fall into in regard to other matters, we can never be mistaken in the care and attention we bestow on agriculture.

We observe in the Albany Evening Journal of the 24th January last, the Report of the Annual Meeting of the New York State Agricultural Society, which was convened in the Hall of the Legislative Assembly at Albany, on the 17th of the same month. At this meeting the office bearers of the Society were elected for this year, and various premiums were awarded for Farmers' Stock, Crops, &c. The following is the yield per acre of the crops awarded premiums. Fall sown wheat, from 43 to 44; Indian corn, from 86 to 114; oats, from 86 to 89½; barley, 54 to 62½; beans, 33½; Mangel-wurtzel, 1484; carrots, 1080; Ruta baga, 1400 bushels per acre—certainly a very large produce, and with the exception of Wheat, we can undoubtedly raise as large crops here, if we cultivate properly for them. For the best Dairy, a silver cup of fifty dollars value was awarded, and from this dairy five tubs of butter were shewn, which are said to have sold readily to gentlemen in Albany, at a quarter dollar the pound, and the same price would have been given for many more of the same quality, if they had been offered. This information should be encouraging to farmers in Canada, because there is nothing to prevent us farming here so as to secure the same results. At this meeting, a vote of thanks to His Excellency the Governor of the State of York, was adopted, for recommending the establishment of Agricultural Schools by the Legislature, and a Committee was appointed to promote this recommendation. At a previous meeting of the Society, a very interesting discussion took place on the subject of Agricultural Schools and Model Farms. One gentleman stated that the Emperor of Russia had established an Agricultural School and Model Farm near St. Petersburgh, of which His Majesty paid the whole expense. The time the students remain at this school is five years, and sixty go out annually, either to their own farms, or to superintend farms for others. The results of this institution are most advantageous to the empire already. We do not know any plan for the amelioration of Canadian agriculture, that would be so likely to succeed, if conducted on a judicious system, and we take leave to say, that it would be impossible to apply a portion of the public funds to a better or more profitable purpose for the whole Province. We copy a few extracts from the speeches delivered on this subject at Albany:—

Mr. H. only intended by the examples above cited, to show the importance of the exercise of caution in regard to conclusions—that in the incipient stages of a science, whatever might be its value as to ultimate results, we were in danger of imbibing ideas as truth, which after experience would teach us were but error.

In view of the subject, therefore, Mr. H. would enforce the idea that the great value of such an institution as was contemplated, would be, if properly regulated and managed, the development and establishment of truths, and the settlement of important, though disputed questions.

He was scarcely prepared, however, to do more than give the general outline of such a plan as would meet his approbation. He would state briefly, that it appeared to him, the grand and leading object in such an institution, should be the exhibition of what might be called the GENERAL ECONOMY OF FARMING; by which he intended, the adoption of a system which should produce in every department of Agriculture the most profitable results. For this purpose the use of a farm would obviously be necessary. It should embrace as great a variety of soils as practicable, in order to demonstrate to the greatest extent, the proper course of husbandry to be pursued under various circumstances. The buildings should be of the most convenient kind for their respective purposes, the implements of the most perfect construction, and the entire arrangement and management of the premises should be calculated to insure the greatest ultimate profit—in a word it should be PATTERN FARMING.

In connexion with this, there should be a scientific, a veterinary, and an experimental department. In the first of these, competent men should be employed to prosecute investigations in chemistry and those sciences which are specially connected with Agriculture and the Arts. The results obtained in the laboratory, so far as they relate to practical husbandry, should be put to a thorough test on a portion of the farm set apart for experimental practice. Here all doubtful questions should be fairly tried—not subject to a single experiment, but to repeated experiments, till by a succession of similar results, it might be safely concluded that the fact had been reached.

The experimental part of the farm should also be used to demonstrate the advantages, or disadvantages, of different modes of cultivation for different crops; for making comparative trials with different varieties of grains, grasses, vegetables, and fruits; for making the most careful experiments to test the relative properties and profits of different breeds of cattle for fattening, for the dairy, and for labor, and for similar trials with different breeds of sheep and swine.

The veterinary department would afford an opportunity for the study of comparative anatomy and the diseases of animals. This was an object of great utility, and under proper management, the department would confer most important benefits on the community.

Such, in general terms, Mr. H. thought, should constitute the basis of an institution which would meet the wants of the agricultural interests. It was not expedient to speak particularly of the details on the present occasion.

Professor NORTON (of Yale College) rose in compliance with a request of the Chairman. He expressed his great satisfaction at seeing the interest evinced on this subject, by those who desire to advance the cause of agriculture in the State of New York. There is hope that when such a State makes a decided movement—whatever Institution may be established under its auspices will answer public expectation.

Mere theory was not the true test of the usefulness of such an establishment. It must be on a liberal scale, or its good would be imperfectly felt. Among all the European Institutions, and he had seen most of them, there were but two or three which were not on an exceedingly limited plan; even with them but a few men, that could really be called men of science, were connected.

One of the principal points to be regarded is, that the theoretical teacher be able also to impart practical instruction. The school should unite practice and theory—that the scholar, however enlisted in the theory, may bring it to the test of experience, and see whether it is consistent, or at variance with, the actual results produced. This is one of the strongest reasons why Government should control such a school; since it could afford the necessary means to fully develope at once both theory and practice, in any department of agricultural science.

He would not wish chemistry brought forward too prominently in such an Institution—but would place all the various forms of knowledge on an equal footing, having all so adjusted and so arranged, that we should not have, as is now too often the case, a long series of experiments, producing no decisive or satisfactory results, for the reason that they are made in different regions, on different soils, in different climates, in accordance with no fixed rules, and with want of scientific knowledge; such experiments were often worse than useless, leading but to confusion.

The first and leading ideas of this central school should be, what is the general economy of agriculture, what system will develope the resources of every department of farming—its constant endeavor should be to devise a system that by its combined results would show in which way the greatest good to the land, the greatest profits out of it could be attained. Every department ought to exhibit what might be called "a model" of its kind. The farm should embrace a great variety of land, so that every mode of managing the crops might be illustrated—the buildings, and implements, and stock, should be the best adapted for the purposes designed.

Mr. JOHNSON said the proposition seemed to be, can science in our schools do us any good? No man, he believed, would withhold his assent, and if we do thus think. Mr. Chairman, (said Mr. J.) is it not necessary to second the recommendation of the Governor and have it as he proposes? We may wait in vain for all the contending theories in chemistry and agriculture to agree. We must second the State in her endeavor to found an agricultural school, and the instructors in it will soon settle these questions themselves.

(The Chairman here remarked that few would deny the connection of science with agriculture directly. They only put the truth in different words and then deny it.)

Sir, continued Mr. J., I never saw a farmer when I explained it, but said *that* will do. How many are there who say they have tried their soil with this and with that, but without success. It is important that they should be told why—True science and practical agriculture must come together, and in their mutual results, these and other difficulties of the practical farmer, will meet a solution. Can if be doubted but that a school will do this, if rightfully directed. Look at the Geological Survey. This State stands first. We are the United States abroad, when this survey is pointed to. It has placed us, in the judgment of scientific men abroad, far higher than any other State in the Union. What use have we derived from it, if not for its connection with agriculture? Yonder crystal from your farm, Mr Chairman, (Mr. J. here pointed to a superb specimen of salt crystal taken from the farm of the Hon. GEORGE GEDDES, of Onondaga, the chairman) is a use-

ful proof of the just application of scientific knowledge. You can tell them, sir, what it means. Professor Norton, Professor Emmons, who have been on and examined your farm, can tells us. Fifty years successive crops without manure tells for what that crystal is. Science has pointed it out.—True science and agriculture have come together.

Is it of no importance to know the value and efficiency of manures? Are farmers never to know these things as they should be known?

In the case of your farm, the very rock is manure, and science by her infallible tests has demonstrated it. Ought there not to be in all our district schools—all our academies, means of instruction to the children on such subjects just as they are instructed in other rudiments of learning?

We owe a duty, each one of us, to Government, and by none is that duty more thoroughly discharged than by the farmer. Does not Government equally owe a duty to them—to instruct freemen in all that belongs to a freeman to know? The privileges of Government belong to the freemen that make that Government, and education is one of the principal of these.

Who are the bad lawyers but the uneducated ones? I advise my farmer friends to have as little to do as possible with the law, but if it becomes necessary that they should need the assistance of a gentleman of the profession, I advise them to go only to a man who thoroughly understands his profession, as the best means of getting them out of the scrape. Why should not the same rule of excellence and sound information govern the occupation of the farmer as what are designated as the learned professions. It is the knowledge of his soils, of manures, of all that concerns the conduct of a farm, that will tell what that soil may produce, which is desired to make the crop three bushels which now is but one.

How in our case is the duty of Government to be discharged? The Governor suggests that the school proposed shall be placed under the care of the Regents of the University. This is a highly reputable body—men in whom the farmers have confidence, and containing among others some peculiarly adapted to the subject. They would take every care that the best interests of the school were conserved—that plans were matured—good teachers secured, and all done that could be to facilitate the great object, especially that good teachers were obtained. (Here Mr. Johnson spoke in well deserved euology of a citizen of our own State, Prof. NORTON, who so ably filled the position over which he presides at Yale.)

If we concur in this part of the recommendation of the Governor, let us say so. I have no fear but a head for such a school can be procured. The fears that if we did obtain the very man and he should die, our institution would go down, are groundless.—Wisdom will not die with any one man, and it is not for us to suppose that we can guard even against the contingencies of mortality.

We have no control over death. By the kindness of Providence, we shall do as well as other men.

There is no lack of means on the part of the State. We have poured out our millions for railroads, and the good effect will be felt till time shall be no more. We appropriated vast sums in the canals, when it was said that it would never, by its revenue, defray the expenses of its digging. Go to Europe, and enquire about the State of New York, and when they hear of our canal, they will be amazed to know that a single State, not as large as England, has done all this. They cannot understand it. Let us show them that this State can do more; that it can make permanent the union of science with agriculture, and give to the farms such a school, as well known in its benefits all over our Union. We have the means, abundant and adequate. If we had not, the farmers of New York would submit to a tax to defray the charges, before they would consent to be without the benefits of the enlightened understanding of the full worth of their avocation.

Mr. J. here gave some interesting statistical sketches of the returns of crops, &c., received at his department.

Systems and order will enable the farmer to keep such a record of the transactions on his farms, as Mr. Delafield, the President of the Seneca County Agricultural Society does, who knows every Saturday evening precisely his affairs, field by field, crop by crop. The knowledge of the soil and of its culture, will render many such crops as 123 per bushels of corn to the acre, possible, such as is reported to us.

A conversation followed here in respect to the very ridiculous errors in the last census, in respect to the enumeration of the agricultural products of the State, by which the most barren lands were returned as yielding most enormous crops, and in which several of the cities appeared, as producing the very best fields of corn?

Mr. Johnson resumed in an animated appeal to the meeting to come up and sustain the Governor. Such a school would concentrate the wishes of the farmer. The citizen would eargerly send his son there to learn the employment that would secure him the health that springs from the genial work and pure air of the country. His Excellency had been direct and manly in his recommendations. He trusted that a voice of approval to him would be uttered by the meeting before it separated.

Mr. GEDDES (of the Senate) said that our college system was adapted to the education of monks. Most of the learning consisted in the acquisition and study of the dead languages. We often read when we were young, that Lady Jane Grey was well versed in Greek and Latin, but we do not consider in this our day that it is very necessary that a young lady should be skilled in these branches of learning. Other things are

considered, and very justly so, as more important. He did not wish to be considered as opposed to colleges, but he could not but see that they devoted too much of the precious time of those they instructed to the branches to which he had alluded.

The period had arrived now, when it was more important and necessary to know the quality of the stone—the mineral—the earth—than to pursue the abstrusities that may be found in an algebraic problem, or to chase to its origin a Greek root. There is one school in this country, and only one, it seemed to him, which was based on a proper system, and that was West Point. It is true, it is a military school, and not especially his favorite on that account; but the system—the idea is what he approved. There men learn to grapple with the realities of life, and wherever you see that education developed, whether it be in the Chief Justice of laws—the Chief Engineer of the Russian railroad, or the men who lead armies in Mexico, you will see that they were West-Pointers. Their practical education developes itself.

The college system of education expends too much time. Life is not long enough for all it proposes, and for what these times demand.

He was very glad to see that at New Haven a department of agricultural chemistry had been organized, and a professor appointed. He understood that Union had a similar good work in contemplation. It is the wisest policy in our colleges to take knowledge of what is passing in the world aroundthem.

The knowledge of the French and the Spanish language is far more important than is that of the Greek and Latin.

One of the great advantages attending to the establishment of an Agricultural Institution is, that the instruction given in it, and the system of study adopted, can be adapted to these times—that the proper preponderance can be given in relation to subjects of science and the languages, as the most useful.

Agriculture is a science and an art. We are to learn the science in a school—the art on a farm.—A man who was taught his skating from a book, relying on that, would probably break his head in his first trial upon the ice itself. Precisely so with the teaching of plowing by a book. The Agricultural school and the experimental farm must go together.

Formerly, if the farmer had three sons, and he desired to put them all in the way of eminence, he had one educated for a priest—the other for a lawyer—and the third he made a doctor. If he had a fourth son, he might make a farmer of him, but he would not think it necessary to educate him at all.

The State, said Mr. G., should provide for teaching science forthwith—the science of farming—and it will not be necessary for the farmer in seeking to make his son a learned man, to send him out of his own profession. The system of study must be adapted to Agriculture, Botany, Mineralogy, and kindred sciences must be taught, well taught—thoroughly taught. And so, too, with mechanics. How many men are there who can calculate correctly what will be the increase of power, if a water power of a certain quantity, which has had a fall of twelve feet, has the fall doubled? What school teaches this? What college teaches the practical arts of life? What man can build a steam-engine by what he has learned in college? When men find that for farmers and ship-builders, and for good mechanics, they must be thoroughly educated, the profession of these employments will be conceded to be respectable. The practical part of knowledge—to cast up how much excavation is necessary for a ditch—to know accurately the measurement of a field—how many can do this?

Our institutions of learning must change their views, or they will be swept away in the changing condition of the times. Harvard and Yale have already seen this, and they have secured themselves, by modifying their teaching in accordance with the practical features of the day we live in.

After a few remarks from Judge Cheever, of Saratoga, a resolution was unanimously adopted, approving of the recommendation of the Governor, and the subject was postponed for further discussion at the annual meeting of the Society.

