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# AGRICULTURAL JOURNAL,

AND

## TRANSACTIONS

OF THE

### Lower Canada Agricultural Society.

VOL. 1.

MONTREAL, DECEMBER, 1843.

NO. 12.

We have now brought the Agricultural Journal to the last number for this year, and we hope our Subscribers will be indulgent to us for any mistakes we may have fallen into in our original matter, or the selections from other publications. Many of the articles we have published, may be termed "Theory," and rejected as only "Book Farming," but we respectfully maintain, that our "Theory" may be advantageously practised by every farmer who has not already adopted a superior system of husbandry to that which we have recommended. We take leave to state further, that we have not suggested or recommended any impracticable or unprofitable systems of Agriculture, where there was sufficient capital, and disposition to work the land to the best advantage; and even where capital is deficient, if farmers are disposed to improvement, they may approach as near as their circumstances will allow, to a perfect system. We would not be justified in recommending defective systems of Agriculture, because every farmer is not possessed of sufficient capital to carry out a better system, in every particular instance—when we know there are many who are able to do so. It would be extremely conducive to the usefulness of this Journal, if those who disapprove of any part of its contents, would point out the errors, and offer more practical instruction for the benefit of their brother farmers, as we doubt not they must be very competent to do so. This would be doing a public good for the country, while her Agriculture is universally admitted to be in such a backward state. The object

of this Journal is to improve the general state of Canadian Agriculture; and any individual who contributes useful and practical articles may displace so much of foreign selections. The Journal for the present year, however, as regards the matter, and its general contents, we would venture to compare with any Agricultural Journal published in North America, for practical usefulness—and have not the slightest apprehension that it would suffer by the comparison, in the estimation of any competent judge. This is presuming a good deal, but we pretend to understand our subject as well as most other men. Those who are likely to derive the greatest advantage by Agricultural publications, will be the best educated portion of those who read them; because they can appreciate the information and suggestions submitted to their notice, and will be disposed to give them a fair trial by experiment. The success of these experiments will be an example, and encouragement to others to adopt the same methods—and where they do not succeed, it will deter others from an unprofitable expenditure. Thus it is in the British Isles—the best educated Agriculturists are the first to adopt the suggestions, and profit by the information contained in Agricultural publications, and their example and success overcome the obstinate prejudices of ignorant self-sufficiency, that would not previously admit that it was possible they could derive advantage from any information or suggestions offered to them in the form of a book or periodical. There is abundant proof, that the greatest improvements

in Agriculture have not been introduced by working, and uneducated farmers, although the latter have, in numerous instances, the sound sense, and the natural regard for their own interest, to profit by the example set before them. A hard working farmer has not sufficient leisure for thought and reflection, to propose new and improved systems of husbandry, though he may have the good sense to profit by such systems as result from the thought and reflection of others who do think on the subject. It is our anxious desire to remove prejudices that are injurious to Agricultural improvement. We have constantly invited the best instructed in the practical art of Agriculture, to assist this Journal by contributing the results of their skill and experience, and thus add to its general usefulness. We have no desire to force our own opinions on the subject of Agriculture upon the public, if those who may be better qualified will come forward and give the public the benefit of their opinion. On a subject of such importance to this country, no man should withhold what he is satisfied would be useful information. We have often stated, and we now repeat it, that in no country on earth is Agriculture practiced to so great perfection as in Britain, and the nearer we can follow the example of that country, the more perfect and profitable will be our Agriculture. We do not pretend to say that our climate or circumstances will admit of exactly the same system of husbandry, but we may approximate to it as closely as our circumstances will admit, with great advantage to ourselves. We can assure our Subscribers they never can follow a better example, and while that is the case, it would be absurd in us to point out any inferior example to our farmers. We should aspire to the greatest perfection in our Agriculture, and therefore we should follow the example of what we know to be the most perfect—and if we cannot attain to it, let us come as near to it as possible,—and we are convinced, we can come very near it in many crops we cultivate, as

well as in farm stock, and dairy management, if we follow the example of good English farmers. The average wheat crop in all England is supposed to be from 24 to 30 bushels the acre, and oats and barely, from 30 to 40 bushels the acre, although these quantities are frequently doubled, under very favourable circumstances. If we are *satisfied* with half these averages, which we believe we do not obtain, it is useless to recommend any improvement; but at the same time we should not blame our climate or soil that we raise crops and cattle so inferior to what is raised in the British Isles, when we do not practise the same system of husbandry that is found necessary to produce good crops, cattle, and other products in Britain. We may be deficient in skill and capital, but the first is attainable if we will take instructions, and if the first was generally diffused amongst the rural population, it would be a great means of procuring the second necessary in good farming—that is sufficient capital. In making selections from English Agricultural works, we endeavour to modify them, so as to make them practicable for ourselves, and where we may not sufficiently modify them, any farmer who pretends to know anything of his business, will readily perceive where he should modify the practice recommended to suit his own circumstances. We hope these explanations will be satisfactory to our Subscribers. Our greatest ambition is that this Journal would prove useful to our Subscribers, and to the country, as this is the only object in publishing it—and those who are able to discover that it is not so, must be competent to correct what may be wrong, and would greatly increase its usefulness by their own contributions to it.

Result of an experiment upon the effect of cleanliness in feeding six pigs of nearly equal weight, on the same food and litter, for seven weeks. Three of the lot were kept as clean as possible with curry-comb and brush, and were found to consume in seven weeks fewer peas by five bushels than the other three, yet weighed more when killed, by two stone and four pounds upon an average.—*Farmers' Magazine.*

[For the AGRICULTURAL JOURNAL.]

## THE DAIRY IN 1637.

(Continued from page 197.)

The next main profit which ariseth from the Dairy is cheese, of which there be divers kinds, as new milk or morrow-milk cheese, nettle cheese, floaten milk cheese, and eddish or after-math cheese, all which have their several orderings or compositions, yet, first I will shew you how to order your cheeselep bag, or

### RENNET,

which is the most principal thing, wherewith cheese is compounded, and giveth perfect taste unto the same. The Rennet, which is the stomach bag of a young suckling calf which never tasted other food than milk, where the curd lieth undigested. Of these bags you shall in the beginning of the year provide yourself good store, and first open the bag and pour out into a clean vessel the curd and thick substance thereof; but the rest which is not curdled you shall put away; then open the curd and pick out of it all manner of motes, grass or filth gotten into the same; then wash the curd in so many cold waters, till it be as white and clean from all sort of moats as is possible; then lay it on a clean cloth that the water may drain from it, which done lay it in another dry vessel, then take a handful or two of salt, and rub the curd therewith exceedingly; then take your bag and wash it also in divers cold waters till it be very clean, and then put the curd and salt up into the bag, the bag being also well rubbed within with salt; and so put it up, and salt the outside over, and close up the pot close, and keep them so a full year before you use them. For touching the hanging of them up in chimney corners (as coarse housewives do) it is sluttish, naught, and unwholesome; and the using of your rennet whilst it is new, makes your cheese heavy and prove hollow. When your rennet is fit to be used, you shall season it after this fashion; you shall take the bag you intend to use, and opening it, put the curd into a stone mortar or bowl, and with a wooden pestle or rolling pin beat it exceedingly; then put to it the yolks of two or three eggs, and half a pint of the thickest and sweetest cream you can skim from your milk, with a pennyworth of saffron, finely dried and beaten to a powder, together with a little cloves and mace, and stir them all passing well together, till they seem as one substance, and then put it up in the

bag again; then you shall make a strong brine of water and salt, and in the same you shall boil a handful of saxifrage, and then when it is cold, clear it into a clean earthen vessel; then take out of the bag half a dozen spoonfuls of the former curd and mix it with the brine, then closing the bag up again close, hang it within the brine, and so keep your rennet a fortnight before you use it, and in this manner dress all your bags so as you may ever have one ready after another, and the youngest a fortnight old ever, at the least, for that will make the yearning quick and sharp, so that four spoonfuls thereof will suffice for the gathering and seasoning of at least twelve gallons of milk, and this is the choicest and best yearning which can possibly be made by any housewife.

In conformity to my promise of continuing the extracts from "The Way to get Wealth," I now put you in possession of the "choicest" method of preparing the rennet in vogue in the 17th century, and presume that with perhaps the exception of the infusion of herbs, it will meet the approbation of the best "housewives" of even this advanced age, in which we plume ourselves on knowing so much more than our forefathers did. With the solitary remark, that I have taken the liberty of modernising "Master Gervase Markham's" spelling in order to facilitate the printing, I will defer to a future number the description of the method of manufacturing cheese recommended in "The Way to get Rich," by that worthy author.

Yours, &c.,

RUSTICUS.

To the Editor of the AGRICULTURAL JOURNAL.

SIR,—Although I do not believe that we are in a situation to compete with our neighbours in the *pork* line, I do believe that, were a *good* variety of pigs introduced in the interior, pigs might be profitably raised. *Here*, we raise pigs merely for the pork; in the United States *all* is turned to account. I see by an American newspaper that it is estimated that 1,500,000 hogs were slaughtered in the valley of the Mississippi last year; that the *bristles* were worth 50,000 dollars, and that eleven millions of pounds of lard from them is calculated to have been run into lard oil. It is said that the lard oil is now incorporated, 65 to 70 per cent, with that of the olive. This is certainly carrying on a *wholesale* business.

CHICAGO

[For the AGRICULTURAL JOURNAL.]