A Sublime Truth.—Let a man have all the world can give him, he is miserable, if he be of a grovelling, unlettered, undevout mind. Let him have his gardens, his fields, his woods, his lawns, for grandeur, plenty, ornament, and gratification; while at the same time God is not in all his thoughts. And let another have neither field nor garden; let him only look at nature with an enlightened mind—a mind which can see and adore the Creator in his works, can consider them as demonstrations of his power, his wisdom, his goodness, and his truth; this man is greater, as well as happier, in his poverty, than the other in his riches. The one is but little higher than a beast, the other but little lower than an angel.—*Jones of Noyland.*

Saw-dust.—Will you or some of your correspondents be kind enough to state in your next number if any use can be made of saw-dust for agricultural purposes.—*T. G.* [Saw-dust, when thoroughly decomposed, makes, like all other vegetable matter, a very good manure; thrown up with marl into large heaps, it is a good top-dressing for light lands, or may be ploughed in with wheat. It is a good absorbent for liquid manure, and when well saturated with the urine from the stables, becomes a very powerful fertilizer. Some of our readers may, however, be able to give our correspondent more specific directions for the use of saw-dust, and we shall be glad to hear from them.—Ed. F. H.]

CORRESPONDENCE.

[*For the* AGRICULTURAL JOURNAL.

MEADOWBANK, ISLE JESUS,
1st February, 1849.

SIR,—I beg to forward to you, as the proper focus of all our agricultural information, a speciment of a variety of Wheat, hitherto, I believe, altogether unknown in this Province, but possessing properties which seem to promise much advantage in its adoption for cultivation by the farmers of Lower Canada.

It is a bearded Spring Wheat, of vigorous growth, hardy, and suitable to all descriptions of wheat soil, producing a large return, both in grain and in straw, and furnishing a very superior flour.

It is of early maturity, requiring only about a week longer than the Black Sea variety of Wheat; and it may be sown, consequently, either on the opening of the spring, so as to blossom in advance of the period when they fly usually appears, or so late as the 1st June, in order that the season of danger may be passed before the grain becomes open to injury. In either case, this wheat ripens well, and is almost altogether safe from rust. I have sown it at different dates, between the 10th April, and the 1st June, particularly to test its means of escape from these—the scylla and charybdis of the Canadian Wheat grower, and I have in every instance of trial, reaped a good crop, when the Black Sea Wheat similarly sown and cultivated, has suffered severely from one or the other evil. My experience, indeed, satisfies me that this kind of Wheat, even when sown so as to be left fully exposed, is liable to be affected by the attacks of the fly, in very rare instances. Either the glume is of greater depth than in the other varieties of Wheat, or it is required to open less for the projection of the blossom, or, perhaps its senatures are too formidable to permit the approach of the ovipositor. I have attentively watched the insect in full activity, when this Wheat was at the precise state for its attack, but I have never, in any instance, observed it to succeed in depositing its *ova* within the proper receptacle.

You will observe that the grain of the specimen is of fair appearance, being large, and tolerably well formed, of thin bark and fine bright colour. It is the produce of seed sown the 20th of May. The straw is of full length, stiff and not easily broken or lodged in the field. It is somewhat difficult to thrash clean, but this is compensated for by the very small loss to which it is subject from shelling out in the process of harvesting.

I am not aware of the origin of this variety. A very small quantity of seed came into my hands some years since; and I have now, after testing its superior value, through the last three disastrous Wheat seasons, some small surplus for distribution.

At an early date, I shall have the pleasure of offering you samples of the Flour, and Wheat in sheaf.

I am, Sir,
Your most obedient servant,
A. WEBSTER.

Wm. Evans Esq.,
Secy. L. C. A. S.

MANUFACTURES AND AGRICULTURAL PRODUCTIONS.

BY RUSTICUS.

It seems now to be a general opinion, that the more varied the products of the country can be made, the more likely to be permanent will its prosperity be. The greater the number, and the more varied the nature of our products, the less will be the risk of our again suffering from such a depression as the long continued failure of the wheat crops has, in conjunction with other and more temporary causes, combined to produce. A movement is now being made to establish home manufactures, and it is to be hoped that those who assume the management of the movement will not lose sight of those manufactures which would at the same time foster the agricultural interests. Prosperity will not be suddenly recalled; it will be the work of years, but every effort which introduces but one branch of manufacture, or one new article of production, will tend to the desirable result. There are an immense variety of articles annually brought in from the States, which could be profitably made here. In the western province, establishments have sprung up for the manufacture of rakes, hay forks, pails and other articles which have, till within a few years, been wholly made in the States. At Sherbrooke, I was glad

to see, that a factory has lately been erected for the manufacture of pails. In the west, too, I was glad to see it stated, that an enterprising firm, Messrs Imlach, had commenced the growth and manufacture of mustard, and found that it could be done profitably. Another article which it has often struck me might be profitably raised, is corn for cornbrooms; a very large number are annually used in this Province, but they are all of States' growth; a few are made in the Province, but comparatively few. There is a broom-maker in this city, and there is one also in Toronto (as any one who has read Judge Sullivan's eloquent lecture, delivered a year or two ago at Hamilton, on the resources of the country, cannot fail to know,) but, as far as I know, the broom is imported from the States;—why is this? Broom corn will grow here, and there can be no difficulty in procuring seed, for every person who buys a new broom has it at command. I hope that some enterprising farmer will make the attempt, and communicate the results of his experience in the matter. These things that I have mentioned, may appear trivial to some, but it should not be forgotten that "littles make a muckle"—the little rills and streams united, form the mighty river; and so every branch of industry should be fostered, and every attempt to introduce a new article of growth, should be encouraged; for on the unimportant littles depends very much of the prosperity of a country. Before concluding this rambling article, I would merely express a hope, that the Journal of the Lower Canada Agricultural Society, will be received with increased favour, and that it may during the coming year, be productive of good, in disseminating correct and useful information on agricultural subjects.

Montreal, Jany. 5, 1849.

THE OWNERS OF THE NATIONAL DEBT.—On the 7th of July last there were 284,127 persons entitled to receive dividends in the funds—in other words, of the whole national debt. Of these not fewer than 275,721 received sums which are under £200 each. There were 96,415 not exceeding £5, 44,937 over £5 and not exceeding £10, 96,025 not exceeding £50, 24,462 not exceeding £100, and 13,882 not exceeding £200. There were 4032 persons receiving more than £200 and not exceeding £300, 2647 not exceeding £500, 1222 not exceeding £1000, 328 not exceeding £2000, and 177 exceeding £2000 per annum.

ROUGH NOTES BY THE WAY.

FARM OF MR. MAILLARD.—On my return to Philadelphia, I accidentally met my excellent young friend, Mr. Adolphus Maillard, who was so polite as to insist upon my accompanying him home to his hospitable residence at Bordentown.

His farm consists of about 600 acres, and was formerly part of the estate of the late Joseph Bonaparte. The mansion, gardens, and park, having been offered and since sold for $30,000 separately, Mr. M. wisely declined these, thinking an excellent and venerable old house, nearer the centre of the domain, more convenient for him, near to which is a farm house and outbuildings, quite sufficient for all his present wants.

The soil of this farm is mostly a sandy loam, and when Mr. Maillard came into possession, he found it greatly exhausted by previous years of constant cropping without a suitable return of manure. He has now made an additional purchase of 40 acres of muck meadow, lying on the margin of the Delaware River. From this he is hauling large quantities of muck to make it into compost, and is also liberal in the application of lime, ashes, bone dust, but more especially guano, which has done wonders for his soil thus far. He has also discovered marl on his farm, which he is using liberally. But I must warn my readers not to entertain too extravagant notions, and expect too much at once. Improvements of the soil are necessarily slow; nature will not be forced beyond a certain pitch, and we must leave it for time to put its seal upon them. Considering, however, the short time Mr. Maillard has been at work here, his crops looked remarkably well, and were very abundant. He had thirty-four different kinds of grass and grain growing, several of which were for experiment. Among these I was particularly struck with a superior kind of wheat which he had brought home with him from Italy. After harvesting it, he employed women and children to select the largest and most perfect grown heads, and to shell them by hand, and from the seed of these throw out all the inferior grains. What is left, he intends to sow on clean, well prepared ground, and so follow up the result. His exertions cannot but be crowned with success; for improvement in seed is just as sure to follow such a course, as improvement in stock when breeding from well-selected animals.

Mr. M. has laid the foundation for an excellent stock. He has several very fine pure shorthorns, also Ayrshires of approved milking families. The bulls he is breeding to a choice selection of native dairy cows. This is the true way to make us independent of foreign importations. I am a great advocate for improving the natives—home manufactures is my motto.

I noticed here an excellent roadster stallion; a descendant from the famous Long-Island trotter, Andrew Jackson. I will defy the world to beat the United States for good roadsters; and we

ought to be exporting them largely for the improvement of European stock; and might do it if we would go to work right, to bring it about.

The pigs here are very fine, being mostly the beautiful Suffolk and their crosses. Query. Can a pig be called a beauty? I suppose so, *for a pig*, the same as a Hottentot *for a Hottentot.*

Since my visit to Mr. Maillard, I notice in a New-Jersey paper, that he was quite successful at the Burlington County Agricultural Show, in October last, where he received several first premiums for the best display of different kinds of animals, grain, &c.; all of which he generously handed over to the Society, to be offered again at their next annual show.

In implements, I found Mr. M. equally liberal; for he supplies himself with such as have proved to be the best. As an example of these, he has got up a circular horse power for one or four horses, as desired. With this, he moves a threshing machine, fan mill, circular saw, small grist mill, grindstone, cornsheller, and strawcutter, which greatly saves in the labor of men.

Mr. M. has some other things in progress, of which I should like to speak, were it not for fear of proving tedious to the matter-of-fact readers of the Agriculturist. I will therefore finish my observations here for the present, by giving a brief detail of a potato experiment which he made in 1847. When his crop was dug, he found the rot very prevalent. He immediately gathered all that seemed in the slightest degree affected by it, and put them into his steam vat, and thoroughly cooked them. They were then packed down in common hogsheads. These he fed to his stock during the winter; and what remained in the spring proved as sweet and good as when first put down. I ate some myself to be convinced of the fact. Had he not resorted to this cheap and simple method of saving them, he is positive all would have been lost. He purchased of his neighbors large quantities in the same diseased state, and saved them with the same success.

SAMUEL ALLEN.

New York, December 6th, 1848.

THE DODO.—At the meeting of the Zoological Society in Hanover Square, a model of the *Dodo* was exhibited, constructed by Mr. A. D. Bartlett, of Great College-street, Camden Town, and excited great interest. Among the gentlemen present we noticed the Dean of Westminster, Professor Owen, Mr. Yarrell, Dr. Melville, Mr. Gray, Mr. Gould, &c.; they all expressed great satisfaction at the scientific accuracy displayed by the artist in so perfect a restoration of this extinct but interesting bird. It may be necessary to state that the last living specimen was exhibited in Holborn 200 years since, and the only preserved skin was destroyed by fire 90 years ago, the head and foot of which alone were saved, and are now at Oxford The model may still be seen at the residence of Mr. Bartlett.

REMARKS ON THE PRINCIPLES OF BREEDING.

BREEDING, with a view to improvement, may be said to be founded on Nature's established law, that "like begets like." This, however, is only true in part, for there is a constant tendency to change, arising from a variety of causes; such as domestication; living in a different climate, or on a different kind of food. The management to which animals are subject has, also, its influence. While these may be looked upon as the chief causes in operation, that produce this constant change, they are the means, at the same time, in connection with other causes, which are used to effect an improvement.

In order to improve the breed, there are two modes advocated by practical breeders. One is commonly called the "in-and in system," and the other that of "crossing." The former was practised many years ago, by Mr. Bakewell, of England, which, at least, had the effect of destroying the prejudice that had previously existed against breeding from animals of the same race, or blood. But the system of breeding in-and-in, it has since been ascertained, has a tendency; after a time, to deteriorate the breed; in fact, it is limited, so far as its benefits are concerned, unless the utmost care is observed in the selection and management of the stock, avoiding everything that can possibly tend to hereditary disease. To accomplish this, the breeder must select such animals as his judgment and experience will convince him, will be likely to unite in their offspring *the qualities sought. From their progeny, again* must be selected only those animals which more completely exhibit the requisite qualities, and so on, from generation to generation, until the character desired is fully developed. The importance of continuing this process for a number of successive generations is obvious, from the fact, that peculiar traits of character often disappear in the first, and reappear again in the second or third generation. A desired character may be found in the parent, and inherited by only a part of the offspring. and the requisite point can only be uniformly developed by a careful selection through several consecutive generations. By this process, it is apparent that this system must be adopted; yet at the same time, *it is d sirable to avoid too* close alliances. Hence, it is considered better to breed more distant members of the same family together than those that are more nearly related.

In improving the breeds of animals, the chief points to be arrived at, consist in reducing the parts of the least value to the least possible dimensions, which may be regarded as offal, as the head, neck, legs, &c., while the larger quarter or ham and deep chest, for fattening, and square, well-set udder, large milk veins, mellow skin, and kind temper for milking qualities, should all be developed to the greatest possible extent. In order to produce these, a strict regard should be

said to pairing with the view of correcting an imperfection in one animal by a corresponding excellence in another. For, the character of the parent is more fully impressed upon the offspring when the former is in the most vigorous period of life. Consequently, neither very young nor very old animals should be selected for the purpose of breeding. All the conditions of soil, situation, climate, treatment, and food should be favorable to the object sought, and particular care should be taken to bring the male to the mind and taste of the female, and for the first year, at least, that the young are well supplied with an abundance of nutritious food, and with comfortable shelter and shade. Furthermore, every female, while pregnant, should not only be well fed, but care should be observed that the food be of a proper kind. Let it be remembered, also, that the growing fœtus has blood, flesh, and bones to form, as well as its mother; and therefore a greater proportion than usual of the constituents which go to make these, must be supplied by the food of the dam; otherwise, the fœtus will suffer, as well as its parent. Again, it should be borne in mind, that, no breeding animal, either male or female, should be made too fat; for the former would often become too heavy and unwieldy by their joints and sinews being, as it were, possessed with little action, or effect, by a load of useless and injurious fat, neither would a female, in a state of pregnancy, be in a natural and safe condition, either as regards herself or her young, when thus unnaturally encumbered. To illustrate more clearly my meaning, let us take, for instance, a breeding sow, as denoted by fig. 2, which has been too highly fed, and it will be obvious that she must have been incommoded with an unnecessary and cumbrous weight during the latter stages of pregnancy; and besides, her offspring, would become contaminated with sickness and disease, which sooner or latter would be communicated to their progeny.

The system of "crossing" is founded on a principle just as secure, as regards care in selection, as that adopted by Bakewell in breeding in-and-in. For, it is well known that certain diseases are hereditary, and so is color, none of which can be changed nor got rid of except by crossing. This system, therefore, requires great care in selection, as well as in management. This tendency of "like begets like," is forcibly illustrated in the results of crossing various breeds of cattle, such as Devone with Herefords, both the color and form of the parent animals being thereby modified or changed.

As a general rule, animals produced by crossing are the most profitable either for meat or milk. Most of our good breeds have been perfected by this system, and selection has long maintained them. A cross is comparatively the operation of a moment; and its end once attained, the breeder's object is *not to repeat* but to *maintain* it. B.

A Tribute of Praise to England.—At the Lord Mayor's banquet on November 9, "The Health of the Representative of France and the Foreign Ministers" was drunk with much enthusiasm, and was thus responded to by the French Minister, M. Gustave de Beaumont,—My Lord, Ladies, and Gentlemen,—As the very unforeseen honour to answer this toast devolves upon me, as being the senior of the diplomatic body, I hope I may be allowed to take this first opportunity of offering to you, and to all persons here present, the best thanks of my country for the cordial hospitality which has been of late so kindly bestowed upon a great many of my countrymen on their visit to this large metropolis (general applause). My Lord, England is the land of liberty—(cheers)—England is the land of liberty—(repeated cheers)—and hospitality for all foreigners; but it will be permitted to me to say that it has been a land of friendship for Frenchmen (Hear). England has opened her heart as well as her frontiers to Frenchmen (cheers). I dare say that she did right in doing so; she did right for her own interest. A noble country like England, in order to be admired and blessed, wants only to be known (loud cheers). The best answer she can make to still existing, though every day vanishing prejudice, is to show herself to every eye (renewed applause). Let us, my Lord, enjoy—let Europe, let all people of Europe enjoy the blessing and the benefits of that mutual good understanding which is, and will ever be, the best security of the maintenance of the peace of the world (universal cheers). We no more entertain—neither in England nor in France—that false opinion that the prosperity of one country is founded on the misery of another (applause). We think, on the contrary, that the best guarantee of one's happiness is the happiness of all (Hear, hear). Allow me, in concluding, in apologizing for my bad English, to tell you, that it will be for my countrymen a most happy and delightful day when a visit—a very desired visit of Englishmen to Paris—(cheers)—will afford Parisians an opportunity of expressing, better than I do by vain words, the feeling of gratitude and of sympathy which they entertain for all England, and particularly for the city of London—(loud and long-continued cheering).

A Travelled Gentleman.—Lord Bolingbroke used to say that the greatest compliment which could be paid to any English gentleman returned from his travels, was to say of him that "nobody who saw him could think that he had ever been abroad, but that everybody who talked with him would think he was a native of the countries he had visited."

Top-dressing for Grass.—Two cwt. of guano and 2 cwt. of superphosphate of lime, per acre, mixed, and turned over with any ditch scrapings, &c. and thrown broadcast in March.

FARMING IN CHINA.

The Chinese are a nation of the most industrious habits, and must be considered as an agricultural people. They have most wisely established laws for the protection and encouragement of agriculture, and to such an extent is it carried, that the Emperor does not think it derogatory to his dignity, once in every year, at the agricultural festival, to descend from his Throne, clad as a husbandman, to set the laudable example to his subjects of tilling the earth; his family and courtiers, similarly habited with himself, attend him on the occasion. The appointed day having been previously proclaimed throughout the empire, the Emperor goes forth and ploughs a particular field, and every farmer through his vast territories simultaneously turns up the earth. The produce of the field ploughed by the Emperor is always most carefully preserved, being considered far superior to any other. The ancient laws are so particular upon the subject, that they even declare the peculiar manner in which the Sovereign shall perform this ceremony; so essential do the Chinese consider agriculture to the prosperity of a nation, in contradistinction to the many heavy blows and great discouragements inflicted upon it, in Great Britain, by modern legislation. By another ancient law, all uncultivated or neglected lands are declared forfeited to the Emperor, who grants them to farmers, on condition of being kept in proper cultivation. The consequence of this is, that, in China, there is not an uncultivated spot to be seen. A fifth, and, in some instances, a fourth part, of all produce is reserved for the Emperor, which is paid in kind to the principal mandarin of the Prince, who farms the tax. There is one great peculiarity in Chinese agriculture, which, if adopted, might prove highly advantageous to British farmers. All seeds, previous to being sown, are steeped in liquid manure, until they germinate; and to this, coupled with their system of irrigation, may be attributed the rich luxuriance and abundance of their various crops. Their ingenuity and perseverance may daily be witnessed in the terraces, built one above the other, up to the summit of a rocky mountain, where *paddy* is cultivated. They form reservoirs and dams on each platform, and the water, having passed along one terrace, is received into the reservoir of the next below, and thus descends, step by step, in its irrigatory course. After the rainy season, when the water has been exhausted, which was saved in these reservoirs, the water is carried, both by hand and ingenuity, to the heights above. Their various modes of irrigation have been frequently described. Their methods of thrashing rice or paddy are numerous. I have seen them thrashing with flails of bamboo, somewhat similar to ours in form, but shorter. I have also seen them, or their oxen, tread out the corn, reminding me, in that heathen land, of the passage, "Thou shall not muzzle the ox that treadeth out the corn." Rice is the staff of life in China, from which grain they distil a spirit called samshoo, known in England as arrack. Here are we furnished with an example of the manner in which everything is turned to account and nothing wasted. The grain forms their food, the straw thatches their house, and out of it they construct coarse mats, and make paper. The husks are carefully collected, and being mixed with a greasy substance, are formed into cakes to feed the pigs. Ornaments are manufactured out of prepared rice, which is first pounded into paste, and hardened by fire. I have seen very pretty vases, and bottles of antique form, of this material. As they cultivate their hills to the summits, so do they make the morasses subservient to the support of man. Bamboos, split longitudinally, are placed upon the marsh, and over these are laid layers of earth In this artificial soil, vegetables and pot-herbs are raised to the greatest perfection. There is no plant, in short, growing in China, which is not rendered subservient to man's use. They extract oil, equal to the finest Florence, for table use, from the kernels of apricots. Excellent oil is also extracted from various seeds, such as the cotton and turnip, which is used for lamps, and by the lower order for culinary purposes. A most beautiful black dye is prepared from the cup of the acorn; and the finest scarlet is extracted from the cactus. Should the crop of mulberry leaves prove insufficient for the support of the silk worm, the leaves of the ash tree are made to supply the deficiency.

The necessity of cultivating the minds of the future cultivators of the soil of our native land, as the readiest, best, and most efficient mode of promoting the improvement of agriculture, has always been with us a favorite topic. We have ever been willing to lend a helping hand to every scheme for affording a suitable education to those youths who are destined to pursue

farming as the occupation of their lives. We were well pleased to see the establishment of the Cirencester Agricultural College, and we hailed with satisfaction the patronage given to it by royalty. We sincerely hope it will flourish to fulfil the most sanguine expectations of its founders, and we could wish a dozen other such established; but we must still entertain our own views as to the easiest and most attainable means of securing a better system of education for the youths who must form the rising generation of farmers. We have thousands of schools, in which farmers' sons are now educated: it will be much more easy to introduce a better and more comprehensive system of education into these schools than to establish new schools or colleges, and induce farmers to send their sons to such new establishments. This may be effected either by a first movement on the part of the proprietors of such schools; and they may rely upon it that it will not only redound to their credit, but conduce to their interest so to do; or in the absence of such a judicious course on their part it may be effected by the farmers themselves. Let but one, two, or three farmers say to the master of the school to which he sends his son, "I must have my boy instructed in the rudiments of chemistry, botany, geology, and mechanics, in addition to the ordinary routine of instruction," and the point will be carried, so far as that particular school is concerned. Adopt the same course generally, and a metamorphosis will take place in a very short space of time in all the schools in the kingdom.

We last week gave a report of the proceedings of the annual examination of the pupils at the Messrs. Nesbit's School at Kennington. We were highly gratified at the ready manner in which the youths replied to the several questions put to them, manifestly showing that they understood the subject they were examined upon, and that they did not answer by rote. We congratulate our friends, Messrs. Cottinghams, Huntley, and Agate, on the talent evinced by their sons, and we hope the prizes the youths received will be a stimulus to them to prove themselves worthy of their parental stock. We have no hesitation in recommending the Messrs. Nesbit's system of teaching as well adapted to advance the education of youth in the useful branches of science applicable to the pursuits of the farmer, as well as generally. We believe they were the first to adopt an improved system, and we trust they will obtain the support of those agriculturists who desire to see their children rendered competent to uphold the class to which they belong.

CHRISTMAS PRIZE CATTLE SHOW.

(*From the Times.*)

SMITHFIELD MARKET, Monday, Dec. 11, 1848.

The annual exhibition of Christmas fare deserves this year a word or two more of commendation than, perhaps, any of its predecessors. There was a considerable abatement of that extensive obesity of which discriminating judges so loudly complained, and whose opinions were echoed far and wide through the medium of the public press. It is with pleasure, therefore, seen that a new era appears to be dawning on the minds of agriculturists, and that they are beginning to discover that the best quality of cattle is not to be obtained by excessive feeding. Enormous bulk does not constitute the most valuable properties of the animal, inasmuch as a beast of comparatively diminutive size may be held superior to its larger competitors. The grand object is to put the greatest quantity of servicable meat upon the smallest bone, with a due regard to symmetry.

The show this year was not esteemed, by the connoisseurs of very fat beasts, so good as on former occasions; but for this very reason there was an improvement in quality: there was less fat, and more meat. It is now evident that more attention has been recently paid to quality than to size. There is clearly a growing indisposition on the part of agriculturists to wasteful expenditure in the growth of cattle.

The press may justly claim a share of credit for having so far induced an approximation to a right way of thinking, by denouncing, and thereby practically checking, an evil which had grown to a monstrous excess. From the symptoms of improvement exhibited at the cattle show for the present year, there is reason to hope that breeders will in future act upon the principle that it is better to produce good, wholesome, nutritious, and substantial food than enormous masses of fat or offal. This is a light which seems to have only recently broken in upon even the most intelligent members of agricultural societies; but now that they have become illuminated by its rays, there can be no doubt the best results will follow.

The only objection to the Smithfield Cattle Club Annual Show was the enormous extent

to which the practice of fattening the beasts was carried, and to which objection we were the first to direct attention. This ground of complaint being obviously in course of removal, further animadversions on the subject would be useless and distasteful. In another year or two there will doubtless be a more striking evidence of good sense and enlightened judgment on the part of breeders, by an exhibition calculated to excite general and unqualified approbation, in which cattle will be shown fit for Christians to eat, and not for the greater part to be consigned to the tallow-chandlers.

In noticing the cattle show of 1847, the following sentence occurs:

"Some observations were made during the cattle show, not reflecting on the impartial distribution of the prizes, but expressive of surprise at the coincidence, from year to year, of the preference given to the Leicestershire sheep, to the exclusion of those of Oxfordshire and Gloucestershire, many of the latter of which have often, and particularly in the present year, exhibited great merit. No imputation was cast upon the uprightness of the judges; but the fact was mentioned as rather singular, for which reason it is repeated here. There may be nothing in it; but the question was pointedly asked—Are not the majority of the judges selected from Leicestershire, or some of the adjacent counties?"

It is somewhat remarkable that the same complaint has been repeated on the present occasion. The judges are nominated by the stewards, and that nomination is tantamount to an election. Now, it so happens, from some unaccountable cause, that the judges give the preference to sheep of the Leicestershire breed, not exactly in accordance with the opinions of many practical men. The sheep in extra stock illustrate the impropriety alluded to, as nothing but a partiality for a certain breed could account for Earl Radnor's sheep obtaining a prize over such an extraordinary one as that of Mr. Faulkner's, of Bury Barns. Notwithstanding these strictures it is freely admitted that in the prizes awarded to Mr. Webb and the Duke of Richmond, for specimens of South Downs, the judges acted with admirable discrimination, judgment, and impartiality. These prizes commanded general assent.

Another subject is also deserving of mention, viz., the judges award the higher prize to the feeder and a lesser one to the breeder, contrary to all the rules of ordinary justice. There must certainly be more merit in the man who breeds an animal of the most exact proportions than in one who only fattens it for show and for sale, though neither party is remunerated by the prize he may receive for the expense he has been at in rearing the animal.

The principal objects of attraction were, as might naturally be supposed from the illustrious rank of the owner, the stock of Prince Albert. The oxen excited great competition among the buyers, and produced prizes much beyond their real value, on account of his Royal Highness's name being connected with them. The one that obtained the prize was in every respect entitled to it.

The Earl of Leicester was very successful in obtaining prizes for his oxen, and some say very fortunate, Mr. Trinder's ox, among practical men, being considered the primest in the yard. The Earl's Devonshire ox was, though a beautiful animal, not to be compared, either in weight, substance, or symmetry, with Mr. Trinder's. Mr. John Mann's cow, which obtained the gold medal, was deserving of every possible commendation. The Scots were of excellent quality, but not so symmetrical as to excite admiration.

There was more competition for oxen and better prizes were obtained generally than upon an average in past years—a curious fact in contrast with the cheapness of meat in the butchers' shops of the metropolis. A great many beasts were bought to be sent off by rail; and it is a remarkable fact that nearly all were sold the first day, the general price of the best beef being from 7d. to 7½d per lb.

The pigs were, in general, excellent, though some unpleasant discussions arose relative to their respective merits, and prizes that had been first awarded were evidently withheld.