—  
BY RUSTICUS.  
—

Considerable difference of opinion exists as to the material of which milk dishes should be made. Wood, lead, and earthenware utensils have each their admirers, and it would seem, that, even so long ago as in 1637, the same difference of opinion existed, as on reference to the Dairy in 1637, page 197 of the Journal, I find it stated that the best was then "still disputable." In the August number, I noticed a recommendation of glass milk basins as preferable to all others. I suppose that their superiority arises from their greater uniformity and smoothness of surface, enabling them to be kept more easily clean than those composed of other materials. As it would be difficult to obtain them at present, a very good substitute will be found in the white glazed water basin, such as is generally sold with an ewer. These basins can be easily procured at the manufactories without the ewers, and at a very moderate price. I understand that in some parts of the country, where they have been used, they give very general satisfaction. It is at least worth a trial, by all, who are anxious to keep their milk cold and clean, especially when a shilling or two will enable them to decide for themselves, whether the white basin is not much superior to either the wood, tin, or earthenware basins now in general use. Attention to cleanliness is indispensable to the making of good butter, and every suggestion that facilitates this has some degree of value as conducive to raising the standard of quality of our butter. Butter already forms no inconsiderable item in our exports, and there is every reason to believe that when an improved system of farming is adopted, and more attention is paid to pasture lands, the quantity and quality of our butter will be greatly improved and increased. Canada is peculiarly suited to be an agricultural country, and with all our natural advantages, it will be our own faults if we are not prosperous. In the interior of the country a considerable amount of trade is done through the medium of butter. The farmers dispose of it to the shopkeepers, for such articles as they require, and the latter pack it for market. It is then, the interest of both to use every care and precaution in its manufacture and packing. Perhaps it would be

better if each person packed their own butter in a firkin, instead of bringing it in small quantities to be packed by the storekeeper, who is of course obliged to mix together the produce of different dairies. There is no doubt, but that this mixing in the same keg, the butter made by several parties, injures the character of Canadian butter to no inconsiderable extent, when it is known that there is a very great difference in the quality and richness of the butter made from the milk of different cows, even in the same dairy, how much greater will the difference be if you examine butter made at different places and by different parties. If you mix together good and indifferent butter the bad deteriorates the good. The truth of this observation will be at once admitted, yet such is the plan adopted in packing the greater part of the butter made in the country. We have great hopes, that the provisions of the Inspection Bill passed last Session will have been generally complied with, and if so, we may look for an improvement in the general quality of the butter brought to this market for export. Our butter has been decidedly improved during the past few years, but there is still ample room for greater improvement, and we trust that our farmers generally will endeavor to produce a better article, for it is decidedly their interest to do so.

[For the AGRICULTURAL JOURNAL.]

### MANURES, No. I.

**BROTHER FARMER OR CITIZEN**—Are you sufficiently impressed with the importance of Agriculture? If so, you must be often grieved to see how neglected that art is among us. What a painful sight it is to see the fields bearing crops of five bushels wheat to the acre instead of twenty-five, of ten bushels oats instead of forty; to see pastures of large extent with two or three cows almost starving upon them—the very appearance of the fields proving how very little a Canadian cow requires to keep herself alive. These are painful sights to the intelligent lover of his country, but how melancholy it is to learn that many of the farming population are themselves in want of the actual necessaries of life, and with a once fruitful soil and a favorable climate, our lands have become so worn out that they now yield but a miserable return, exposing the

proprietors, under the least reverse, to starvation. Under such circumstances, what individual with the least spark of patriotism will refuse his aid to those Societies which are doing their best endeavors to promote such a system of Agriculture as would, if fully carried out, make our villages and towns again the busy haunts of men. The Farmer's treasure lies in his manure-heap—his constant object ought to be to increase the deposit—and to keep it in such condition that it may yield him good interest by giving him large productive crops. The manure upon which the farmers of Canada must place their chief dependence is undoubtedly that of the barn-yard; other manures must be considered as mere auxiliaries; but what do we see now: A not too large collection of barn-yard manure, and a complete neglect of all other. It is only the other day, after the corn-harvest, that I saw the roads of the parish covered with the corn-stalks, &c., which ought to have been carefully preserved for the cows to eat, and what was not fit for the cows thrown into that most excellent manure manufactory, the pig-stye. How many articles which would do great service as manure are here wasted. All farmers, practical and theoretical, will agree that urine is one of the strongest of manures; that it might be easily collected, but that it is allowed to run to waste. We find that it is calculated that the urine of the twenty millions of inhabitants of Great Britain, if sowed and applied to the growing crops, would be worth annually \$25,000,000! What an item to be saved; yet the loss is proportionally greater here; our lands have been run out by continued cropping, manures are not easy to be had in such quantities as the land requires, and we yet neglect the best of all—that which we can get in our own household. Recent European experiments show that the urine produced from a single adult in one year affords nitrogen sufficient to produce 800 lbs. wheat, or over 13 bushels! In such times as these is it not our bounden duty to use our efforts to make the earth yield her utmost; and is it not criminal negligence in us to allow those gifts which God has given us, to be wasted. We complain of hard times, become discontented, and yet will not go out of our routine, although we may be perfectly satisfied that we should add to our world's stores by doing so, and at the same time add our mite to the prosperity of the country. This will change when we become alive to

the duty which we owe to ourselves and to our country, and when it is rightly comprehended that "in every country the plough is the first creditor."

There is no manure which has been the subject of so great controversy as COMMON SALT. After well weighing the different *pros* and *cons*, we agree with the conclusions come to by an English practical farmer, that "salt is injurious to heavy or wet and undrained lands, making them wetter and colder, and delaying vegetation; that it forwards the crops on drained lands; that it attracts and retains moisture. The increase in weight and quality is more observable in the grain than in the straw, although the latter is very solid and brittle, not light and frothy; an abundance of weak, crowded, frothy straw, too often deceives as to the actual produce." Salt is a complete prevention of the louse in pease. The safest mode, however, to use it is in compost with barn-yard manure. The farmer knows well the importance of brining his seed wheat.

AGRICOLA.

[For the AGRICULTURAL JOURNAL.]

BY RUSTICUS.

In a former letter I incidentally stated that Canada is placed at a critical time in a critical position, but while this is the case, it is equally true that the City of Montreal is at the present moment in a most critical position. The time seems to have arrived, when it will be decided, whether Montreal will maintain its importance or dwindle into a third rate town. Montreal has been made the terminus of a line of canals unequalled in size and extent. Its position is a most commanding one, as sea-going vessels can take in their cargoes at her wharf, while vessels of the largest class can sail upwards through the whole chain of inland seas of which the St. Lawrence is the grand outlet. Yet in spite of all these advantages, Montreal seems to be receding, and her citizens and merchants, instead of combating the evil by really utilitarian measures, are either panic-stricken or captivated by visionary schemes. Do not imagine, that I have any intention of treating your readers to a disquisition on the demand for a total abrogation of the navigation laws, all that is really desired, in my

opinion, might be obtained by the suspension of that portion of them which regulate the navigation of the St. Lawrence. I am aware, that a discussion of such subjects is foreign to the objects of your Journal, but with your permission it is my purpose to contribute an occasional article, instancing a few of the ways in which the prosperity of the City of Montreal may be maintained, without attempting to bolster up its trade at the expence of the agricultural interests.

The prosperity of a City, it seems to me, depends upon the prosperity of the surrounding country, for unless the country is in a healthy state, how can the City which depends upon it for supplies, and which owes to the country a large portion of its trade, be prosperous? It is true, that Montreal has hitherto been the depot of the trade of Western Canada, and that a considerable portion of that trade is for the moment diverted. To this fact, and to the universally prevalent monetary crisis, do we attribute the present depressed state of Montreal. We have no doubt that Montreal will retain a large portion of the trade of Western Canada, and that much of the produce of the West will descend our waters, for an almost, (comparatively speaking), natural communication must be cheaper than a wholly artificial one of 100 miles in length. It may, however, be some years before the City of Montreal recovers from the present depression, and in the meantime the question to be considered is, how is the City to be kept from retrograding. It seems that this can only be done by fostering the agricultural and manufacturing interests.

It is the interest of the citizens of Montreal to promote the extension of improved modes of culture among the farming population, for with the extension of the agricultural productions of the country will the prosperity of the City increase. It is also their interest to effect, if possible, an increase not only in the quantity but in the variety of the produce suitable for exportation raised by the farmers,—while the citizens of Montreal are deeply interested in these matters, both they and the agricultural community would be immensely benefited by the establishment of manufacturing establishments in the City. A woollen manufactory, for instance, would provide a market for wool, and by rendering the keeping of sheep more profitable, would enable the farmer to dispose of his mutton at a lower price than he can

now do. If the citizens of Montreal, instead of bemoaning the state of the City, would exercise a little self-reliance, and exert themselves to render available for manufacturing purposes the vast water power which is at their doors; and if they would also unite to improve the agriculture of the surrounding country, we would then have some hopes of a speedy return of prosperity and a final cessation of the present hard times.

As I fear intruding at too great length, I conclude for the present, but in one or more future articles I will instance a few of the articles of production and manufacture to which attention may be profitably directed.

Montreal, November 18, 1848.

We perfectly agree with our Correspondent, that the prosperity of the city depends upon that of the country, and what is more, it never can have any other dependance, all other sources must be transitory.

**DR. RELOTZSCH'S PLAN OF TOPPING POTATOE VINES.**—Mr. Wainwright of Rushton, Northamptonshire, England, has tried Dr. Relotzsch's plan of topping the potatoe vines or stalks, and gives the following as the result of his experiment.

Row in which the leading shoots were nipped off produce 70 lbs.; sound, 14 lbs.; diseased, 56 lbs. Of these, diseased when dug 14lbs., and after being dug, 42lbs. Row in which the leading sprouts were left untouched produce 86 lbs.; sound, 23 lbs., diseased, 63 lbs. Diseased when dug, 11 lbs.; after been dug, 52 lbs.; giving an excess of diseased tubers in the former instance in the proportion of 354 to 317. The produce, however, in the former case, was of the finer quality. Notwithstanding great care has been taken to give the potatoes as little manure as possible, the disease has been most pernicious. The result of two weighings gave 98 lbs. sound to 111 lbs. diseased; and 46 lbs. sound to 328 lbs. diseased. The diseased tubers after a few days, became extremely offensive, and utterly useless.—*English Paper.*

We expect no other result.

Estimated weight of the heaviest sheep in each class of the same age, at the late Cattle Show at York, England.

| Breed:           | Class. | Agr. | Weight per quarter. |      | Wool. |
|------------------|--------|------|---------------------|------|-------|
|                  |        |      | months.             | lbs. |       |
| Long wools.....  | No.    |      |                     |      |       |
|                  | 1      | 16   | 52                  | 14   |       |
| Leicesters.....  | 1      | 16   | 46                  | 11   |       |
| South downs..... | 1      | 16   | 36                  | 8    |       |
| Long wools.....  | 2      | 40   | 72                  | 15   |       |
| Leicesters.....  | 2      | 40   | 56                  | 11   |       |
| South downs..... | 2      | 40   | 46                  | 8    |       |

—*English Paper.*

MANURING THE SOIL.

What is a manure?—Any thing that furnishes food to plants may be called a manure.

How many principal kinds of manure are there?—There are three principal kinds,—vegetable manures, animal manures, and mineral manures.

What do you mean by vegetable manures?—By vegetable manures, I mean those parts of plants which are usually buried in the soil for the purpose of making it more productive.

Name the most important of the vegetable manures.—Grass, clover, straw, hay, potato-tops, rape-dust, &c.

Is green grass ever used for manuring the soil?—Yes. The soil is manured with green grass when grass land is ploughed.

Would you bury the sods deep, if you were ploughing up grass lands?—No. I would keep the sods so near the surface that the roots of the young corn could feed upon the decaying grass.

Are any other plants ploughed in green for the purpose of manuring the soil?—Yes. Clover, buck-wheat, white mustard, rape-rye, and in some places even young turnips are ploughed in green to enrich the soil.

Into what kind of soils would you plough in a green crop?—Into light and sandy soils, and into such as contain very little vegetable matter.

Is not sea-weed or sea-ware a very valuable manure?—Yes. Wherever sea-weed can be obtained in large quantity, it is found to enrich the soil very much.

How is it employed?—It is either spread over the land and allowed to rot and sink in, or it is made into a compost, or it is put into the potato drills in the fresh state,—care being taken to prevent the potato sets from touching the sea-weed, by putting a little earth between them.

Note.—When the potato sets are allowed to touch the sea-weed they are often observed to rot.

When used in this last way does it give large crops of potatoes?—Yes, on the east and west coasts of Scotland it is said to give large crops of potatoes, but of inferior quality.

How would you prefer to make a compost of sea-weed?—I would mix the sea-weed with earth and with shell-sand or marl if they were to be had, and I would turn over the mixture once or twice before using it.

Are there any common green vegetables that are ploughed in with advantage?—Yes. Potato-tops dug in, or turnip-tops, when the roots are lifted, make the next year's corn better.

How can you get the largest quantity of green manure in the form of potato-tops?—By pulling off the blossoms the tops are kept in a green state till the potatoes are dug up, and thus give much green manure.

In what form is hay usually employed as a manure?—Hay is usually given to the horses, and afterwards put upon the land in the shape of their dung.

In what form is straw used as a manure?—Straw in some places is used in feeding the cattle—in other places it is partly given to the cattle and partly trodden among the cattle—while in places again, where few cattle are kept, it is sometimes rotted with water and a little cow's dung, and put on the land in a half-fermented state.

In what state of fermentation would you prefer putting your straw into the land?—That would depend upon the kind of land.

Suppose you had to manure light land for a green-crop.—Then I would like to have my straw pretty well fermented and mixed with the droppings of a good many cattle.

But suppose you were manuring heavy clay land during the naked fallow before a crop of wheat.—I would then rather have my straw more loose and un-fermented. It would help to keep my land open?

What are rape-cake and rape-dust?—Rape-cake is the refuse that remains when rape-seed is crushed in the mill to squeeze out the oil. When the cake is crushed it is called rape-dust.

How is rape-dust applied as a manure?—It is applied to turnips or potatoes either in place of the whole or of a part only of the common farm-yard dung—and it is in many parts of the country applied with great profit as a top-dressing to the young wheat in spring.

What are the most important animal manures?—The blood, flesh, bones, hair, wool, and the dung and urine of animals, and the refuse of fish.

In what form is blood usually employed as a manure?—In this country it is usually mixed up with other refuse in the dunghills of the butchers. In other countries it is dried, and is then applied as a top-dressing, or is drilled in with the seed. It is one of the most powerful manures.

How is flesh employed as a manure?—The flesh of dead horses, cows, and dogs buried in soil or saw dust, with a little marl, makes a most enriching compost.

In what form are bones usually employed as a manure?—Bones are crushed in mills, and then sifted into the various sizes of inch bones, half-inch bones, and dust.

In which of these forms do they act most quickly?—They act most quickly in the form of dust, but they do not act for so long a time.

To what crops are they most usefully applied?—Bones are most profitably employed on light or on well-drained lands, instead of the whole or of a part of the farm-yard manure. When employed without farm-yard manure, they are often mixed with wood ashes, and drilled in with the turnip seed.

Would you raise all your turnip crops with bones alone?—No. If I raised one crop of turnips from bones alone, I would raise the next crop on the same field with farm-yard manure alone—if I could get it.

Are bones ever applied to grass lands?—Yes. To grass lands that have long been pastured for



dairy purposes, as in Cheshire,—or eaten off by growing stock, as in many of our hill pastures,—they have been applied with great profit. Even where the grass lands are wet, the bones have produced remarkable benefits.

What do bones consist of?—Bones consist of glue or *gelatine*, which may be partly extracted by boiling them in water—and of bone-earth, which remains behind when bones are burned.

Is the glue or *gelatine* of bones a good manure?—Yes, it is a powerful manure. It assists very much in pushing forward the young turnip plant, when this crop is raised by the aid of bones.

What does bone-earth chiefly consist of?—It consists chiefly of phosphoric acid and lime.

Does this earth of bones act as a manure?—Yes, because all plants contain, and therefore require for their healthy growth, a certain quantity of lime and phosphoric acid.

Why do old dairy pastures especially require bones?—Because milk and cheese contain bone-earth, and if these be carried away and sold off the farm for a number of years, the land is robbed by degrees of this bone-earth, more than of any other substances. Only those grasses can then grow which require little bone-earth.

And what effect follows from adding to the bones?—The bones supply the bone-earth of which the land had been robbed. New grasses then spring up which contain much bone-earth, and these, when eaten by the cow, produce milk in greater abundance, and richer in cheese.

Are bones applied in any other form?—Yes. They are sometimes dissolved in sulphuric acid (*oil of vitrol*.)

How do you dissolve bones in sulphuric acid?—About equal weights of bone-dust and of acid are taken. The acid is diluted with three times its bulk of water and poured upon the bones, and the mixture is stirred occasionally for two or three days.

What is the advantage of thus dissolving the bones?—One of the chief advantages is, that the substances of which the bones consist are very minutely divided. They can thus enter more readily into the roots of plants, and a smaller quantity produces an equal effect upon the crop.

Is hair much used as a manure?—No. Hair is generally too expensive to be used as a manure. But in China, where the people's heads are all shaved, the shavings are collected for manure, and the sweepings of our hair-cutters' rooms might be also employed with profit.

In what form is wool used as a manure?—In the form of woollen rags. Mixed with earth woollen rags make an excellent compost. They are much used for manuring the hop grounds.

What kinds of animal dung are most commonly employed as manures?—Night-soil, horse-dung, cow-dung, sheep's dung, pig's dung, and bird's dung.

Which of these is the most valuable?—In general, night-soil and bird's dung are the most val-

uable; next to these is horse-dung, after that, pig's dung, and lastly, cow's dung.

Why is night-soil so valuable?—Because men generally live upon a mixture of animal and vegetable food, which renders the dung richer.

Why is the solid part of horse-dung richer or hotter than cow-dung?—Because the horse voids little urine, compared with the cow.

What is the principal objection to using pig's dung?—The disagreeable smell and taste it is said to give to the crops raised from it.

What is the best way of using pig's dung?—The best way is to make it into a compost, or to mix it with the dung of other animals.

Why is cow-dung colder and less liable to ferment than most other kinds of dung?—Because the large quantity of urine voided by the cow carries off a greater proportion of that which would otherwise cause it to ferment.

In what respect does the mixed dung of animals differ from the food on which they live?—It differs principally in containing a less proportion of carbon, and a greater proportion of nitrogen than the food they have eaten.

How does it come to contain less carbon?—Because animals throw off a large quantity of the carbon of their food during breathing.

In what form does the carbon of the food come off from the lungs during breathing?—In the form of carbonic acid gas.

How much carbon does a man give off in this form from his lungs in a day?—A full grown man gives off about half a pound in a day, and a cow or a horse eight or ten times as much.

Does all the nitrogen of the food remain in the mixed dung and urine of animals?—Yes. Nearly all the nitrogen remains—mixed with a smaller quantity of carbon than was in the food.

Is this larger proportion of nitrogen the cause of the greater activity of the dung of animals?—

Yes. It is one of the principal causes.

What form does this nitrogen assume during the fermentation of animal manures?—It assumes, for the most part, the form of *ammonia*.

What is ammonia?—Ammonia is a kind of air which has an exceedingly strong smell, and possesses alkaline properties,—the common hartshorn of the shops is merely water impregnated with this gas.

Under what circumstances is ammonia produced naturally?—It is produced in fermenting compost or manure heaps, and in fermenting urine, and it is the cause of the smell perceived in hot stables.

How can you detect the presence of this ammonia?—By dipping a rod or feather in vinegar, and holding it over the dung heap or in the stable, when, if ammonia is present in the air, white fumes will become visible.

What does ammonia consist of?—Ammonia consists of the two gases, nitrogen and hydrogen.

How does this ammonia enter into the roots of plants, when it is formed in the manure?—It is

dissolved in the soil by water, and is then sucked in by the roots.

What substances are formed in plants by the aid of this ammonia?—The gluten and other substances containing nitrogen are formed by the aid of this ammonia.

Is this ammonia, then, a very important ingredient in the manures?—Yes. Because nitrogen, in some shape or other, is absolutely necessary to the growth of plants.

In which part of the manure—the solid or the liquid part,—is this ammonia produced in greatest abundance?—It is produced in the greatest abundance in the liquid part, especially of cow's manure.

Is it not of great importance, therefore, to preserve this liquid part?—Yes. It is of the greatest possible importance, though it is too often allowed to run to waste.

How would you collect the liquid manure of your farm-yard.

I would make a large tank or cistern in or close by my farm-yard, in which I would collect it.

How would you use this liquid manure?—I would pump it back occasionally upon my dung heaps, so as to promote their fermentation; or I would pour it upon my compost heaps.

Would you not employ it alone as a manure?—Yes. During the spring and summer I would dilute it with once or twice its bulk of water, and after it had fermented for some time, I would put it on my grass land, on my young clover, or on any other young crops, with a water-cart.