Mr. Cansdell's American Plantations of Indian Corn and the Saccharine Pumpkin.—In May last we published an account of some of the experiments about to be made by the above-named gentleman, who had then recently arrived from Wisconsin, in the far west of the United States, in the hope of being able to raise in this country a profitable crop of the above valuable grain, and the saccharine pumpkin, so extensively grown as an under crop in almost every state in the Union, as well as in British North America, and where their value for the purpose of fattening cattle, sheep, and pigs has long been known and appreciated. In our former notice of Mr. Cansdell's intention, we stated that his Royal High-

ness Prince Albert had been the first to patronize and encourage the important undertaking, and with that view had commanded experiments to be made by Mr. Cansdell, at the Flemish Farm, Windsor, and we, at the same time, promised to watch the progress of the proceeding, and communicate the result to our readers. It appears the proper time for planting Indian corn, &c., is in April, or by the first of May, but the wet spring and other circumstances prevented Mr. Cansdell from commencing operations until the latter end of May, six weeks later than usual; yet, notwithstanding this delay, and a season unusually cold and wet, he had the satisfaction of harvesting a crop of Indian corn, a large proportion of which was fully ripe, and an under crop of the saccharine pumpkin, exceeding in quality and quantity any he had ever seen in the States, a large portion of which has been consumed by the ox which has won for his Royal Highness the highest prize at the Cattle Show in Baker-street, where a variety, weighing from 40 to 60 lb., with samples of the maize, are, by permission of his Royal Highness, now being exhibited by Mr. Cansdell, together with several specimens of his other plantations at Hadleigh, in Suffolk, and at Tolleshunt D'Arcy, Essex, where, on a very heavy-land farm, he has just grown on one acre a good crop of corn and upwards of 200 tons of pumpkins, on which two heifers have been fattened with decided advantage over two others put up at the same time on mangold-wurtzel, and a large quantity fed out to pigs and cows has been eaten by them with an eagerness that showed they were natural and agreeable food. Mr. Cansdell states that the growth of the joint crops, if kept free from weeds, entirely prevents the necessity of a clean or long fallow, and that in any ordinary season a good wheat crop may be expected to follow. If such be the fact, it will certainly be a boon to agriculturists and the public in general, to whose further consideration we strongly recommend Mr. Cansdell's praiseworthy endeavors.

What may not enlightened citizens accomplish, who have discarded the false and bustling pleasures of towns, and, carrying into the country the knowledge they may have acquired, apply to agriculture the rich and varied assistance of the physical sciences.—*Fourcroy.*

A Swarm of Locusts.—Speaking of natural exhibitions, a fall of locusts is, beyond all comparison, the most awful I have ever seen; and I may be excused for digressing from the immediate thread of my narrative to give my readers some account of that dreadful scourge, which is considered in eastern and southern countries the most unfailing manifestation of of the wrath of God. Travelling along the western coast of Africa, I once beheld this terrible infliction. These creatures fell in thousands and tens of thousands around us and upon us, along the sands on which we were riding, and on the sea that was beating at our feet; yet we were removed from their most oppressive influence; for a few hundred yards to our right, darkening the air, the great innumerable host came on slowly and steadily, advancing in a direct line, and in a mighty moving column. The fall of locusts from this central column was so great, that when a cow, directly under the line of flight, attempting ineffectually to graze in the field, approached her mouth to the grass, there rose immediately so dense a swarm, that her head was for the moment almost concealed from sight; and as she moved along, bewildered by this worse than Egyptian plague, clouds of locusts rose up under her feet, visible even at a distance as clouds of dust when set in motion by the wind on a stormy day. At the extremity of the field I saw the husbandmen bending over their staffs, and gazing with hopeless eyes upon that host of death, which swept like a destroying angel over the land, and consigned to ruin all the prospects of the year; for wherever that column winged its flight, beneath its withering influence the golden glories of the harvest perished, and the leafy honours of the forest disappeared. There stood those ruined men, silent and motionless, overwhelmed with the magnitude of their calamity, yet conscious of their utter inability to control it; while, farther on, where some woodland lay in the immediate line of the advancing column, heath set on fire, and trees kindling into a blaze, testified the general horror of a visitation which the ill-fated inhabitants endeavored to avert by such a frightful remedy. They believed that the smoke arising from the burning forest, and ascending into the air, would impede the direct march of the column, throw it into confusion, drive the locusts out to sea, and thus deliver the country from their desolating presence.—*Lord Carnarvon's 'Portugal and Galicia.'*

PIG MANURE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In your valuable paper of this week you have been pleased to give an account of something that fell from me at the Frome Agricultural Society, respecting pig manure; but as it is not exactly correct, I will give you what I did say on the subject—viz., well knowing the excellence of pig manure, five years ago I was induced to try it solely for turnips. I tested it against guano and bone dust. The result was quite equal to the guano, and beat the bone dust hollow. My farm is one part clay and another sand; I found the same result on both. I have also the management of a farm in Hampshire, a poor thin soil, and there the manure was equally beneficial. I have continued to use it ever since, with the same results. To carry out my plan convenient farm buildings are necessary. I have a large dry shed, in which, first of all, I put a layer of dry coal ashes, about a foot thick and four feet wide, to which the deposits of the pigs are taken, both *liquid* and *solid*, and as soon as it begins to ooze out I put on more ashes, and so on till it gets to about four inches in thickness. I then again commence a fresh layer, and treat in the same manner. After lying some time, it is turned two or three times, and then it is fit for drilling. I have put in this year forty-five acres of turnips with nothing but this manure, and the result is now open for the inspection of any who may choose to see it.

I found the droppings of *three* pigs, carefully preserved, to be ample for *two acres*, and quite equal to three sacks of bone dust per acre. I am not speaking theoretically, but from actual experience; and I consider if we can get such valuable manure for nothing but the labour, it is much better than putting our hands in our pockets and paying 28s. or 30s. per acre for artificial manures.

This is as near what I said on the subject as I recollect, and if you consider it worth giving a place in your next paper, you are at liberty to do so.

I am, Sir, yours obediently,

SAML. POCOCK.

Thoulstone Farm, Dec. 28, 1848.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—As I have been a grower and consumer of roots for some few years (especially carrots), I would, therefore, in answer to your correspondent, give what little information I can, all derived from experience. In the first place, I think there is no root ever yet introduced that will produce so great an amount of fattening properties per acre as the carrot. I believe there is no corn or hay, or oil-cake or linseed, that will fatten any horse or bullock so soon and so completely as the carrot given in its raw state. Horses, however poor (if healthy), will get fat in a few weeks with carrots only. No hay, no water—in fact, they will not drink if you feed entirely on carrots. Now, as to quantity, if you wish only to fatten let them eat as many as they like; but one bushel per day, with hay, will keep your cart horses and nags in good working order, without any corn, and two bushels per day will fatten them while working, without any hay or corn. There is no fear of griping them as I believe the carrot quite free from any propensity that will produce that effect. I have two horses that are *wintering upon* carrots and hay. They have 40 lbs. of carrots weighed to them, and about 8 lbs. of hay and they thrive wonderfully upon it. I am such an advocate for carrot cultivation that I should like to see every farmer in England with some acres every year. I think also it is the most profitable crop to grow for sale, for I believe it is quite possible to grow 50 tons to the acre. Several gentlemen have told me they have 30 tons to the acre this year. Perhaps we have not had so unpropitious a year for a long time, not only the quantity and quality of the carrot is great and good, but the mere cultivation is like subsoiling the land, and it is always kind for any corn after it. I generally grow the white Belgian and Altringham, but I think the short carrot called the "early horn" will grow the greatest weight per acre.

I am, Mr. Editor, your obedient servant,

RICHARD WEBB.

Calcot Farm, near Reading, Jan. 4, 1849.

PEAT CHARCOAL.—A DISINFECTANT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR—Compressed peat, as well as the *peat charcoal*, referred to by a correspondent in your last number, are no doubt applicable to all the purposes for which coal and coke are available. It is, however, as a DISINFECTANT that I now wish to allude to the *peat charcoal* prepared on the principle patented by Mr. Jasper Rogers. It seems that a series of comparative experiments were made, on the 18th of last month, at the house of Mr. Giles Stourbrige. Various offensive matters were acted on by Ellerman's "deodorising" liquid, both diluted and undiluted; also Burnett's chloride of zinc, and with Mr. Rogers' *peat charcoal*. In these trials Ellerman's *deodorising* compound (chloride of iron) proved a MISNOMER for the resulting smell which arose from its action was not less offensive than the original one; in other words, the remedy was as bad as the disease! It was the same with Sir William Burnett's chloride of zinc. With the *peat charcoal*, on the other hand, the noxious effluvia were completely destroyed, and, like the rod of Moses, which swallowed up the rods of the Egyptians, so it also neutralised the offensive emanations which arose from the pre-application of Ellerman's (so called) deodorant.

It is well known I have uniformly condemned an implicit reliance on Ellerman's "deodorant" as a *disinfectant*, and, if I mistake not, have assigned sufficient reasons for the caution. I have said that those who trust to it as a *disinfectant* in scarlatina, typhus fever, or cholera, "lean on a broken reed." I now repeat the *caveat* most emphatically, and I appeal to these experiments in testimony of the truth and justice of the condemnation. Mr. Wynn's advocacy of its assumed merits was a very sorry affair. A *sneer* is a poor apology for the absence of truth.

J. MURRAY.

Portland-place. Hull, Nov. 20.

Before deciding upon the question, whether dung and litter should or should not be made to ferment, it is necessary to take into consideration the nature of the soil to be manured. If this be compact, clayey, and cold, it is better that fermentation should not have taken place, as two effects will be produced by the application of the manure in an undecomposed state. In the first place it will improve the soil by softening and dividing it, so as to render it permeable by air and water; and in the next place it will, whilst undergoing the successive processes of fermentation and decomposition, warm the soil. If, on the contrary, the soil be light, porous, calcareous, and warm, the thoroughly fermented manure, or *short muck*, as it is called by farmers, is preferable because it gives out less heat, and instead of opening the earth, already too porous, to the filtrations of water, it moderates the flow of that fluid. Long experience has made these truths known to observing, practical farmers.

When it is required to apply dung to any particular kind of soil, it is necessary that it should be used according to a knowledge of its qualities. The dung of animals bearing wool is the warmest; next, that of horses; whilst that of cows and oxen contains the least heat of any.

Soft or fluid animal substance change the most easily; and the progress of their decomposition is rapid in proportion to the diminution of the quantity of earthy salts contained in them. Their decomposition produces an abundance of ammonial gas. This circumstances distinguishes them from vegetable substances, the decomposition of which gives rise to the production of that gas, only as far as they contain a small portion of albumen. It is particularly to the development of ammonial gas, which, combined with gelatine, passes into plants, that we can attibute the wonderful effect produced upon vegetation by certain dry animal substances, of which we shall speak presently.

Next to the dung of animals, of which I have just spoken, the urine of horned cattle and of horses is the most abundant manure which can be used in agriculture; and it is not without regret that I see every day so little pains taken to collect it. I have already obsérved, that in those countries where agriculture is conducted with the most care and skill, all the stables are floored, and the bottoms of them gently sloping, so as to conduct all the urine into a reservoir, where the remains of rape-seed, flax, wild cabbage, human excrements, &c. &c. are thrown into it to undergo fermentation. In the spring, when vegetation begins to be developed, this fermented liquor is carried into the fields to water the crops.

There are few animal substances of which the nature varies as much as that of urine; the quality of food, or the state of health, produces a sensible change in it. The urine of animals is more or less abundant and active in its qualities, in proportion as their food is juicy or dry. Those which live upon dry fodder give less urine than those which are fed upon green herbage; but that of the first contains a greater quantity of salts than that of the last; and that which is produced directly by drink, contains less animal matter than that which is secreted from the blood by the urinary organs. There are different states of individuals, which may explain satisfactorily the disagreements in the results which have been given, by the numerous analyses which have been made of this fluid.

EFFECTS OF GUANO IN GROWING CABBAGES.—The soil upon which they were grown is about 2 acres of improved moss land, trenched with the spade in 1842, and the subsoil brought to the surface; it was cropped with potatoes in 1843, manured with 12 tons of farm-yard manure, and 3 cwt of guano per acre, and produced a crop of 15 tons per acre. It was again dug this spring (1844,) with the trenching grape, when 2 cwt. of guano per acre was sown by the hand, broadcast, and harrowed in. After which, the beginning of April, the cabbages (Drumhead) were dibbled in upon about an acre, and the other portion sown with mangel-wurzel, the land being cleaned and worked in the usual manner. These crops have grown most luxuriantly, the cabbages giving a crop of upwards of 60 tons per acre, most of them averaging from 20 lbs. to 40 lbs. a piece. The mangel-wurtzel is now (Nov.) still growing, but has been estimated by good judges to be 40 tons and upwards per acre of clean roots, many of them averaging from 10 lb. to 12 lbs. a piece.—*Ib.*

IMPORTANT DISCOVERY.—Under this head a correspondent of the *Southern Reporter* has the following:—"Within the last few days I have been informed on indubitable authority that some of the talented and scientific gentlemen connected with the Royal Irish Fisheries Company have discovered that 'the celebrated fishing banks of Newfoundland actually extend across the Atlantic to within 100 miles of Ireland!' and the quantity of fish on the said banks is more than sufficient to supply the markets of the whole world."

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, MARCH, 1849.

NOTICE.—The Annual General Meeting of the "Lower Canada Agricultural Society" will take place at their Rooms, No. 25, Notre Dame street, Montreal, on Saturday, the 23rd day of March, instant, at 11 o'clock, A. M.

WM. EVANS,
March 1, 1849. Secretary, L. C. A. S.

It requires early training, good education, and very considerable experience, to make a perfect farmer, in every branch of his business, and very few farms in this country will afford this training or experience. In the British Isles, it is quite different—there are hundreds of farms conducted in every department in the most perfect manner that skill and capital are capable of, and in no other country is the breeding and management of domestic animals and their products, so well understood, or brought to so great perfection, as in the British Isles. There is no country on earth, where the improvement of agriculture is attempted, that does not refer to Britain as the best example to follow—so far as climate, and other circumstances will admit of doing so. The system of cultivation is unequalled in any other part of the world, and it is the immense amount of produce annually created by her agriculture, that has sustained her in wealth, and enabled her to bear all her burdens, and still go on increasing her riches, and adding to her improvements every day. It would surprise our readers were an accurate estimate made of the amount expended on improvements in England annually, on her lands, cities, towns, houses, furniture, &c. &c., and it is a great mistake to suppose England poorer in consequence of her "National Debt," because when this debt was accumulating, a much larger amount was at the same time expending upon the improvement of the country, and these improvements are now a permanent security for this large amount of debt, as undoubtedly the expenditure of the money borrowed, contributed largely to the means of improvement. We have been led into this reasoning in order to show what improvement, and a large annual production might do for us, even though we should be obliged to expend capital to ensure us this large production. We also wish to show that the expenditure for the establishment of Model Farms for the instruction of agriculturists is necessary, and would be a profitable application of the means of the country to obtain so desirable results as would be sure to follow from the judicious instruction of farmers. We do not hesitate to say, that farmers not properly instructed, cannot make as much of their land as those who are properly instructed, and without wishing to give offence, we may say, that the generality of our farmers might receive instruction that would be profitable to them, and to the country. Every man who knows anything of good farming, making a tour through the country, will perceive at once, how much the cultivation, crops, and cattle of the farmers might be improved. It may be difficult to convince men of this fact, who have never seen the best of farming. By the establishment of Model Farms, the results of good farming may be shewn, and if they are not favourable, it will at least prove to us, that our country is not suitable for improved agriculture, and that we may rest satisfied to allow things to remain as they are, and that whatever improvements may be introduced in other countries, Canada is incapable of any improvement in husbandry. Who of the inhabitants of this fine country will assent to this? Not one, certainly, who wishes the country to prosper, and understands its capabilities. We have so long endeavoured to create an interest on this subject without any practical result, that we are inclined to be persuaded we must have been in error in our estimation of the impor-

tance of agriculture, and only that our food and our clothes constantly remind us of our indebtedness to agriculture for those necessaries of life, we might, perhaps, be persuaded that we were in error, and regard it with the same indifference that other people do—perfectly satisfied with the enjoyment of our food and clothing, without troubling ourselves about the sources from which we derive them, or whether these sources are in a prosperous condition to maintain the constant supply of these necessaries of our existence. One cause of indifference to this matter in those who are not agriculturists, is, that farmers are supposed to have sufficient stimulus to improvement and production in their own wants for those products; but this cause will not excuse indifference to these matters, while the rural population are not sufficient educated, nor acquainted with the best systems of husbandry or the results obtainable from them. Let this education and practical instruction be provided and in operation for a sufficient period, and then, perhaps, agriculture may be left to take care of itself and of its interests.