Is there any important difference between the fermented urine of our cattle and the drainings of our dung heaps?—Yes. The fermented urine of our cows, horses, and sheep, contains potash, soda, and ammonia, but no phosphates,—while the drainings of the dung heaps almost always contain phosphates.

Is there any other liquid containing ammonia which might be employed as a liquid manure?—Yes. The ammonia liquor of the gas-works, diluted with four or five times its bulk of water, should be collected and employed in the same way as the liquid manure of the farm-yard.

Does bird's dung form a very valuable manure?—Yes. Pigeons' dung especially, is a very rich manure; and the dung of sea-fowl has lately been introduced into this country, with great advantage, under the name of Guano.

To what crops can guano be profitably applied?—It may be profitably employed as a top-dressing to the young corn crops, or it may be used, instead of the whole or of a part of the farm-yard dung, for the turnip and potato crops.

In using it for the turnip or potato crop, ought it be allowed to come in contact with the seed?—No. It is better either to cover it, or to mix it with a quantity of earth, so as to prevent the seed from touching it.

Is it proper to mix guano with quicklime?—No. Because the quicklime sets free the ammo-

nia contained in the guano, and causes it to escape into the air.

Is it better to use guano alone, or in place of one-half only of the usual farm-yard manure?—It is better husbandry to use it in raising turnips and potatoes, mixed with one-half manure.

Why is it better husbandry?—Because the guano, used alone, does not supply to the land a sufficient quantity of organic matter to maintain it in the most productive state.

How much guano would you apply per imperial acre?—About two cwt. per acre as a top-dressing for the corn crops, and two or three cwt., when used instead of half the dung, for potatoes and turnips.

What kind of fish refuse is usually employed as a manure?—In the curing stations the guttings and cleanings of the herring and pilchard and the heads of the cod are extensively employed as a manure.

How is this refuse best used?—The best way is to make it into a compost with earth and a quantity of marl, if it is to be had, and to turn it over once or twice before using.

Name the most important mineral manures.—The most important mineral manures are, nitrate of soda, sulphate of soda, common salt, gypsum, kelp, wood-shes, and lime.

What is nitrate of soda?—Nitrate of soda is a white salt-like (saline) substance, which is found in the earth in some parts of Peru, and is often applied with great advantage as a top-dressing to grass lands and to young corn.

What does nitrate of soda consist of?—It consists of nitric acid and soda.

What is nitric acid?—Nitric acid is a very sour corrosive liquid, called also aqua-fortis. It consists of the two gases, nitrogen and oxygen.

Upon what does the beneficial action of nitrate of soda upon plants depend?—Upon its supplying nitrogen and soda to the growing crops.

What quantity would you lay upon an imperial acre?—From 1 cwt. to 1½ cwt. to an imperial acre.

What is sulphate of soda?—Sulphate of soda is the substance commonly called Glauber salts, and consists of sulphuric acid (*oil of vitriol*) and soda. It sometimes produces good effects when applied as a top-dressing to grass land, to turnips, and to young potato plants.

How is common salt applied?—Common salt may either be applied as a top-dressing, or it may be mixed with the farm-yard or other manure, or with the water used in slacking quick-lime.

In what places is salt most likely to be beneficial?—In places that are remote from the sea, or are sheltered by high hills from the winds that pass over the sea.

How do you account for this?—Because the winds bring with them a portion of the sea spray, and sprinkle it over the soil to a distance of many miles from the sea shore.

What is gypsum?—Gypsum is a white sub-

stance, composed of sulphuric acid and lime; it forms an excellent top-dressing for red clover, and also for the pea and bean crop.

Under what circumstances ought these salt-like or saline substances to be applied?—They ought to be applied in calm weather, in order that they may be equally spread,—and soon after or before rain, that they may be dissolved.

Are mixtures of these substances sometimes more beneficial than any of them applied singly?—Yes. A mixture of nitrate and sulphate of soda usually produces a much more beneficial effect upon potatoes than either of them alone, and the same is often the case with a mixture of common salt and gypsum when applied to the bean crop.

What is kelp?—Kelp is the ash that is left when sea-weed is burned in large quantities.

Can it be employed usefully as a manure?—Yes. As a top-dressing to grass lands and to young corn—or even mixed with the manure for the turnip and potato crop it may be employed with much advantage.

Has kelp been much employed as a manure?—Not hitherto, but there is reason to believe that, if fairly tried, it might be profitably employed to a large extent.

Are wood ashes (or the ashes of burned wood) a valuable manure?—Yes. When applied to grass lands wood-ashes destroy moss, and increase their luxuriance: upon young corn and potatoes they produce a similar effect, and are profitably mixed with bones, rape-dust, guano, and other manures which are employed for the turnip crop.—*Johnston's Agricultural Chemistry and Geology.*

## INFLUENCE OF CLIMATE, SOIL, &c., ON THE AGRICULTURE OF DIFFERENT DISTRICTS.

It has been too much the fashion, for agricultural writers to decry all practices peculiar only to a *district*—to revile farmers for going on in their old methods, and to set up some undeviating rule, as unchangeable as the law of the Medes and Persians, for their guidance.

Such writers have been the cause that book-farming has so much fallen into contempt with practical men, because, forgetting that agriculture is more than any other art ruled by circumstances, they take the *à-la-mode* or fashionable farming, and apply its principles to places and circumstances for which it is not at all suitable. We will give a few examples, to show that a farmer would always do much better in following the practices of the best, the most intelligent, and most *successful* farmers, native to the district he may be removing to, than in importing new ones with him; that he ought rather to select the best specimens of the stock indigenous to the district, than import new, however apparently better; and that he will find it more advantageous for him to

attend to the plain spoken remarks of the home-spun farmers of the district, or even of the old labourers in the parish or farm he goes to, than to read books of husbandry or scientific works. Small farmers and labourers may seem rough hewn and blunt spoken, but they are often shrewd and intelligent. However ignorant of printed books, the book of nature has been always open to them, and if their experience has been limited and confined to a small sphere, it is only (like the microscope in optics,) so much the more minute in its observations. Books of husbandry can only be written in a general or special manner; if in a general, then all the minutiae which are wanted as a guide, are absent; if special, then the work is only limited to a certain district, and gives quite wrong advice to those living in other districts; not but that farming books are very useful, but it is only as an *aid* to experience and practice, not as a *guide*. They give hints to intelligent men, which they may very often turn to great advantage, by trying them first on a small scale, and altering them to suit their particular circumstances; they inform us of the progress of our art in various districts; they refresh the memory, brighten the intellect, and improve the mind; they are vast stores of facts, from which many useful lessons may be learned by the studious farmer.

The varying circumstances under which the practices of different districts alter are very numerous, but the principal are,—climate, soil, situation, dense or thin population, high or low wages, rents and taxes, good or bad markets, whether covenants are strict and game carefully preserved, or the contrary, farms large and capital plentiful, or the reverse, and the mode of living usual in the country.

Unless another district is the same, or varies very slightly in all these respects, it is worse than folly for strangers to quarrel with the husbandry, and call everything wrong that is not exactly that of their own district; for depend upon it every district, taken as a whole, practices the best and most profitable mode of agriculture according to its circumstances; alter these circumstances, and of course, the former mode of agriculture ought to be modified accordingly.

Let us now, by this rule, examine a few modes of culture recommended to the English:—First, the Belgian: the only points in which they are said to excel us, are in tanks and liquid manuring, and in constantly keeping cattle, cows, &c., on green food in sheds. But Belgium is a very thickly populated country, where the farms are very small, wages low, the soil sandy, and the climate drier than ours. On our large and middle sized farms, the constant trouble of bringing in green food, perhaps from more than a mile, to a very large number of cattle, would not pay, especially when we consider that our moist climate supplies us with unequalled green meadows, which the Belgians have not; and the much greater

quantity of rain that we have, makes it much easier for us to supply *liquid manure* by top-dressings of concentrated powdered manure, to be washed in by the rains or heavy dews. A dry climate and sandy soil may require frequent manurings, and as liquid manures both water the land and manure it, they are suitable for Flanders, but by no means to the large farms, stiff soils, and moist climate of Britain.

The Scotch farming is only suitable to Scotland, or to a country similar in climate, scanty population, large capital, good markets, and the taxation per acre small. It is seldom that a country can have the advantage of good markets, without the disadvantage of heavy taxation, and a superabundant and expensive poor; but Scotland has such an advantage, owing to its vicinity and connection with England. The fact often stated of rents being comparatively high in Scotland, is occasioned by the English landlords, rents being greatly diminished by higher taxes, tithes, and rates. The capital turnip crops are caused by its being a root suited to moisture and colder atmosphere, and to cloudy skies and mists. The culture on ridges or raised drills so suitable for a climate generally too wet, is hurtful in one often too dry. The greater growth of potatoes is from the same reason. Our climate, except in its western parts as Yorkshire and Lancashire, does not suit them so well, and in our eastern districts landlords forbid their being (if grown on a large scale) sold off the farm. Barley is universally reaped and tied up in Scotland. In the eastern part of England, it is always mown and carted loose; and we have our reasons. Our barleys are from the drier climate, generally very short and brittle in the straw, and often not more than one and a half feet high; they could not, therefore, be reaped or bound, and from being nearly always grown with clover, which is, especially when the barley is short, tolerably long, the tying up in sheaves would be still more objectionable.

The English on their side, object to the Scotch growing so much oats in lieu of wheat; but here the Scotchman is right; oats suit his climate better, and form many favourite articles of Scotch diet. The Englishman says, the Scot uses more seed than is necessary for his crops; but the Scot is right, as more seed is there destroyed by wet and frost, and the thicker sown seed comes ripe earlier.