In giving salt to neat cattle or sheep when stall-feeding, care should be taken not to give too large a quantity, or so much as would relax the bowels. If hay that is given to animals has been salted when storing, every farmer should be aware that this would be sufficient salt for the animals consuming it. One gallon of salt put to the hundred bundles of hay when storing, will never act injuriously upon any animal fed on this hay, as some of the salt must be lost. For hay that has been injured in curing, perhaps double this quantity of salt might be applied, but damaged hay should not be given to animals that were stall-feeding for the butcher. The object of giving salt to animals confined in stalls in winter, and fed on dried food, is to keep their bowels in a proper state, without scouring them. When such animals get a proportion of roots, however, there is not much danger of anything wrong with the bowels. We have unquestionable authority that a *due* proportion of salt may be given to stall-feeding animals with excellent effect, but of course, the farmer requires to be careful that too large a quantity is not given, whether in the hay, or any other way. There is no part of the farmer's business requires closer attention than the stall-feeding of cattle to make it profitable. Without this, food may be wasted, and the animals not improved, and unless they are constantly improving by the food given to them, and the mode of management adopted, something must be wrong, and a loss is almost certain to be incurred instead of a profit.

In the last number of this Journal we endeavored to show how very unprofitable it is likely to be for farmers to cultivate to any great extent, (unless for consumption upon their own farm,) any crops that may not be exported, either in a raw or manufactured state—and already we find, that barley and oats, though very low in January, are considerably less in price now, with no prospect of a rise. To cultivate barley or oats to sell in the market at a less price than would pay the expenses of their production would be an absurdity. Farmers will, therefore, have to adopt a change of system so as to raise a produce that will sell at remunerating prices, and this, we believe, may be done by skill and good management. If we wish to see the country prosper it is not by extremely low prices for agricultural products it can be made so, unless we reduce the price of every thing else bought and sold in the country to the same standard, and also the Provincial revenue. It is impossible to maintain high prices for imported goods, or for domestic manufactures, with extremely low prices for agricultural products. We do not wish to be understood as advocating high prices, but we say, that it will be impossible to pay the persent prices of imported goods or domestic manufactures with extremely low prices for our agricultural pro-

ducts. Farmers will not have means of expenditure if they cannot obtain remuneration for the expenses of production. Good crops of wheat at 5s. the minot would pay, and peas and beans at a fourth less might pay, and all these may be exported, if in good condition. Grass fed beef at 25s. the 100 lbs. weight would pay, pork at 30s. to 35s. the 100 lbs. weight, butter at 7d. to 8d. the lb., and cheese at 4d. to 6d. the lb. would remunerate the farmer, and might be disposed of for exportation. Barley, oats, and Indian corn might be grown for home consumption, and if not saleable at a fair price, should be manufactured into beef, pork, or oatmeal. Farmers will have to understand their own interest, and produce crops that will sell and pay for their production, and be careful not to glut the market with what will not sell for exportation.

AGRICULTURAL REPORT FOR FEBRUARY.

The month of February had all the character of a truly Canadian winter—abundance of snow, very cold, and several drifting days. The land is now well covered with snow, but there is little doubt that the frost penetrated very deep in the soil before there was much snow to cover it. From the first of January to the present it has been cold enough for a Canadian winter, although we had not so much snow as usual, but it proves sufficiently that the Canadian climate is not much altered, nor do we think it desirable. There may be a very material difference between one season and another, and the general average of the climate remain unchanged, and that we believe to be the case with us. The winter, though comparatively an idle season with the farmer, is by no means a time that there is no work to be executed. Cattle and farm stock of all descriptions have to be attended to. Manure has to be provided and carried from the farm yard to the places where it may be wanted in spring, and carefully piled in a dry situation. Fire and fence wood should be cut and carried, and where the farmer, his sons or servants, are ingenious, many tools and implements might be made and repaired. The thrashing of corn and disposing of the last year's crop is another work that has to be done, and all these will fully occupy the farmer's time in winter. We believe it essential to successful farming to keep a due proportion of stock, and these stock must be so carefully kept and provided with proper shelter and sufficient food, that they shall be constantly in an improving state, and incur no risk of loss as they so often have done by too much exposure to cold and not being sufficiently fed. This neglect has produced a great annual loss in Canada, particularly in breeding animals at the time of calving and lambing. There is frequently a great loss of lambs, solely owing to the want of proper shelter and proper food for the ewes to enable them to give milk. Sheep require improvement here generally, so as to be more productive in mutton and wool. We are not advocates for keeping a wretched looking stock of merinos for their wool alone, and we believe such sheep will never pay well in Canada. The carcase is a most material item, and should be the most valuable part of every domestic animal that can be made use of as food. There is a great preference to be given to sheep of a good description above the merino, whose flesh is scarcely worth anything, and whose yield of wool is very small, compared with that of other breeds of sheep. The carcase of a good sheep, at a year and a half old, may, in the fall, be worth near three dollars, or perhaps more. Sheep may be a good and profitable stock for the farmer, when of a good description and carefully kept; but unless they are good and well kept, we should strongly recommend farmers not to keep any, with the expectation of profit. We have seen a pretty good cross of the merino with the Leicester crops, but the native Canadian breed, crossed with the Leicester, will produce a better description of sheep for our purpose and yield more profitable returns of wool and flesh. We believe it will always be found more profitable and

expedient to endeavour to improve a native breed that is accustomed to the climate and soil, (if susceptible of improvement,) than introduce altogether a new breed, accustomed to a much warmer climate. In sheep, our aim ever should be to obtain a valuable carcase, as well as a fine fleece of wool, and we are certain both can be had, although not from the pure merino. From every quarter we hear of deficient returns of wheat, and the sample generally not so good as usual. This must necessarily be the consequence of the crop becoming diseased by rust previous to its being at maturity, which was the case in very numerous instances last year. The application of lime *and salt, when sowing, would, we have no* doubt, be very beneficial, even to the extent of five bushels to the acre. The lime and salt should be mixed for some time previously, in the proportion of three bushels of lime to one of salt, and harrowed in with the seed in spring. From 24 bushels, to double that quantity of this mixture, might be applied to the acre, without any risk of having too much salt. This application will cost something, but to expect good crops without expenditure in their cultivation, would be absurd, and this appears to be the general idea at present, if we are to judge by the way crops are cultivated. We shall find it much more advantageous to endeavor by every means in our power, to secure good crops by judicious cultivation; than to be continually complaining of inferior crops in seasons that are not propitious. Change of seed, from one quality of soil to another is also essential, however good our own seed may be. We have known a gentleman in Ireland, who cultivated in a most superior manner, and always raised good crops, send annually to England for seed of the best quality, of wheat, and barley in particular, and he found it to pay extremely well. Price of wheat now in Montreal 4s. to 5s. the minot. Barley has been an average crop last year, but the price is exceeding low, from 1s. 5d. to 2s. 3d. the minot. Oats are abundant and selling for less than the cost of production, 10d. to 1s. 3d. we believe is the average per minot. These prices for barley and oats, are certainly out of all proportion to the cost of their production and the wages of labour, and we need not state here what the consequences must be. Peas sell from 2s. to 2s. 6d. the minot, a price that we consider disproportioned to that of England, and peas are an article that might be exported advantageously, if shipped in a good dry state, as they are generally in good demand in the old country. Beans are not often brought to our market, and this is strange, knowing as we do how much they are esteemed in England, and might be largely exported from Canada. *They would of course require to be at proper* maturity and well harvested, so as to be perfectly dry and hard, or they would not go to England in a safe state, price, 4s. to 5s. the minot. Indian corn sells at 2s. 6d. to 3s. the minot. Fresh beef 17s. 6d. to 25s. the 100 lbs. Fresh butter 10d. to 1s. and salt 6d. to 7½ the lb. The cheese of Canadian make is generally of inferior quality, although we have seen some excellent samples, which proves that it need not be generally inferior, if properly managed. On a general review of our agriculture, and the results obtained from our land and labour, we may justly come to the conclusion, that our system of husbandry requires amelioration in almost every branch of it. The point then to be determined, is, how this amelioration may be produced; and when we have satisfactorily ascertained this, to act with energy, and no longer put off the introduction of such measures as are likely to ensure the improvement and prosperity of Canadian Agriculture, so that it may yield a production, to give healthy support to commerce, manufactures and revenue for this noble Province.

February, 1849.

We have received a communication on the subject of stall-feeding and manure, which shall appear in our next.

We have so often recommended the Canadian horse to farmers, as the most suitable and useful they could keep on the farm, that we should not now refer to the subject, if we did not fear, that we are every year allowing this most valuable breed of animals to become less numerous and difficult to obtain of pure blood. In any other country but this, such a useful description of horses, would be carefully preserved, and improved in any points requiring improvement, so that they should be brought to the greatest perfection in size and form, to suit the several uses in which they would be employed. It is truly surprising that a native stock, possessing such excellent qualities, and so well suited to the climate, should be so neglected, and crossed with comparatively worthless breeds—instead of keeping the native breed pure, and endeavouring to improve it. The best horses are sold out of the country, and we breed from the inferior, or cross with horses that are not of the native Canadian breed. In this instance alone, the country is a very considerable loser from neglect, where there is no necessity for it to be so. Had this breed of horses been carefully preserved, and the same attention given to their selection and breeding as in England, our horses would, at this moment, be two or three times as valuable as they are, and as we have, perhaps, near 200,000 horses, we may suppose what a great deficiency this neglect has made in our Agricultural capital. Neglect of the due improvement of our native cattle has been another great draw-back, and direct injury to Canadian farmers, reducing the actual value of our stock of cattle, and the annual production obtained from them. In this latter case, however, they are not so much to blame, because the general improvement of our native cattle cannot be effected without providing them with better food, both in winter and summer. A commencement might be made in the improvement of Canadian neat cattle, by judicious selection, and careful breeding only from the best animals. When there is a native breed, possessing many good qualities, and suitable to the climate, it will generally be found more profitable to endeavour to improve this breed than to introduce an entirely new breed—at least until our agricultural system is greatly improved, and our means of keeping cattle. We would not attempt to recommend farmers to make a total change in everything, and adopt that which is new, strange and untried by them. On the contrary, we only suggest a gradual improvement in their stock, husbandry, and implements, and even the changes we may suggest, if they are not reasonable and likely to prove advantageous, we do not urge any farmer to adopt them. Our object is to show what results are produced by certain systems and management in other countries, and to endeavour to point out how such systems and management might be suitable for us, and likely to prove profitable. To those who may differ with us on those matters, and pursue their own systems, we can do no harm—and those who may consider our suggestions so reasonable as to make the experiment of adopting them, we wish them every possible success—and should they fail in any instance, we trust they will be too generous to attach any blame to us, unless we can be clearly convicted of a design to lead into error. There are some of the agricultural implements here, very suitable, and others capable of improvement. The first we should retain by all means, the second we should improve where necessary—and then, any machines of a new variety that might be useful and necessary for us, we should endeavour to procure. This is the plan of improvement we would propose to Canadian Agriculturists, with a sincere desire for their prosperity.

Draining is another improvement which we cannot recommend too strongly, and which is nearly as much neglected as weeding. We have no doubt, that were our lands better drained, our crops, and wheat in particular, would be much more certain, and

freer from disease than they are at present. Farmers must endeavour to be prepared, as much as possible, against adverse seasons, and draining will greatly assist them in this. It will also assist him to sow in time, and harvest while the days are long, and sufficient heat to dry the crops and secure them. The perfect drainage of the soil would produce all the change that can be imagined in the results we would obtain from agriculture. It requires an expenditure of capital certainly, but if carefully executed, and with due economy, it would soon refund the expenditure. Were the importance of draining the soil sufficiently understood, we would not see lands injured by water kept upon them, where the injury is as manifest as the means to prevent it is certain. We have learned by experience the injury produced by want of drainage, where the injury was not in our power to remedy; and this experience has taught us to study the matter, and to recommend draining to framers, as the improvement that should precede all others. Capital and labour are only wasted in striving to raise crops, or even good pasture, on land that is not properly drained.

Box Feeding.—We believe that box-feeding would be the very best, and most suitable mode of stall-feeding cattle in Canada. By this mode the animal is more at his ease, (a most essential point) than if tied up and confined to one position. The urine is all saved and incorporated in the manure and the latter preserved from any deterioration, better than it could by any other means. Tanks or cisterns for the urine of animals are not so suitable to our winter as they are to those of the British Isles, unless the stables are constructed in the best manner, which few farmers have the means of doing. Every farmer who stall-feeds cattle may construct a box at trifling expense, and by keeping the animals well littered with straw, they will not be injured by the dung remaining in the boxes, but on the contrary, they will be kept more comfortably. We recommend this plan to be tried and we have no doubt it will prove successful, and profitable. The manure kept in this way, will retain all its best qualities, and not be washed by snow or rain water. It will certainly save the farmer the expense of constructing tanks.