The Scotchman, says the Englishman, ought to have complete steam thrashing machines to thrash, dress, and sack the corn at one operation, and not thrash by flail, or use little portable cut-down machines. Here the Englishman has various good reasons—not to mention that many English leases forbid thrashing by machine. The population of England, which *must be supported, work or not work*, is so dense, that it is often advantageous to thrash by hand, even if costing more money. But with English hired out machines, the saving in expense is very little, the only ad-

vantage being in expedition and freedom from pilfering. The advantages of flail thrashing are the supply of straw fresh to cattle, the procuring straw straight and less broken for various purposes, and the better condition in which barley is sent out for malting and seed. But machines are now made that do these two latter points as well. In Scotland, the corn from the late harvests and uncertain climate is cut greener,—this makes it thrash out worse than the English, and the straw, from this practice and the damp climate, is less brittle; both these render the corn more suitable for machines than for flails. Coals are cheap in most of the southern parts of Scotland; and the fact of coals costing only 7s. or 8s. a ton in many parts of Scotland, and more than 30s. in many, especially the inland, parts of England, is a hindrance to the use of steam thrashers in this country—this evil railroads will remedy. Farms in Scotland are large; the interest of the money spent for the engine is therefore much less per acre than it could be on the moderate sized farms of England, and they can also keep the machine more constantly employed. There is another reason why the English have not disused the flail, and that is that they are more skilful with it, and it is a better implement in England than in Scotland. In Scotland, judging from the engraving in Stephen's *Book of the Farm*, it is only a couple of sticks tied together with a thong of leather; but, besides this thong, the English flail has a small ashen bow, which allows a complete circular motion at every stroke of the flail.

The Englishman, in his turn, objects, but with little reason, that irrigation is not practised in Scotland; but why should it? Irrigation is only useful on a sandy, gravelly, or otherwise barren soil in a hot climate, where the water not only cools the ground, but supplies moisture and food to the grass or plants. But what is the use of constant watering in a climate naturally too wet, or of cooling the soil in a climate naturally too cold?

The Scotchman ploughs deep and rightly on his deep stapled loamy soils, where one of the objects is to carry off the superfluous wet more quickly; but he is wrong in finding fault with the Englishman for ploughing shallow; for why should the Gloucestershire farmer plough deep on the stone brash soils, when the subsoil is naturally very loose and open from the quantity of stones therein? or the Norfolk farmer loosens his sands which are too loose and blowing already, or break up the "pan" as the Scotch advise him to do, to let "the goodness of the soil into the subsoil?" Which goodness or richness does not mean the manure only, but the made soil of marl and clay, which, the "pan" being broken, would very quickly sink below a cultivated depth. In fact, it does so, and an extra deep ploughing is sometimes used to bring part of a former coat of marl again to the surface. In the fenny parts of Gloucestershire, (as Mr. Pusey tells us), merely par-

ting the ground by manual labour is preferable to ploughing.

I have now given a few of the reasons that shew that the practices of any district are not to be despised, because they may differ from the rules of fashionable farming. To give all the reasons for the dissimilarity in the farming of different districts would take too much space. I shall therefore conclude with an example in which theory would have found itself wholly at fault:—In the Essex salt marshes, Welsh cattle are preferred to any other. Theory would decry these thick-skinned slow-fattening animals, and ask—why not employ the superior Scotch and Highland cattle? Practice gives a very sufficient answer; because on these bleak open tracts altogether without shelter, the flies in summer bite so sharply, they run madly about, and get thinner instead of fatter, while the thick-skinned Welsh stand quietly feeding without minding the flies, and do well.—*R. W., Sept. 21*

#### DECOMPOSED POWER OF PURE WATER AND OF WATER CHARGED WITH CARBONIC ACID.

The last number of *The Chemical Gazette* contains a paper, by the Messrs. Rogers, on the decomposing power of pure water, and of water charged with carbonic acid. This communication is of importance to horticulture, and throws light upon some hitherto obscure points in the theory of cultivation. More especially it shows that decaying substances, such as those which constitute the larger part of manure not only act of themselves, by emitting carbonic acid, sulphuretted hydrogen, and other products of decomposition, but that they also break down and reduce to their elements the particles of earth with which they are mixed. The Messrs. Rogers have proved, experimentally, that water holding carbonic acid in solution, acts with much energy in a short space of time, separating lime, magnesia, alkali, &c., from the hardest rocks. When such substances are finely powdered, "proof of the solvent power of the carbonated water may generally be obtained in less than ten minutes after adding it to the powder." The carbonated water was prepared by charging water to saturation with carbonic acid, at a temperature of sixty degrees. It is true, that absolutely pure water, artificially deprived of air, also possesses the same power; but the action is comparatively slow. The precise difference in their value is not stated, but it is incidentally mentioned, that the carbonated water does, in forty-eight hours, what pure water only effects in a week. This seems to explain why common stable manure is so much more useful an agent in cultivation than its saline ingredients, when separated; and, also, to shew that it is not merely because stable manure is the best natural mixture of all the ingredients which plants require for their food, that it acts so beneficially, but also because it long remains an active source of carbonic acid, by whose agency the soil itself is freed

from its soluble nutritious matters, which then, and then only, become the food of plants. Such being the case, it may become a question, whether, at least for certain garden purposes, it might not be worth while to introduce carbonic acid into water, by some artificial process. Water has a great affinity for it, and readily takes up its own volume, and it is perhaps possible to charge water with it, by some very simple and unexpensive contrivance. Might not, for instance, the air carried off by flues, and which consists largely of carbonic acid, be compelled to pass over tanks of water? Before, however, such an experiment were tried, it would be desirable to use carbonated water experimentally for plants, for some time, and carefully to mark the result. A bottle of chalk and some cheap acid, with a bent tube rising from the mouth and dipping into water, would supply in abundance carbonic acid, which might be caught in a large bell glass, from which the water would soon absorb it. Another point, in the researches of the Messrs. Rogers, has also a high practical value. Attention has been drawn for many years to the importance of determining, by chemical analysis, the nature of the ashes left by plants when burned; and considerable sums of money have been expended by chemists in endeavouring to supply this desideratum. If such information is important to any one, as it most undoubtedly is, it is more especially so to gardeners, whose crops are so much more varied than those of farmers. But to have any great value, such analyses must be accurate, and, according to the Messrs. Rogers, this has not as yet been the case, owing to an unsuspected source of error. That the fixed alkalis are to a certain extent volatile, is well known; but, according to the authorities we are now quoting, they are much more so than is generally imagined; and, therefore, the determination of the quantity of them present in a plant is attended with much error, when they are analysed by means of burning, as is the usual practice. "From the great rapidity," say these chemists, "with which, according to our experiments, potash and soda, and their carbonates, but especially potash and its carbonates, rise in vapour at a strong red heat, we are persuaded that a large error must be committed in estimating the amount of these materials contained in plants by the results of incineration; and we believe, that, in not a few cases, the quantity obtained is scarcely one-half of what really exists in the vegetable mass. The important bearing of this consideration, upon the late numerous and elaborate analyses of ashes, should, we think, claim the special attention of chemists. Indeed it seems a little remarkable that the source of error, here referred to, has not already been brought to the notice of analysts, as likely to modify materially their results." It seems important, that this unexpected statement should be verified, by those who are labouring at the tedious, but necessary, examination of the ashes of plants.—*Gardener's Chronicle.*

**ON THE FEEDING OF FARM-HORSES,  
FOR THE PREVENTION OF COLIC AND INFLAMMATORY  
AFFECTIONS OF THE ORGANS OF DIGES-  
TION.**

Anatomy shews; that—"Of all creatures, the horse has the smallest stomach, relative to its physical size. Had he possessed the quadruple ruminating stomach of the ox, he would not have been, at all times, ready for exertion; the traveller could not have baited his steed, and resumed his journey. The stomach of the horse is not so capacious, even when distended, as to impede his wind and speed; and the food passes onward with a greater degree of regularity than in any other animal. A proof of this is, that the horse has no gall-bladder.

"Another peculiarity with the horse is the supply of fluid. When the camel drinks, the water is deposited in cells, connected with the stomach; but if the horse drinks a pail of water, in eight minutes none of that water is in the stomach; it is so rapidly passed off into the large intestines." Let it also be borne in mind, that the whole intestinal structures of the horse are of an equally peculiar form, and very sensitive in every part; that the stomach, moreover, rests upon the large intestines; its forepart is close to the liver, and its left side is in contact with the diaphragm, or midriff—one of the most important muscles of the frame, and the principal agent in breathing, besides performing many other important functions by means of its connexion with the other intestines. And thus, in whatever organ, or from whatever cause, internal inflammation may originate, the immediate connexion or sympathy of parts soon conveys the disease throughout the whole intestines.

Such, then, are the peculiar intestinal structures of the horse; and so rapid is the progress of a pail of water from the stomach through all the convolutions of the small intestines, sixty feet in length, at a moment when these sensitive teguments, and all around, are probably at a temperature more than double that of the liquid they then contain. What but spasms, inflammation, and death can await the poor horse, unless very prompt and efficient remedies are applied? Wet green food, given in quantity, under similar circumstances, will produce the same effects upon horses, heated and exhausted by previous hunger and fatigue. This almost every post-master and groom well knows, and studiously endeavours to avoid; and surely the farmer ought also to be equally aware of, and guard against it. Yet he complains of the loss of one and another of his best horses, by some hidden sickness, which he cannot account for; nor, until too late, discovers that the horse, having returned from his last day's work covered with perspiration, or shivering under rain, was led to the water-pond, plunged in, and drank his fill, then put in the stable, and served with such provisions as came to hand, fresh or

fusty, and left for the night, without a single hair being touched with whip or comb. The servant may be also young and inexperienced;—but why is he intrusted with horses, or not properly instructed in the first principles of his duty towards them?

There are other causes of an opposite character, where, from the propensities of the servant, in mistaken kindness to the horse, or even with the consent of the inconsiderate master, horses are served with corn unseasonably, or in excessive quantity, or of unsound quality. "*Stomach staggers*" soon ensue, and instances might be related of horses dropping down dead in the yoke in this state—the stomach having become ruptured by the over-distention or swelling thus occasioned, either from too full a feed of any kind, or partaking of food of an improper nature, or even drinking an excessive quantity of cold water, and then put to severe exertion.

In addition, however, to such casualties as these, there are other latent sources of disease, arising from the mode of keeping the natural, and preparing the artificial, food, of many farm-horses, as well as the manner of supplying it. The small farmer, in particular, generally throws the straw into large mows, or heaps, on low damp floors, where it becomes musty; or stows it in the confined loft of a crowded stable, where, fumigated with the exhalations from beneath, the poisoned mass is dealt out to the devoted animals, who thus becomes the innocent victims of various diseases, if not of subsequent destruction. Or, if a portion of the food is boiled or steamed, it often wants the most essential ingredient of the whole, a proper quantity of salt; so that the mess is probably sour before it is administered, or immediately becomes so in the animal's stomach.

Then there is the half rotted, frosty-cut clover, or after-math, at the close of Autumn, so pfeignant with danger to the farm-horse, all of which dangers the harness-horse escapes, by a more uniform course of keeping. The latter is chiefly fed on corn and hay, and is regularly supplied at intervals of three or four hours at most, according to his work or stages;—while the farm-horse has his consecutive yokings extending to ten or twelve hours a-day, often more, with but little intermission for baiting or rest; has less corn, and in general subsists nearly two-thirds of the year on coarse fodder (oat or bean straw), which fills the stomach without affording much real nourishment.

Let it not, however, be said that the fresh straw of the common crops of the farm, together with the customary feeds and mashes duly served, are insufficient to maintain the horses in proper condition, under ordinary circumstances, without the aid of much, or any hay. Nothing is more easy and obvious than to prepare the food of horses in a proper manner, although it certainly requires some care, activity, and arrangement, on the part of both master and servant. If, for example, in

commencing with the fodder of the new crop, and until the system of steaming becomes more general,—if the new straw were mixed with some sweet dry straw of the previous season, or sprinkled with a few handfuls of salts, as it comes from the thrashing-floor, it would greatly promote the health of the horses, as well as of the other stock; and provident farmers always reserve one or two stacks of corn or pulse, for the purpose of being so mixed or used alone, till the straw of the new crop becomes seasoned by a few weeks in the stack,—as pease or beans, beans especially, are very flatulent, if taken new or in a soft state, but excellent fodder thereafter, and are much relished by horses accustomed to it. And when the leaves, pods, and chopped stems, or chaff of beans, and the *tails*, or small corn from the winnowing machine, are mixed and boiled, or steamed, together with some turnips or potatoes seasoned with salt, and given lukewarm in lieu of oats to the jaded horses, as they return in the evening, the benefits are apparent in their plumper form and glossy coats. It is by means of such mashes, or by combining the corn with the chaffed hay, that old and weary horses are enabled to masticate so easily, and lie down more readily to repose; while others must stand several hours gnawing their ill-suited ration, or hastily swallow it in a crude state to stifle the cravings of hunger, and then lie down to die of colic.

Carrots and Swedish turnips, well cleaned and dry, may safely be given in an unprepared state, when the horse is cool, and not attenuated with warm food; and the second crop of clover, if early made into hay, and slightly salted, with or without a mixture of old hay or straw, might be made greatly more available for all kinds of stock, instead of remaining uncut till late in the season, bleaching under every change of weather, and then given to the horses in a half rotted green state.

These remarks may suffice to shew that the causes here assigned, as inductive of the maladies referred to, are not gratuitously assumed, and that the subject really claims the immediate attention of all interested in preserving the health of the horse. The means of preventing such diseases are, therefore, the more obvious, inasmuch as the cause and effect are placed thus in juxtaposition; *pari ratione*, the remedy must be apparent, and prevention more meritorious than cure. In place, then, of presenting a pail of cold water to a warm horse, a little tepid water should be substituted—the mouth being previously washed, and freed of coagulated saliva, with cold water, and the horse stripped of every encumbrance, carefully rubbed down, and allowed to stand picking at dry hay or straw till cooled, before any cold water or corn is given him, or he be turned out to pasture. For not more grateful is a change of raiment to the dripping teamman himself, on escaping from the drenching rain, than is a thorough cleaning from mud and sweat

to his smoking steeds, just relieved of their heavy draught. Yet in nothing are farm-servants in general more negligent; nor are those men otherwise to be taught but by the watchful superintendence and strict discipline of the master, seasonably enforced,—not merely in the uniform treatment of the horse, in and out of yoke, but to the stable, which can hardly be too clean, or over ventilated—a point almost wholly overlooked on many farms. How many districts may be traversed without seeing a single roof-ventilator, or even a hole in the wall of the stable or cow-house. It is well to have separate houses for the provender, as contiguous as possible to the stable, but not connected with it by any party-door or hatch, which never fails to act as a conductor of the heated atmosphere of the stable into the connected apartment, in the same way as it passes through the racks and crevices into the stable loft, which is often hotter than the stable itself, especially under a tile roof. Such a plan would supersede the use of high racks, so awkward and unnatural to the horse, and so wasteful of his food; while he, with much greater convenience, could feed either standing or lying from a manger or sparted crib in one angle of the stall, with a corn-box in the other.

Of the best mode of curing inflammatory complaints, it were superfluous here to treat at length, as it manifestly must tend to a still greater aggravation of an evil, already far too extensive, were every farmer in each intricate case to become his own farrier, without any tuition, and but in possession of a few recipes, or certain patent medicines, the properties of which he neither understand, nor can properly administer. And grievously, indeed, would the patronage and funds of the Highland and Agricultural Society be wasted, in the establishment of a Veterinary College, under an able Professor, should any one, farmer or not farmer, decline the inestimable boon of obtaining the assistance of a competent veterinarian provided for them, and now in progress of being placed within the reach of the remotest cottage in Scotland. No, the farmer has suffered enough from his own apathy, and the quackery of common blacksmiths who must needs pretend to the veterinary art, and whose pharmacopœia almost exclusively consist of stimulating drugs. Every disorder was termed "*bots*;" and *worms*, *bots*, and *colic*, were confounded together, and treated alike.

Science, however, has now happily expunged "*bots*" from the vocabulary as perfectly innocuous, and found other and safer vermifuges than those formerly resorted to.

Let the farmer, then, simply attend to the first symptom of disease, and minutely investigate every particular relative to the animal's situation, work, food, and drink, during the preceding day or night. A knowledge of all these is indispensable to a discrimination of the complaint; and if servants tell will the truth, or whether they will

or no, the real cause may frequently be discovered by the farmer himself, and thereby greatly facilitate the cure. Meantime, if need be, four to six quarts of blood may be taken, according to condition, from the horse, in *almost every case of sudden indisposition*; or, should it prove to be a spasmodic colic, two or three ounces of the oil of turpentine, added to a pint of warm malt or gruel, will generally afford instant relief. But farther than this no one should venture, without the presence or permission of a veterinary surgeon, or some other experienced farrier, whose advice must instantly be sought and implicitly followed; for such, it is seen, is the extreme sympathy of parts pervading the whole system, that injudicious applications greatly heighten and rapidly extend disease. To illustrate the propriety of urging these precautions, it is only necessary here to add another fact to those already adduced, by stating, that a horse lately, under a dose of shop-bought strong medicine, requiring total withholding of green food during its operation—but the nature of the medicine being misunderstood by the attendants on the horse, green food was given, and the poor animal died in the course of a few hours thereafter, of entanglement of the intestines, brought on by the arrant neglect of not requesting the assistance of a veterinary surgeon.—By *James Carmichael, in Transactions of the Highland Agricultural Society of Scotland.*

LURGAN UNION FARMING SOCIETY,  
IRELAND

Dr. HODGES said, that as the representative of the Chemico-Agricultural Society, it was his duty to thank them for the hearty reception with which the toast had been received. He conceived, he said, that the support which the farmers of the North of Ireland gave to that Society was a most gratifying proof that, in Ulster at least, the cultivators of the soil were determined to adopt every means of qualifying themselves for the proper performance of the duties of their important occupation. It would indeed be strange, he continued, that in this age of action, when science is every day being applied to purposes of practical utility; when gases, once only familiar to the chemist, are made to afford a cheap and cheerful light to our towns; and, while that mysterious power, which the philosopher discovered, was set in motion by the solution of a piece of metal in an acid, is made to carry the news of the market with the rapidity of thought, for thousands of miles, and even to print its message; it would, indeed, be strange, he said, that the people of Ulster, who in their staple manufactures have every day before their eyes so many examples of the successful application of the discoveries of the chemist, should not desire to try whether the same science, which had done so much for the manufacturer, might not also form a useful auxiliary to the farmer—might not be usefully di-

rected to the improvement of the most important of all the arts—the art of manufacturing food. It was a feeling of this kind which led to the establishment of the Chemico-Agricultural Society; and the people of Ulster might justly boast, that, while many of the plans by which Irishmen hoped to benefit their country were regarded with but little respect by the English public, the example, which they had afforded, in associating themselves, for their industrial improvement, in the Chemico-Agricultural Society, had been alluded to, at English meetings, as worthy of imitation; and a Society on the same plan had recently been established for England. Chemistry has discovered many things within these few years, of the plants grown by the farmer, which it was his interest to know. It has discovered the beautiful connexion which existed between the soil, the plants grown upon it, and our own bodies, and that the wonderful variety of composition which the rocks that cover the earth present, was wisely designed by that Providence, who had made nothing without a purpose, to supply food to the vegetable tribes. Science has also taught us the matters that the different crops that we cultivate require for their growth, that their seeds and roots may attain their full development. It has also taught us that both the air which is above and around us, and the soil on which we stand, is full of food for our crops, and that every green leaf that the plant hangs out is incessantly at work drawing in nourishment from the air, and appropriating it to its use, so that it is not a mere fancy of the poet, that

—“Every flower  
Enjoys the air it breathes.”

It also instructs us how the plant may be assisted in appropriating the food which is thus provided, and also, how it may be most economically supplied, when it is not present in sufficient quantity; and thus chemistry becomes of the greatest practical value to the farmer. The object of the Chemico-Agricultural Society is to make this knowledge accessible to every farmer, to shew what his crops require for their food; to direct him in the purchase and preservation of the manures which he employs; to teach him how waste may be prevented, and the products of his fields increased.

WHEN HONEY MAY BE TAKEN FROM BEES.—Honey may be taken from bees now, but if much later, they must be fed. We have no experience of the use of saltpetre in stupifying bees, but it can be very readily done by ether: get a bladder, cut a hole in the bottom, and place in the bladder a piece of sponge, dipped in ether; put a piece of tube of any sort into both ends of the bladder; tie the bladder securely to both tubes by means of a waxed string; put one tube into the hive, and apply your mouth to the other, and blow for about ten minutes, when the bees will get etherized.



# Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, DECEMBER, 1848.