We have seen an excellent steer of the Durham breed, three years and half old, belonging to A. Webster, Esq., of Meadowbank, Isle Jesus, brought to the Montreal market for sale. The shape and size were good, not over large, and the animal had all the points of aptitude to fatten, and early maturity, which are great perfections. Although we have always been in favour of the Canadian breed of neat cattle, as the most suitable for the present state of our agriculture generally, we have constantly admitted that every farmer who had his land in a state of productiveness to be able to maintain a large and improved breed of cattle, might find it profitable to keep such by all means. We have endeavored to persuade farmers that it would be their interest to have cattle rather too small sized for their keep, than too large sized; but no farmer can be found fault with for having animals, however large, if he constantly keeps them in an improving condition. This is the grand point that must determine the size of animals that are the most profitable. Mr. Webster's steer is a very good sample, both of his cattle, and his good farming, and we wish every farmer in Canada was able to shew as good a sample.

We should endeavour to cultivate here a variety of plants, so that we should not be dependent upon a few in seasons that might be unfavourable, some plants would succeed in a season that might be destructive to others, and this makes it so desirable that we should cultivate all the useful plants our climate and soil would be suitable for. Now is the time to procure a variety of seeds, and if possible, that seed, of whatever species

or variety, should be clean and unmixed.—There is not sufficient attention paid to those matters, and it acts as a serious drawback to the value of our products. Weeds are another drawback to Canadian husbandry, that we should endeavour to get rid of. The roots of most weeds are stronger than the roots of the useful plants amongst which they grow, and hence they are able to draw more of the nutriment of the soil for their support than the useful plants do. Seeds of weeds are frequently mixed with manure, and act most injuriously, and we do not see how this can be prevented until there is more general attention given to the weeding of crops, and destruction of weeds wherever they grow. We have had a field completely overrun with weeds, by having town manure applied to it when sowing it with barley, a practice, by the by, we would by no means recommend to the farmer. When manure is applied to root crops that are regularly hoed and kept clear, it is not of much consequence whether seeds of weeds are in the manure or not, because they are kept down and destroyed, but in applying recent manure as a dressing, when sowing grain broadcast, there are many chances that the land will become full of weeds. Compost is much the best dressing for grain crops sowed broadcast, unless the manure is ploughed the previous fall, or in summer fallow. All these matters require attention, as in no country, we believe, are weeds allowed to do more injury than in Canada.

We beg to direct attention to the advertisement of Mr. George Shepherd in this number, as offering a favourable opportunity to farmers to purchase agricultural seeds of the best quality and at the most moderate terms. We would also urge persons having good seed grain of any description to dispose of to send samples to the store, as it will afford the best means of selecting good seed to those who may require such, and also enable them to chose that grown on soil different from the soil it is to be sown upon. These matters do not obtain that degree of attention they deserve, but now there is an opportunity of acting differently, and it will be the farmer's own fault if they do not avail themselves of this advantage.

We beg to direct attention to a highly interesting letter addressed to Major Campbell, Civil Secretary, by Dr. Taché, M. P. P., of Rimouski, describing a machine which he has had constructed for taking out stumps, or roots of forest trees, and which he designates "*Extirpateur.*" From the description given, it appears to possess all the simplicity of construction, so necessary for every machine worked by the farmer. Dr. Taché is entitled to the thanks of all who are directly or indirectly interested in the clearing of land, as this machine will greatly facilitate and diminish the expense of that work, and doubtless it will be found to be still susceptible of further improvement. The Agricultural Society will endeavour to have a model placed in their Library, and also, of many other useful improvements. The Thrashing Wind Mills, mentioned by Dr. Taché, are represented to be very simple in construction, and may be put up at a trifling cost, and this power might be applied to many other uses by the farmer. We did expect that before this time we should have many useful models to commence our Agricultural Museum; but we regret that agriculture does not yet appear to be considered of sufficient importance to interest the community in adopting the means that would be necessary to promote its prosperous improvement in Canada. In England, the *number of agricultural implements exhibited* at their last great meeting at York, were near two thousand in number. No wonder, then, that agriculture should flourish under such circumstances. In Lower Canada, what implements have we to exhibit for the farmer's instruction?

RIMOUSKI, *December 21*, 1848.

SIR,—In conformity to your request, some days ago, that I would send a communication respecting

the machine or engine, which I have had constructed, to take out the stumps or roots of trees, I transmit, to-day, a description of that machine, and every information in my power respecting it.

The machine in question, which I propose to name "*Extirpateur*," has not been invented by myself, and the contriver of it is unknown to me. The general description of the machine, published in the "*Journal de Québec*," in the course of last summer, and transcribed into the "*Journal d'Agriculture*," appeared so striking to me, and of so much importance, that I resolved to have one made, and now that it is constructed, and worked under my own superintendence, I have no doubt that, with some modifications, it will be a most valuable machine for the clearing of land in Canada.

My project being formed, it was necessary to put it in execution, and as my object was the public good, I applied to the Municipal Council of our Division of Rimouski, who liberally put at my disposal the sum of £10, which I deemed quite sufficient, and it would indeed be so now for constructing one. All the little difficulties, inconveniencies of delay, unforeseen expences and mis-calculations, assailed me so much as to create incredulity even among the most friendly disposed to the experiment; but if I may be permitted to compare little things to great ones, as Napoleon reckoned on his good forture, *(étoile,)* so I believed in my *extirpateur*.

The *extirpateur* is at last constructed. It is composed of a car or chariot, which is the vehicle, and of the adjunction or re-union of three mechanical forces: the tackle, the axle-tree, and the indented wheel. The chariot is composed of a frame of red tamarack or spruce-wood, six feet long and three feet and six inches wide; the sides are one foot high and six inches thick; the fore-traverse or cross-piece has the same height and is four inches thick; the hind craft-piece is formed of a piece of wood, twelve inches square, and serves to fit the machine for its operation; angles are joined by mortices and strengthened by iron collars fixed by means of screwed bolts. That frame is supported by two axle-trees on four full wheels—the hind axles being fixed by two three-fourths of an inch bolts, and the low front one turning on an iron pivot of one and a quarter inch. Those axle-trees are four inches square. The fore-wheels are one foot in dinmeter, and the hind ones a foot and a half. Shafts are fixed to the chariot, and it may be drawn by a single horse, even when loaded with all its implements or accessories.

The mechanism is composed of two iron axes terminated by *tarillors* turning in cast-iron mouldings. On the fore-axle, which is of iron, and two inches square, is fixed at one end, an indented cast-iron wheel, twenty-eight inches diameter. The remainder of that axle-tree is surrounded by a roll of black birch-wood, six inches diameter. The hind axle-tree is of iron, one inch and a quarter square, and carries an indented wheel, five inches diameter. Out of that axis, the extremities of the *tarillors* are flattened so as to admit two handles eighteen inches long; and to the machine constructed in this manner an iron tackle is added, of which the immoveable pully is fixed to the rear traverse of the chariot, and of which the moveable end of the chain comes and rolls itself on the axle-tree, the hook of the moveable pully being itself fastened to the chain which is rolled around the stump to be worked upon. This chain is about ninety feet long. A chain end about ten feet long, serves to fix the machine by its hind cross-piece to a stump made use of as a support. The chain is of iron, five lines across, but it is not quite new.

The machine and its accessories cost £15 10s. to wit: £7 5s. paid to Mr. Lee, engineer, for the pullies and the remainder of the mechanism; £3 15s. for the chain; £1 for the wood work; £3 10s. for the iron and the blacksmith's work. I believe that, with the cast-iron piece as a standard, the mechanism may be procured for £4. The cost of the chain will depend on the length required, say £3 10s; the wood work, executed after a model or pattern, might cost 15s.; the piece of iron, and iron, working also by a model, would be about £2; the whole expense, therefore, would be £10 5s. at the utmost. Three men can work easily the extirpator—two men on the levers and one man to carry the chains—when the instrument is to be moved, the three men can do it easily. In the middle of stumps of common tenacity, it can run from two to three arpents in a day. A farmer of this parish, who had hired it, cleared, with the help of one man only, in a day's time, a piece of cedar land, for the clearing of which he had offered in vain the sum of £4. By means of the extirpator, that piece of land cost him six shillings expence—3s. to pay his man, and 3s. for the hire of the machine. The kind of land just spoken of is that to which the extirpator is best adapted. The machine not having been ready to do public work but very lately, and having, some time after the first trial, encountered an accident, it could not be let but for one day. I have, myself, operated with it successfully upon pine stumps, old indeed, but very tanacious.

I believe that, on an average, three men are able to do with the extirpator in every kind of ground as

much work as fifteen men provided with axes and hoes could do, and that with less straining or fatigue.

Two dangers are to be guarded against, and they are easily avoided—that of letting loose the levers before the stump is pulled out, and that arising from the case, when the chain being suddenly broken, might go and strike the men.

The following are the modifications which I think fit to suggest. The chariot might be six inches longer; the wheels ought to be jointed and enlarged, the rear ones to two feet and three inches, the front ones to one foot nine inches; the shafts ought to be in a condition to be removed at discretion; the lateral pieces should not be more than four inches thick; the forehead traverse piece should be five inches lower than the lateral piece, and eight inches square would be sufficient for the rear traverse. The chariot thus made would be lighter and not so stiff.

It would be better for ordinary work to dispense with the pullies, which complicate the mechanism, and in the case when the stumps are of such a size or tenacity as to resist the machine thus simplified, some of the roots may be cut before the operation. By that means the cost of the instrument and chain would be less by the sum of £3.

The machine I have just mentioned and described belongs for two-thirds to the Municipal Council, and for one-third part to myself. It is understood that it will be let at 3s. per day till its cost be repaid, and then let at a lower rate—the produce to be employed for Agricultural purposes—it is given gratis as a model to those who wish to have one constructed for themselves, and a number of farmers purpose to have one. Many among them have expressed a desire to hire it for the season.

I have the pleasure to inform you that my friend, Doctor Dubé, of Trois-Pistoles, County of Rimouski, one among the friends to Agriculture, has also constructed one of these machines, which will be ready to work next spring.

I will exhibit to you, the first time I visit Montreal, a diagram of that machine. I avail myself of this opportunity to suggest for the Agricultural Society to recommend the use, in the District of Montreal, of the threshing wind mills, of which all our farmers are provided here, and which many of them could construct themselves.

Receive, Sir, the assurance of my high respect, and believe me all yours,

G. C. Taché.

Major Campbell,
Montreal.

We beg to direct the attention of our subscribers to the letter of a correspondent in this number, respecting a new variety of wheat raised by A. Webster, Esq., of Meadowbank, Isle Jesus, who has politely sent us a sample of the wheat and flour made from it, that may be seen at this office. It is an excellent sample—the grain large, and of good color. We believe it to belong to the variety known as rivat. We have seen the report of an experiment made in England of the products of several varieties of wheat, and the rivat gave a larger produce of grain and straw than any other, and fully made up by this extra produce for any inferiority in quality—indeed it proved to be the most valuable variety of wheat experimented upon. We at one time had a sample of seed wheat from Canada West, and it proved to have five or six varieties, one of which was very similar to the description of the sample sent by Mr. Webster. The ear was large and full, with long rough awns, and resisted the wheat fly although the other varieties grown with it were nearly destroyed. New varieties of wheat that can be grown successfully in the country would be a great benefit, and we look upon any person who will distribute such varieties as a benefactor to this country. We copy in this number a notice of a new variety of wheat discovered in Russia, that would appear to be well adapted to this country.

In China, lands that are not well cultivated are forfeited to the Emperor, who grants them again to those who will cultivate them properly. We might take a useful lesson from this fact, and profit by it. There cannot be much question that we have no right to retain land in our possession without cultivating it on a good system according to our means. We recommend an article in this number on "Farming in China" as worthy of attention. It shows, at all events, in what high estimation farming is held in China, as it ought to be in every country. We do not meet many who will not

admit the importance of agriculture, but all important as it is to Canada, what has been done *directly* for it to promote its prosperity? The time is arrived now, we trust, that the first interest in the country shall receive the attention that is due to it, and ample provision be made for the agricultural education of the rural population. We may be told the Revenue of the Province will not admit of this sort of expenditure from its funds, but we reply to this, that if we wish the Revenue to be augmented and means to pay it, what we propose is the most certain way to secure to the country ample Revenue and abundant means to pay it.

We have received the two first numbers of the Canadian Agriculturist, published in Toronto, that are highly creditable to the Editors. Both the original and selected articles are excellent; and if the future numbers of the Journal are equal to the two first, as we have no doubt they shall, the Agriculturist will be well entitled to support. It is an extraordinary circumstance, that, notwithstandnig Canada is almost exclusively an agricultural country, the fiew agricultural publications we have (only three we believe) are not supported, as we might reasonably expect. This is the more extraordinary, when any one of the monthly numbers of these agricultural periodicals, may contain matter that would be worth infinitely more than the whole year's subscription, to any farmer who would read it with a view of receiving instruction wherever he could find it. We can wish the Canadian Agriculturist every success, and, conducted as it is likely to be, by those who understand their subject, it cannot fail of success. Every one acquainted with Canadian Agriculture must be aware that there is ample room for improvement in the whole general system of husbandry; and therefore, there should be ample encouragement given to as many more Agricultural publications as we have now.

We beg to direct attention to the advertisement of Mr. Fleck, Agricultural Implement maker. We have seen some of the Implements made by Mr. Fleck, and the workmanship appears to be extremely well executed; and we believe he is perfectly competent to manufacture any Agricultural Implement of which he is furnished a model or drawing. He engages his ploughs, and will change them, or remedy any defects, if they should not prove equal to the engagement. It is a great advantage to have Agricultural Implements manufactured on the spot, not only as a native manufacture, but it affords farmers an opportunity of seeing the article, and having any alterations made that may be required. Implements are often imported at a heavy expense, that prove unsuitable for their uses. By encouraging a native manufacture, the farmer and the country will be benefited; and we hope Mr. Fleck will obtain a fair trial, and the general support of agriculturists.