It is a fact too well established, that the most successful farming in Canada does not yield a large profit to the farmer, after all expenses are paid. It is therefore essential that the expenses to which Agricultural produce are subjected after the farmer has it prepared for sale, should be as moderate as possible, because every penny of these expenses diminishes by so much the value to the farmer of the produce he raises. The merchant, when purchasing produce, will calculate what it will cost to bring this produce not only to a shipping port, but to a British market, and will unquestionably deduct this amount from the price he pays the farmer. We possess at present the most noble water communication on earth, extending into our fine country a distance of nearly 1,500 miles from the sea, and we cannot understand why, under such favorable circumstances, the cost of transport of our produce from the farthest part of Upper Canada to our sea-port towns, should not be very moderate, and we would also hope that the charge of freight from Montreal and Quebec would be equally moderate in proportion. These are matters more interesting to farmers than to any other class of this community, as their produce has to pay all these charges. There is another circumstance we think it our duty to allude to, that is—the keeping open our great water communication for navigation to as late a period of the season as possible, and we are convinced this might readily be done, without incurring any great expense, by suitable machinery to break the ice upon our canals. Our navigation is closed for about five months in the year, and it must be obvious what an advantage it might

be to our farmers to have an opportunity to dispose of produce in the fall, if inclined to do so, previous to the closing of the navigation. We have in this number recommended the fattening of cattle and swine for exportation in beef and pork. The slaughtering of cattle and pigs cannot well commence before the month of October; and if the beef and pork prepared for exportation in that and the following month, has to be kept over until the spring before it is exported, it will probably be much deteriorated in quality, and perhaps in value, before it gets into British markets. The sooner our beef and pork are brought into English markets after it is salted and packed the better it will be, and the quicker return for the capital employed in that trade. These observations will also apply to our butter and cheese trade, however trifling. It is not without waste, a farmer can keep grain over five or six months, exposed to vermin, fire, &c. We conceive it quite possible to add a month to the usual period of our navigation, by adopting the means in our power; and we are satisfied that if farmers will reflect on the subject, they will see how important it is, that the freight of their produce from the moment it leaves their premises, until it arrives in British ports, should not cost over the lowest possible figure for which it could be transported. The St. Lawrence below Quebec, should have all necessary light-houses provided, to make the navigation as safe as possible. We are unworthy the many natural advantages we possess in this noble Province, if we do not make them available to our prosperity by improving them where necessary. Much has been done, and it only now requires that we should complete what has been commenced on such a grand scale, and on a scale so suitable to the situation and circumstances of our country. A great expenditure has been incurred certainly, but not greater in proportion than the advantages which we may derive from our water communications if we complete them properly, and make a judicious use of them subsequently. Some of our subscribers may imagine this sub-

ject not the best adapted for this Journal, but we conceive it is altogether a farmer's question, inasmuch as they will be more benefited by cheap transport and cheap freight, than any other portion of the Canadian community.

For every half-dollar that is charged for freight, &c., upon a barrel of Flour, or the wheat required to make a barrel of flour, from the time it leaves the farmer's barn, until sold in England, it diminishes the value of a bushel of wheat at least six pence; and every other produce sold for exportation in the same proportion. Hence every half-dollar charged on a barrel of Flour, is equal to ten per cent. off the farmer's profit, wheat being at five shillings the bushel, and when less than this price, it increases the loss per cent. in proportion; therefore we may well say it is a farmer's question.

It appears, that in the British Isles, and other European countries, there is a general desire for the establishment of Agricultural Schools, Colleges, and Model Farms, for the instruction of youth in the Science, and Practice of Agriculture, as the best means of promoting the improvement of husbandry. There can be no doubt, that this is the proper mode to produce general improvement here, by giving an education suitable to the business in which they are to be employed in after life, and by which they are to obtain their living. This would be "beginning at the beginning," by affording youth an opportunity to acquire a perfect practical knowledge of their business, before they commence to farm on their own account, or go to work for others without knowing how to do so to advantage for their employer. It is hardly possible to calculate the loss that is incurred by farmers not understanding their business perfectly, and by the inexperience, and consequent inexpertness, of the labourers they employ in many works necessary upon a well managed farm. The latter inconvenience we know to be a great drawback to the profits of improved husbandry here; it indeed prevents, in numer-

ous instances, the necessary, careful cultivation of crops, by hoeing, weeding, &c. Crops are hoed in England for one fourth of what they would cost here, in consequence of the inexperience of our labourers in this work, compared with labourers in the former country, who are regularly instructed in all works of the farm, from their earliest boyhood. If Agricultural Schools, Colleges, and Model Farms are thought necessary in England, where there is a regular system of apprenticeship of boys to farmers from the period they are able to do any work, until they are twenty-one years of age, how much more necessary are they for us, who have no such plan of instruction or training? In fact, in England, every large farm is a sort of training school and Model Farm for the youth, where they have the best practical instruction, in every branch of husbandry, so far as actual labour. They have also in the British Isles the best farm management that skill and capital can command in every section of the country, and yet they are having Model Farms, for the advantage of those who still do not farm in the best manner. There is an unwillingness to intrude upon the farms of private individuals, however well they are cultivated, and managed, that would not be felt in making visits to a public Model Farm, expressly established for affording instruction, example, and information on any subjects of agricultural management. We have endeavoured to show the benefit that might be reasonably expected from Agricultural Schools, Colleges, and Model Farms, conducted judiciously, under competent superintendence—and although we feel persuaded that, so conducted, they would very soon pay their own expenses, yet, if a great amount of benefit may be produced to the country by such establishments, surely the expenditure of a few thousand pounds in the first instance, out of an annual revenue of £600,000, could not be considered an extravagant appropriation for an object of such vast importance to the general welfare of the country. If these establishments are considered

likely to produce favourable results, we humbly conceive that the expenses of them should not for an instant prevent their establishment, because if they do succeed, as we confidently anticipate, they will amply refund to the revenue, any loan made to them. Let it only be admitted that such establishments are necessary, and would be highly beneficial, and there should be no further question as to the expediency of providing for them. Let us view the subject in another light? Money is granted for education, but it is that sort of education that does not include instruction in the science and art of Agriculture, that is to be the future business of nine-tenths of those to be educated. Why not educate youth suitably to gain their future living? The past neglect to provide this sort of necessary education is the chief cause that our educated young men will rather go to any business than to farming, which is unquestionably the most respectable profession in existence.

In our Agricultural Report for October, we stated that beer, in moderation, might be every properly supplied to agricultural labourers, while at work constantly in the fields, often employed in the cultivation and management of those crops from which beer is manufactured, and one of those crops—hops—would be useless for any other purpose. We consider beer as a part of the subsistence that should be allowed to farm labourers, without producing any injury to them—any more than the other portions of their food. It is quite possible to injure the constitution by excess in food, as well as by beer taken in excess, but we cannot admit that there is any necessity for excess in either one or the other. The laws of the country sanction the manufacture and sale of beer, and derive a revenue from the licences granted for that purpose. We shall not attempt to discuss whether those laws should be altered or not, but while they remain as they are, we shall hold our *individual* opinion, that the *moderate* use of beer is neither sinful nor “contrary to the

best interests of society.” We have no desire to bind men with fetters that our Creator has not imposed upon them, nor do we pretend to restrict people from the moderate use of what our laws grant a licence for manufacturing. We humbly presume that if the moderate use of beer is decidedly “injurious to the best interests of society,” our laws should no longer sanction their manufacture, or attempt to raise a revenue from it.

It has often been a matter of surprise, and a source of deep regret, to see the emigrants who have come here for settlement, leave Canada, and proceed to the United States. This country is not inferior to most of the United States, in any respect that we are aware of. There must, therefore, be some cause that induces emigrants to go there, instead of settling here; and the only one we can assign, is the want of regular employment here, that is so essential to the poor man, dependant upon the wages of labour. We may enquire then, what is it that prevents certain employment here, when we have millions of acres of fine land, only half cultivated and in forest? The deficiency of capital employed in Agriculture is the only cause that can be assigned for this extraordinary circumstance, and this cause prevents, in a great measure, the improvement required in Canadian husbandry. There cannot be any question that there is abundance of work for all the working emigrants that come to Canada, if the means of employing them were only forthcoming; but this not being the case, we lose all the advantages that might be derived from a constant emigration to this country of full grown men and women, able and willing to work. An improved system of Agriculture would require double the number of persons to be employed that we now employ in our defective system, and would amply repay the expenditure by augmented produce. We cannot have a profitable system of husbandry without a large additional expenditure of labour and capital, this being a necessary consequence

of the judicious cultivation of our lands, and having a suitable stock, and farm implements, as without all these, we need not expect that the products from our Agriculture will be excellent in quality and abundant in quantity. It is absurd to expect abundant and profitable crops from land not in a proper state of cultivation and fertility to produce a good crop, and inferior stock, and badly managed, will be equally unprofitable. A good crop will generally pay all expenses and a profit, while an inferior crop will neither pay expenses nor profit, and the land may actually be said to give no return, and be useless, when it only refunds the expenditure. This we regret to be the case with a large portion of the land cultivated in Canada, if farmers were to charge for their own labour at the same rate that is paid for hired labour. It is no wonder then that our Agriculture should not be in a prosperous state, with results that will not refund the expenditure. We do not make this assertion on insufficient grounds, as it can be proved without difficulty, by a simple debit and credit account for three-fourths of the farms of Lower Canada, for the last dozen years. Under such circumstances, is not the time arrived, that every possible effort should be made to introduce a better system of husbandry, and a more profitable one for the farmer, and for the general good of the country?