We have received a copy of the Address delivered before the "New York State Agricultural Society," at the Capital, Albany, on the 18th January last, by their President, Lewis F. Allen, Esq., and published by order of the Assembly. We could not say too much in commendation of this Address, and as most of it is as applicable to ourselves, as to the farmers of the United States, we have copied portions of it, which we hope will be read with interest. Our own humble ideas on this subject are in perfect accordance with those of Mr. Allen, and we conceive that the extracts we give from this gentleman's address, are deserving the most serious attention of all who feel any interest in the prosperity of our agriculture, or of Canada generally. We may be disposed to flatter ourselves that there are many other means for our profitable employment, that are preferable to agriculture in Canada, but we confess we are not aware of any. And if there are any, they should be recommended to the people without

delay, for their adoption. The following is copied from the address we have referred to:—

And it may be well inquired, why is this so? Agriculture occupies four-fifths of the laboring population of the land. From the agricultural ranks have sprung many of the most illustrious names whose services have adorned and honored their country. From its ranks, too, have perhaps a majority of the most successful among those engaged in the various other pursuits and occupations of life arisen. In short, there can be no class of our population which affords so sure a basis on which to rely for an infusion into all other pursuits to the durable prosperity of a State as the agricultural. Such is the gratifying truth; and it is to the health-giving influences of the soil itself; the free wild air of heaven that he breathes; cheerful exercise and occupation; contentment; and the full, unrestrained enjoyment of man's first estate bestowed by God himself, that thus constitutes in him who tills the soil, the full development of his faculties in all the admirable proportions of body and of mind that his Creator intended. Notwithstanding all this, the question still recurs, and may be variously answered. The very ease and contentment of condition in the farmer, is one probable cause of his inactivity in improvement. The quietude of his avocations prevents that constant attention of mind inseparable from the bustling activity of most other pursuits; and the certainty with which the soil yields its annual tribute to his labor, dispels that spirit of investigation common to classes the result of whose labors is contingent or uncertain. Nor yet is the farmer an ignorant ,or a slothful man. In the great responsibilities of life—in domestic duty—in love of country—in the orderly support of the institutions of the land—in stern watchfulness over the acts of those he has placed in authority, and in that exalted patriotism which is ever ready for the heaviest sacrifice to the benefit of his race, he, as a class stands without a rival. And yet, possessed of all these qualities, and enjoying all these advantages, the absence of the spirit of association, leaves him in effect the least benefitted at the hands of those he elects to govern him, of all others.

Who invents, improves, and perfects the plow, and all the nameless implements which alleviate his toil and accelerate his labor? Who analyzes his soils, instructs him in their various qualities, and teaches him how to mix and manure them for the most profitable cultivation? The mechanic—the chemist. Who, ascertaining that his seeds are imperfect and unprofitable, searches foreign lands for new or better ones, and introduces them to his notice? The commercial adventurer, or the travelled man of enquiry and observation. Who, on comparing the inferior domestic animals which he propagates, and in whose growth and fattening he loses half his toil and the food they consume, sends abroad, regardless of expense, and introduces the best breeds of horses, cattle, sheep and swine for his benefit? In nine cases out of ten these labors and benefactions—and their name is legion—are performed by those whose occupations have been chiefly in other channels, and whose agricultural tastes have led them into the spirit of improving it. And in how many examples have we witnessed the apathy, if not determined opposition with which the farmer proper—or at least he who claims to be one—has set his face like flint against their adoption, even after their superiority had been demonstrated beyond a question!

So, too, with the farmers education. They have been content that the resources and the bounty of the State should be lavished upon the higher seats of learning, where the more aspiring of our youth should receive their benefits, not caring even to inquire whether such youth should again return among them to reflect back the knowledge thus acquired. They have failed to demand from the common treasury of the State those necessary institutions which shall promote their own particular calling, and which every other pursuit and profession in the land has been most active to accomplish. In all this the latter have progressed with railway speed; while the farming interest has stood still with folded arms, and done comparatively nothing; and what good has been forced upon it by others, even regarded with suspicion. It is not because we as farmers, compared with others, are either ignorant or stupid. We only neglect to assert our rights, and appropriate the share to which we are entitled in the common patronage of the State to the benefit of our own professions. It is for us to ask—to will—to do it. We hold the power of the State by our numbers. We can control the halls of legislation. We can so direct the laws that we may share equal advantages in our institutions with others. We desire nothing exclusively to our own advantage, but we do deserve an equal participation in those institutions established for the common benefit of all.

If a practical inference may be drawn from the thoughts thus desultorily thrown together, it would be that, from a history of the past, and the condition of our agriculture as it now exists, we demand that our profession shall be placed within the reach of equal advantages for improvement that are now enjoyed by other professions.

Agricultural education should attract largely your attention; and it is a subject which will bear a little examination. The pittance of $8,000 a year is now doled out of our public treasury, a bare recognition only of the importance and value of agricultural associations, of which the stipend of $700 is paid to your Society. To call this State bounty, which we in courtesy do, is little better than mockery. Forty thousand dollars a year would now be less, compared with the wealth and resources of the State, than $10,000 in 1819. Why, gentlemen, the annual appropri-

ations to agricultural advancement from the State Treasury, is less than that given to three of your colleges, where less than two hundred students yearly graduate. Appropriations amounting to more than $500,000 of public money have been made by law for the endowment of colleges; and your Literature Fund is still annually drawn upon to the amount of $15,000 in contributing to their support, while their halls remain a sealed book to him who looks only to agriculture as the profession of his life; and of the thousands who there receive the bounty of the State in aid of their education not a tithe of them in the course of their lives add a dollar to the physical or productive wealth of the country. The common school, or the village academy is the only institution where the young farmer gains admittance; and even there, as at present constituted, he hardly acquires an idea of the rudest elements of his future profession, or of those studies which properly belong to it.

These remarks are not made in a querulous or fault-finding temper. It is right that we have colleges, and academies for the few who aspire to the higher walks of professional or scientific life, as well as common schools for the million. No State can be well, or wisely constituted without them, and I would not abate one jot or tittle from the wholesome support which a broad and liberal system of education demands. But we should claim, and insist, that departments devoted to agricultural teaching, or to the development of agricultural science, should be established, either as branches of our seats of learning, or as independent institutions. Why should not the farmer be educated to the top of his faculties, as well as those who select what are termed the learned professions as their pursuits? If our sons cannot be taught the education they seek in the colleges —and there are well grounded doubts of this fact from the moral malaria too often existing within and around them—institutions for their sole education should be aided, or erected, and endowed by the State. This subject has been annually debated in your meetings for years past: but influenced by a strange timidity, no decided action beyond a formal and altogether harmless expression of opinion has been effected. I beseech you, gentlemen, to look to this matter. The real and personal property of this State is more than one thousand millions of dollars. Nominally, in the assessors' returns, it is rated at less than 650 millions. In these returns, it is notorious that real estate is not assessed at over two-thirds its real value, and it is safe to say, that owing to the imperfect and partial system of taxation, not one-half the personal property of the State, comparatively little of which is held by the farmer, is taxed at all; and in its practical operation, agricultural capital pays two to one over that devoted to other purposes. Yet with all this burthen on its back, the farming interest either stands back from your halls of legislation abashed, although nominally represented there by its members; or if plucking a momentary courage by the congregation of its numbers on an occasion like the present, it literally shrinks away, either ashamed to ask its rights, or if asking, couched in such a subdued tone of humility, that the Legislature scarce believe you in earnest. This, gentlemen, is your attitude before the temporary power which you create to govern you! Contrast it with the conduct of those who seek a different kind of favour at its hands. Watch the thousands of applicants for corporate, and exclusive privileges, and State patronage, who have in times past besieged your halls of legislation. With what confidence they approach and lay siege to the law-making power; and how like "sturdy beggars" they persevere, till, right or wrong, their importunities are granted. And in parenthesis I might continue to mark, that the history of our coporate legislation is monstrous. Some years by gone, and banking charters were the only subject of moment before these bodies; and that legislator who did not go home with more or less of the promised shares of a successful application in his pocket, was considered as but a dull financier, or strongly suspected of having what, in ptivate life, is called—a conscience! In later time, it has been asserted that railroad corporations have controlled your Legislatures—ridden into their seats by aid of free tickets; and contemporary with them, had we farmers caught the spirit of the day, and adopted characteristic weapons of success, each one of us would have appeared with a sheep on his back, or a truss of poultry at his elbow, to lunch them into acquiescence!

Among the benefits arising from well directed Agricultural education, aside from spreading the requisite learning and intelligence applicable to the chief pursuit of our people, deep and abroad among them, the retention of that portion of active capital, acquired by the industry of our Agricultural population, among themselves, would be one important consequence. In place of the prevailing and mistaken notion that monied capital invested in agriculture is either unproductive, or less so than in other pursuits, our farmers would be taught that, coupled with the knowledge to direct it, no branch of our national industry is so steadily remunerating as that connected with the soil—a fact now practically disbelieved; or why would such amounts of monied capital be continually drawn from the agricultural districts to your commercial cities, to be embarked in hazardous enterprises, or doubtful investments? The merchant, or the speculator may fail—and fail he does, very often—and in his downfall is often buried the toils of a long life of patient industry. But who ever knew a good farmer, of prudent habits, to fail? Nay, who did not, with an exemption from extraordinary ills in life, ultimately grow rich, and discharge meantime, all the duties of a good citizen? I concede to you the many prominent ca-

ses which exist, of wealth rapidly accumulated by bold and successful speculation; of fortunate, perhaps accidental adventure; of hoards heaped up by a long course of perseverance in trade, directed by that intutive sagacity of which but few among us all are endowed, and which so dazzingly invite our imitation. Yet these are but a few glaring instances, standing out in bold relief among the many who have sunk in the same career, perhaps with a ruined peace; happy afterwards to retire, were it in their power, upon the limited possession which they had thrown away, to commence their wasting strife upon the broad sea of adventure.

This thought will bear a little examination. The farmer is apt to think that the professional man, or the merchant, lives an easy and luxurious life. In many instances their families may do so; but with the eminent and successful man of law, or science—the artizan, or merchant himself, such supposition is a great mistake. There are not, under heaven, a more laborious class of men than these, Labor of body, and of mind, is theirs—and that incessant. See them early, late; in season, and out of season—their whole energies devoted to their several callings, without rest, or intermission—and far too frequently, to the premature wasting of life itself. It is no wonder that such industry, directed by good education, (and by this term I mean the entire training of the boy to manhood in its most extended sense,) and stimulated by a laudable ambition, should lead to success. Yet all these appliances, the labors of such men are often disastrous; and if not so, after a life of anxiety, their toils too frequently end with but the means of a slender support. Compared with these, the toils of the farmer are light. Physical labor he endures, it is true, and often times severe labor, but his mind is easy. He enjoys sound rest, and high health He has much leisure; in many cases more than is for his good. He has abundant time to discuss politics, law, religion—everything, in fact, but what relates to his own profession, on which subject, I lament to say, his mind seems less exercised than on almost any other. Now, let the same early education be given to the young farmer of an equally acute intellect that is given to him who chooses professional, mechanical, or mercantile pursuits—educate each in his own line. Let them start fair. Apply the same thought, investigation, energy, and toil, each in his particular sphere, and beyond all question agriculture will, in the aggregate, have the advantage—and for this reason, if no other; there are few contingencies connected with agriculture. Its basis is the solid earth, stamped with the Divine promise, that while it remains, seed-time and harvest shall continue; while commerce, and trade; mechanics, and arts are liable to extraordinary and continual accident. Look at the devastations by flood, and fire—of ship, and cargo, upon ocean, lake, and sea, and river; conflagrations in your towns and cities; and the thousand other casualties which almost daily occur—all which are a dead sink upon labor and capital not agricultural, and the risks of the husbandman are scarce one to ten, in the comparison. Rely upon it, Farmers, you are on the safe side.

SALTED MEATS.

The best salted provisions were formerly furnished by Ireland, and that country still carries on a very extensive traffic in them, though the same methods practised there, have been adopted by the Danes and other nations. I shall here describe succinctly the modes made use of.*

For salting, the fattest oxen of from five to seven years old are chosen; before that age, the flesh has not sufficient firmness, and after that period, it is too hard.

When the animals have been driven from a distance, they are not killed till two days after their arrival, and in the interval are allowed only water: before being killed, they should be bled freely, that all the blood may be drawn out of the body; and even after using this precaution, it is necessary, when the meat is cut up, to remove the blood very carefully from the pieces.

The carcasses should not be cut up till the animals have been dead twenty-four hours, and when this is done, all the marrow must be carefully removed from the bones.

The salt employed should be perfectly clean, and of a fine and heavy kind: the fine salt of Portugal is esteemed the best.

The proportion of salt to meat should be in volume, as 24 to 100. If only the Lisbon salt be used, the proportion is as 2 to 7½: in general the proportion in weight is as 1 of salt to 6 of meat.

That the salt may penetrate the meat quickly, the salters have a leather guard or a glove shod with iron upon the right hand; this glove is composed of two or three pieces of sole-leather, united by nails with rough, broken heads; a strap of leather serves to keep it on, and it thus forms a sort of flesh-brush, with which the blood can be pressed out of the meat, and the salt rubbed into it. Each piece of meat passes through the hands of a series of salters, who execute upon it the same operation, and when it arrives at the last, who is the most experienced and skilful, he examines to see if there be any defect in it, any vein which requires to be opened; he corrects the defects, opens the veins, rubs in more salt and throws it into the cask of salted pieces: in this it remains in the air eight or ten days, the salt penetrates into it, and is turned into brine: at the end of this time it is taken out and barrelled. After the meat is removed from the cask, the brine is thrown into a trough, and a layer of salt put at the bottom of the cask; upon this is

* The fullest statements may be found in the work of M. Martfelt, translated from the Danish, by M. Brun-Neergaard.

placed a layer of meat, and thus alternately till the cask is full. Attention must be paid to putting the pieces of inferior quality at the bottom of the cask, those of the better kind in the middle, and the best at top. When the meat is all packed in, it must be pressed down with a weight of fifty pounds, and the cask closed.

There must afterwards be a hole bored in one end of the cask, to blow into, in order to be sure that it does not leak: if no air escapes, the hole is closed again: if the contrary be the case, the aperture through which it passes is sought for. When it is ascertained that the cask is in good order, the bung is taken out, and the brine turned in till the meat is saturated and covered: the less brine is required, the better will the meat keep.

After having allowed the barrels to remain five days, it is necessary to examine whether they are well filled with brine, and if not, it must be added till they can contain no more; they must then be again blown into to be certain that they can lose none, and then the operation is ended.

Tongues are salted in separate casks.

The manner in which pork is salted does not differ from that which I have just described as used for beef, excepting that the fat is rubbed less.

In Hamburg the art of smoking beef has been carried to a degree of perfection not attained elsewhere; and the smoked beef of Hamburg enjoys everywhere the highest reputation.

For this purpose the fattest cattle of Jutland and Holstein are preferred, and these must be of a middling age. The meat is salted with English salt; the stronger salts, as those of Portugal, deprive the meat of its natural taste, and as the process of smoking contributes to preserve it from injury, that of salting does not require so much care.

To preserve the red color of the meat as much as possible, a certain quantity of salt-petre is added to the English salt, and the meat is allowed to remain in it eight days before being smoked.

Fires of oak chips are built in cellars, from whence the smoke is conveyed by two chimneys into the fourth story, and thrown into a chamber by two openings placed the one opposite the other. The size of the chamber is proportioned to the quantity of meat to be smoked, but the ceiling is not raised more than five feet and a half from the floor. Above this chamber there is another made of boards, into which the smoke passes through a hole in the ceiling of the first, whence it escapes by openings formed in the sides. The pieces of meat are hung up in the first chamber, at the distance of a foot and a half from each other, and a fire is kept up night and day for a month or six weeks, according to the size of the pieces.

The sausages are suspended in the second chamber, and the largest of them allowed to remain there six or eight months.

In this process two means of preservation are combined: the first is the action of salt, and the second that of the pyroligneous acid, which is furnished by combustion, and which constitutes by far the greater part of smoke: this acid, as I have found by repeated experiments, penetrates the meat and preserves it from putrefaction, but when employed alone, the meat becomes hard, and acquires a disagreeable blackish hue.

DISPOSAL OF THE FILTH OF PARIS.

From an intimation in our last number, we fulfil our promise in copying the following judicious remarks on the "Filth of Paris," from Mr. Colman's late volume on European Agriculture, which will apply equally well to the large cities of the United States, as to those of France:—

There remains one establishment to be spoken of, directly connected with, and of great importance to, agriculture, as well as to comfort and health; but which, having no other than a disagreeable interest to many of my readers, I forewarn them at once to pass it over; though a French writer humorously observes, that "a book written upon assafœtida is in itself no more than a book written upon roses."

The subject considered in a philosophical and practical view, is of the first importance. It would be altogether a false, in truth, a mere affectation of delicacy, to hesitate to treat it as its importance demands. In all the arrangements of Divine Providence, nothing strikes the reflecting mind with more force than the beautiful circle of mutual dependence and reciprocity in which everything proceeds; so that the humble elements perform their part, and the most elevated and brilliant can do no more; and the part of the former is as essential to the common well-being as that of the latter.

Look at a heap of manure, composed of every offensive substance which can be congregated together, reeking with detestable odors, and presenting a mixed mass of objects utterly disgusting to the touch, the smell, and the sight. Yet this is the food of the vegetable world; containing all the elements of richness, nourishment, health and beauty. All these, the plants know how to separate, to analyze, to digest, and appropriate, and with a skill distancing the sagacity of science, they will return it purified and sublimated in bread, and wine, and oil; in flowers of exquisite coloring and beauty; in perfumes the most odorous which nature's toilette can furnish; in fruits luscious to the taste; and, above all, in products indispensable to life, and full of health and strength. The farmer, standing in his barnyard, knee deep in its offensive accumulations, may proudly say, "Here is the source of my wealth; that which has fed my cattle shall now feed my crops; that which has given fatness to my flocks shall now give fatness to my fields." A mysterious power is ever operating in every department

of nature; suffering nothing to fail of its use; "gathering up the fragments, that nothing be lost;" and providing for the various wants of the infinitely-varied forms of life, to which existence has been given, and from whom, if the Creator should, for one second, withdraw his guardian care, the whole must instantly perish.

The refuse of a city may be considered as of at least five different kinds; first, the ordinary refuse of a house, such as fragments of vegetables, remains of food, bones, rags, and a thousand miscellaneous and nameless substances; second, the remains of fuel, such as ashes and soot; third, the refuse of different trades, of workers in leather, workers in bone, workers in horn, soap boilers, glue manufactures, workers in hair and in wool, sugar refineries, and the innumerable other trades always to be found in the busy hive of a city; fourthly, the dung of the domestic animals, cows and horses; and lastly, human ordure, or night-soil. I shall say little of some other substances, which have been used for purposes of manure; but it is well known that many graveyards have been ransacked for the purpose of gathering up their mouldering relics, and that many hundreds of tons of human bodies have been transported from the field of Waterloo, to England, for the purpose of enriching the cultivation. It cannot be denied in this case to be a more rational, humane, and I will add, Christian use, than that to which they were put in the bloody arena where they were first deposited.

In Paris, every species of refuse is husbanded in the most careful manner. No refuse is allowed to be thrown into the streets after a very early hour in the morning, nor until after ten o'clock at night. This refuse consists of what may be called the house dirt, and is laid in heaps in front of the houses near the gutters. A very numerous class of people called chiffoniers, consisting of as many women as men, with deep baskets on their backs, and a small stick with a hook at the end, carefully turn over every one of these heaps, selecting from them every article of bone, leather, iron, paper, and glass, which are thrown at once into their baskets, and being carried to their places of general deposit, are there again examined and assorted, and appropriated to any specific application for which they may be suited. These persons appear like a most degraded class; they inhabit particular quarters of the city, and the interior of their habitations is such as might be expected from their occupation. The profession descends in families from father to son and from mother to daughter. They are a most industrious race of people; and many of them may be seen, even at midnight, with their lanterns, taking advantage of the first pickings, and anticipating the labors of the coming morning; and with the earliest dawn they are sure to be found at their tasks. No article of food escapes them; and they call the street their mother, because she often thus literally gives them bread. Though their occupation is necessarily dirty, yet they are almost always comfortably clad, and are never ragged. They never beg, and disdain to be considered objects of charity. They are licensed by the city authorities, for which some trifling sum is paid, and for which they must be recommended for their sobriety and good conduct. They have their particular districts assigned them, and are very careful to prevent all foreign intrusion.

The chiffoniers having done their work, next come the sweepers and collectors of dirt. Every inhabitant of Paris is required, under a penalty, to have the sidewalk in front of his place of business or residence carefully swept every morning. The sweepers of the streets in Paris are almost universally women, who, with long twig or birch brooms, sweep the streets thoroughly, and all the accumulations are taken into carts to be transported to the great places of deposit. The women assist as much in loading the carts as the men. These women appear to work extremely hard, carrying always a long broom in their hands, and a shovel fastened to their backs, to be used as occasion may require. The gutters in Paris are washed out every morning, by fountains which are placed in every street, and what these sweepers are not able to collect for the carts, they are careful to sweep into the drains leading into the common sewers. I have looked at these people and at the chiffoniers often with great interest; and, filthy and disgusting as their occupation necessarily is, I have always felt in my heart a sincere respect for persons who, poor as they are, would be ashamed to beg; and who, by the severest and most useful labor, are proud to obtain for themselves and their families, though a very humble, and honest living. All this refuse is transported to places appropriated for its deposit, where it remains until it is decomposed, and is then sold to the farmers for manure.

MISCELLANEOUS.

How to make a Horse sure-footed.—A singular account of the manner of the ancients breaking in their horses, and rendering them sure-footed when galloping over the most irregular and dangerous grounds, is related by Vegetius. The Parthian horses were lighter and hardier than those of the Cappadocians or Medes, and were the best war horses. A spot of dry level ground was selected, on which various troughs or boxes, filled with chalk or clay, were placed at irregular distances, and with much irregularity of surface and of height. Here the horses were taken for exercise, and they had many a stumble and many a fall as they galloped this strangely uneven course; but they gradually learned to lift their feet higher and to bend their knees better, and to step sometimes shorter and sometimes longer, as the ground required, until they could carry their riders with ease and safety over the

most irregular and dangerous places. Then it was that the Parthians could fully put into practice their favourite manœuvre, and turn upon and destroy their unsuspecting foes. They were as formidable in flight as in attack, and would often turn on the back of the animal, and pour on their pursuers a cloud of arrows that at once changed the fortune of the day.

Wheat Sowing.—Experience proves that wheat sown in the morning in a thick fog, is more subject to the smut, than when sown in the middle of the day; of this we have a curious illustration in the following anecdote. A farmer on working the lands of a rich Commandary at Malta, was found sitting on a bag of seed. It was a beautiful day, the sun shining brilliantly and not a cloud to be seen. A friend went up to him and enquired why he was not sowing. Because the "land is ill," said the farmer. "What is the matter with it?" replied his friend. "It sweats," said the other. "Stoop down, and you will see a cold vapour coming from it. I am sixty years old, and this was pointed out to me by my father. I shall await, or else I shall have black wheat." He considerad this transpiration as having an influence upon the seed, if sown during its occurrence, and the farmer added "that in the preceding year there had only been two days proper for sowing, and that the harvest was most abundant, while the fields that were sown in unfavourable weather, produced a prodigious quantity of smutted corn.

New Variety of Wheat.—Advices from St. Petersburgh mention that a new variety of wheat has been recently discovered and cultivated in Bessarabia. It is called the Kolus, or a large-eared wheat, on account of the peculiar beauty of its ears. At present it is limited to mere seed-wheat, and fetches twice the price of the ordinary Arnautka. One other and more important peculiarity of this grain is, that it is less affected by drought than any other varieties. At the same time, it possesses several other features, being distinguished by its greater fertility, its deep amber colour, and its early ripening. The important discovery was made by a peasant of the name Bulatowisch in the village of Troïtzk, in the district of Bender, who, being a strict observer of nature, detected in his crops certain ears which were longer and became ripe earlier than the rest of the crop. These were collected, and sowed separately, and the result was an abundant harvest, and the introduction of a new and valuable variety of wheat. The Russian Government, it is to be hoped, will not let such an opportunity pass of rewarding one so deserving of a substantial mark of its favour. The event has created a great sensation amongst the agriculturists and dealers in grain, and the new wheat well merits being named after the discoverer.

Wheelbarrows.—The greater the diameter of the wheel of a barrow, and the smaller the axis or spindle on which it turns, the less power will be required to drive it forward; for the friction is proportionately reduced.

The diameter of the wheel might be increased with manifest advantage to double that now employed, for even then it would be below the point of draught or impulsion, (the hand of the labourer,) and the nearer it can be brought to a level with this, the more efficiently he exerts his power.

The breadth of the wheel's periphery, or felloes, might be also increased two inches advantageously, for as it is always employed upon a surface in some degree soft, such an increased breadth would decrease the depth to which the wheel of a loaded barrow usually sinks into the soil, and would proportionately decrease the power required to overcome the augmented opposition In a wheelbarrow so constructed, a man might move with more ease 8 cwt., than he now impels 5 cwt., which is a full barrow load.

If a wheelbarrow be made of wood, the feet and handles should be clasped with iron, and its joints strengthened with bands of the same metal. If so guarded it will outlast two others left unprotected.

Barrows are now very frequently employed, made entirely of wrought iron, and Mr. Stratton informs me that they weigh 92 lbs., being but little heavier than common wooden barrows. The wheels are of wrought iron, 16 inches in diameter, and the ends of the gudgeons or spindles run in brass bearings. This reduces the friction, or makes, in customary palance, the barrow "run light." The faces of the felloes is from ½ inch to 3 inches, according to order. They seem to have been approved by those who have used them, both in this country and in the West Indies, but I have never had an opportunity myself of testing their qualities.—*Gardener's Almanac*, 1844.

Distance from the United States to England.—Frequent disputes as to the distances sailed by the Atlantic steamers have led to the compilation of the following table, for reference now and hereafter:—

By Mercator's Sailing.	Miles.
Boston Dock to Liverpool Dock.....	2,883
Battery, New York, to Liverpool Dock...	3,084
Boston Dock to Southampton Dock.....	2,882
Battery, New York, to Southampton Dock	3,156
By Mercator and Great Circle.	
Boston Dock to Liverpool Dock.....	2,849
Battery, New York, to Liverpool Dock...	3,023
Boston Dock to Southampton Dock.....	2,849
Battery, New York, to Southampton Dock	3,087

These calculations allow for the *detour* made by the British steamers in touching at Halifax.—*Liverpool Mail.*

THE WAY DOMESTIC ANIMALS COLLECT THEIR FOOD.—The horse, when feeding on natural herbage, grasps the blades with his lips, by which it is conducted between the incisors, or front teeth. These he employs for the double purpose of holding and detaching the grass, the latter action being assisted by a twitch of the head. The ox uses the tongue to collect his food. That organ, being so directed as to encircle a small bundle of grass, which is placed by it between the incisor teeth, and an elastic pad opposite to them in the upper jaw—between these, the herbage is pressed and partly cut, its complete severance being affected by tearing. The sheep gathers his food in a similar manner as the horse, but is enabled to bring his cutting teeth much nearer to the roots of the plants, in consequence of the upper lip being partially cleft. For his upper lip is thin, and is susceptible of considerable mobility; while that of the ox is thick, hairless, with a very limited action.

TO PREVENT A BRUISE FROM BECOMING DISCOLORED.—Blood can be prevented from settling in a bruise, by applying to the place, a cloth wrung out of very warm water, and renewing it until the pain ceases. The moisture and heat liquify the blood, and send it back to the proper channels, which by neglect, or the use of cold applications, would be coagulated, and fixed in green and black blotches directly under the skin.

E. S.

METAL DOORS FOR GEOLOGICAL MUSEUM, PICCADILLY.—The doors, sixteen feet high, by six feet three inches wide, are proposed to be of bronze, and to be very elaborately and elegantly ornamented, including, in oval panels, the heads of two of the Gorgons, probably because of the myth which ascribed to them the power of transforming into *stones* all who looked at them. It was at one time proposed to employ the electrotype process in the production of these doors, but this is at present not decided on.—*The Builder.*

Agents for the Agricultural Journal.

Mr. J. B. Bourque	St. Damas.
Dr. Conoquy	St. Cesaire.
Dr. De la Bruère	St. Hyacinthe.
Mr. Cadeaux	St. Simon.
Mr. T. Dwyer	St. Pauls, Abbotsford.
Mr. Gendreau, J.P.	St. Pie.
Mr. Blanchet	La Presentation.
Paul Bertrand, Esq., N.P.	St. Matthias.
Charles Schaffer, Esq., N. P.	Chambly.
M. Cordillier, Esq.	St. Hilaire.
Thos. Cary, Esq., (Mercury)	Quebec.
Dr. Smallwood	St. Martin, Isle Jesus.
Robt. Ritchie, Esq.	Bytown.
Major Barron.	Lachute.
The Editor of the Star	Woodstock, C. W.
L. Guillet, Esq.	Three Rivers.
D. Dubé	Isle Verte.
Azarie Archambault, N. P.	Varennes.
Hon. F. A. Malhiot	Verchères.
A. C. Cartier, N. P.	St. Antoine.
André Vendendaique	Belœil.
John M'Larren, Esq.	Murray Bay, Sag.

All communications connected with this Journal, to be addressed, post paid, to the Secretary of the Society—WILLIAM EVANS, Montreal.

Annual Subscriptions for the Journal, five shillings.

MONTREAL:—Printed by LOVELL & GIBSON, Saint Nicholas Street.