Every experiment lately made in England on stall-feeding cattle, has proved that cooked or steamed, and mixed food, is the best, and most successful in fattening, and we are convinced it would be found so in Canada in every instance. We have in former numbers of this Journal, stated the proportion of each variety of good mixen for stall-fed cattle, but the farmer can vary the mixture according to the food at his disposal. The food, though given warm, should never exceed the ordinary heat of the body of the animal, but common sense will show us that in our cold climate the food given warm must be better than given cold, because cold food will have to be heated in the

body of the animal, after it is received into it, which must cool to a considerable degree the heat of the animal body, and make it uncomfortable. We admit these things cannot be done without trouble, but this will be compensated for, by the quicker and better return of the animal for the quantity of food consumed, as we have no doubt the difference between cooked warm food, given to an animal confined in a stall, and feeding it with cold raw food, would be fully one-third, both in time and quantity required to produce the same degree of fatness in favour of the first. This would pay for the additional trouble and expense of fuel. Cleanliness, regular feeding, sufficient warmth, and good ventilation, are also most essential in stall-feeding. Box-feeding, we think an excellent plan, though some might object to the great accumulation of litter, and the length of time allowed to remain in the box under the animal. It has been found in England that allowing the litter to remain for weeks in the box provided the animal has constantly a fresh supply of straw to keep it clean does not produce any bad effect. The animal is considered more at its ease in this way than tied up, as it can turn about at pleasure, and change its position, without taking too much exercise. In this country, this would be an excellent plan of making manure, and having all the urine in the manure, without the trouble of a tank. This manure being taken from the boxes to the field, and properly piled there for use, it would keep without much wasting. We recommend the matter to the consideration of farmers.

In the stall-feeding of cattle in this country, no cheaper food can be employed than oats, when at one shilling the bushel, or under. They should be coarsely ground, and given to the animals, mixed with warm water, as a mash, three times in the twenty-four hours. From half a gallon to a gallon at a time, according to the size of the animal. If the farmer has roots of any description they might be boiled and mixed with this meal, diminishing the lat-

ter in proportion to the quantity of roots made use of. This sort of food will fatten in a much shorter time than the offal of breweries or distilleries, and make better beef. An animal put up in good condition, and regularly fed with ground oats, prepared in this way, and having plenty of good hay, will make more progress in three months, than on grains and wash, or on uncooked vegetables in six. It is an easy and clean method of feeding, and only requires trial to recommend it. It will produce much more tallow in the animal, than can be obtained from exhausted grains, that are deprived of all their fattening qualities in the brewer's and distiller's mash tub. There could be no difficulty in producing an abundant supply of stall-fed beef for our consumption in this country, if we would only adopt the means in our power. The produce of one acre of good oats, applied as we have suggested, would be amply sufficient, with hay, to fatten an animal of from six to eight hundred pounds weight, and this would pay the farmer better than to sell his oats off his farm at 1s. or 1s. 3d. the bushel, and he would greatly increase his manure.

In draining, whether with tiles, small stones, or any other material, it is most essential that the work is executed carefully; that the drains be properly placed; that they be a sufficient depth in the soil—never less than three feet; that the fall for the water be carefully carried through to the outlet; and that a competent judge of draining see the tiles or stones when laid, previous to being covered with earth. If all these matters are not attended to, a large expenditure may be incurred, without producing proportionate benefit, and thus bring draining into disrepute with farmers. Be this as it may, we maintain that draining, whether open or covered, as may be most suitable for the land or the means of the farmer, is the most essential improvement that ever can be introduced in our farming; and where it does not succeed, it will be in consequence of some defect in the execution of the work. We cannot, perhaps,

discover the defect in covered drains, as we may in open drains, and remove the defect or obstruction; therefore we must be most careful to secure a fall, and that the fall is regularly preserved to the outlet. It is a great mistake to suppose that by draining land that requires it, we may render it too dry: on the contrary, land sufficiently drained will retain the moisture that is necessary for it, and beneficial to it, better than it would previously to draining, as showers of rain will pass through the soil in summer, and not run off the land surface as is the case in undrained land that is only dried and hardened by the sun heat. An experiment will decide this question.

We wish it was possible to persuade farmers here to increase the quantity of their pastures, and improve their quality at the same time, to make them suitable for the fattening of cattle. We are confident that if farmers were to pay more attention to this mode of farming, it would be more certain and profitable, than depending too much on cultivating crops under present circumstances. We do not propose to give up cultivated crops, but that we should have a larger proportion than is at present devoted to pasturing cattle, and making good beef for exportation. The constantly high price of meat in England offers every encouragement to us to make good beef for that market, *but it must be good*, or we need not send it. Nothing has yet been done in this trade that would be much benefit to the country, and it will continue so, until farmers regularly set about fattening cattle for this trade. It will not do to have cattle of all ages and sizes pastured together, but they must be matched in age, size, and suitability, according to the pastures a farmer has for feeding. We have never seen in this country, a regular pasture, stocked suitably with cattle for fattening. Farmers mix all their stock, of all sorts, ages, and size, and of course, under such circumstances, it is only by chance a properly grass fatted animal is to be seen. There is nothing to pre-

vent us from changing this system of farming, and endeavouring to fatten cattle as they do in other countries; and the establishment of regular fairs, where farmers who had suitable pastures might purchase stock for fattening, would greatly contribute to a change for the better of our present system. Farmers who have not good pastures might then dispose of their store cattle to those who could fatten them, as is done in the British Isles, and then we would have well fattened beef for exportation; always provided that the best fatted were slaughtered for this purpose, and not the culls, as in time past, selling the best to the butchers for the Montreal market, and only packing the inferior for exportation.

#### AGRICULTURAL REPORT FOR NOVEMBER.

The month commenced fine, but on the 5th there was a heavy fall of rain, which put a stop to ploughing, and we believe it was not resumed, as the rain was succeeded by sleet, snow and frost. The ground was covered lightly with snow, on the 7th, and on the night of the 9th, the temperature fell to 12°, and the frost was very severe three or four nights. About the 15th, the weather again became temperate, and the snow disappeared, but we had slight frost at night, which prevented the previous severe frost from coming out of the soil altogether, so as to admit of ploughing. From the 20th to the 30th, the weather was very fine, and what may be considered the Indian summer. The fall ploughing, we fear, is far from being completed. A large proportion of our arable soil is not sufficiently drained to admit of ploughing in such a wet fall as this has been. We have no doubt that many farmers are of opinion that, were they to drain their lands much, they would make them too dry for our hot summers. It must be want of experience of seeing well drained land that induces this opinion, as well drained land will never become so hard as that which is not well drained. The surface of undrained land for several inches,

becomes baked and hard, in the summer, and is rendered utterly unfit for the roots of plants to extend and obtain nutriment. Hence, the part of the soil that requires most to be loose for the plants, and allow the heavy dews to act beneficially upon it, is hard as bricks in undrained land; when in drained land, it never is so, but is loose and moist at the surface, and allows the rain freely to pass through it, and the dews to moisten it, and the roots of plants. Sandy or gravelly soils do not, of course, require so careful draining as the strong clays, although the former soils should be *sufficiently* drained. We have constantly said that draining ought to precede all other attempts to improve land, and have recommended this from experience, both in the Old Country and this; and we can now assure farmers that there is not the slightest danger that they shall make their lands too dry by draining, but should they happen to do so, they can readily remedy the defect, by stopping the drains in very dry weather. The past month was very favourable for cattle pasturing in the fields, where they had a good supply of grass, and this must have saved a considerable quantity of fodder. We hear from all quarters, as we anticipated, the deficient yield of wheat, and a large portion of it also, damp, and of inferior quality. Some sections of the country, however, are reported to have raised good wheat, and we hope the yield may prove so. The prices vary from 4s. to 5s. per minot. We trust that some efforts will be made before the next spring to obtain new-seed wheat as a change—much of our black sea-wheat having rusted this year. We fear that repeatedly sowing the latter variety of wheat in Canada, has changed the quality of straw, so far as regards its being capable of resisting rust, and if so, it will make the cultivation of this wheat very precarious in its results. Barley is much better than last year, both in quality and quantity, but the price is very low, from 2s. to 2s. 3d. per minot. Oats have been the best crop of the season, and are generally abundant in yield, and of fair sample. The price is low, from 1s. to

1s. 6d. the minot, but very little sells for the latter price. If it should be extensively manufactured into meal, the price may improve, and we are still of opinion that the manufacture of meal will be a safe and profitable speculation, if manufactured in a proper manner to keep in good condition, and drying the oats sufficiently is all that is necessary to secure this. Good peas may be profitably exported, if in a dry state to prevent them heating on the voyage home, and secured from moisture while in the ship. Much of our produce that is exported from our ports is damaged in the hands of merchants, and in ships, and hence gives a bad character to some of our products. In the generality of seasons here, the farmers may house their produce in a perfectly dry state, and they do so, though it is subsequently frequently damaged by wet and moisture, that acts as a great drawback to the value of our exports. We suppose that kiln-drying grain for exportation is seldom resorted to here, however damp the grain may be, and we cannot see why this should be neglected when necessary. Indian corn is generally consumed here for feeding swine, and cattle occasionally, and this is the best use it can be applied to. Good pork is certainly made in Canada, whatever may be said of our beef, and we should be able to export largely both these articles. As we have stated in another part of this Journal; we should not export beef, unless of good quality. Lean salt beef, we may be assured, will not sell for much in English markets, and if we cannot send it of good quality we may as well keep it here. Farmers are not altogether to blame for slaughtering and packing lean beef, but it is those who purchase lean beasts, and convert them to this purpose. If farmers could not find purchasers for lean cattle for slaughter they would endeavor to make them fat, or those who had the means to fatten would purchase lean beasts from those who had not good pastures. We cannot report to what extent butter will be exported, but we are confident it will not be a sixth what it should be, and this is all

from our own mismanagement. Of cheese, we suppose, none of Canadian make will be exported, although our butter and cheese might be of the very best quality. We have seen most excellent cheese of American make, and there is nothing to prevent us from having fully as good, if we would only learn to make it so. We could not make a better importation than of good English dairy maids, who understand the practice of manufacturing the best quality of cheese and butter. We very seldom have imported to us the most useful class of persons for the general works of the farm and dairy, and when emigrants have to be taught all these works after they come here, their teaching is very imperfect, as few farmers here are capable of instructing them perfectly in all work. We have a beautiful country, and what we require is skill and capital to work it advantageously. Farming must be considered, as it is in reality entitled, the first and principal interest in the Province, and then it may obtain all the attention it requires to secure its prosperity. While we amuse ourselves with seeking for other sources of general prosperity we shall continue to neglect the only permanent one in our power. Farming must become of the first importance in the estimation of the most wealthy and educated men before it is likely to have Agricultural Schools, Colleges, and Model-Farms provided for the instruction of our youth in the science and practical art of husbandry—the art of raising annually an abundant and valuable produce to supply our wants, and which we cannot obtain from any other source. If this is not a matter worthy of all our care we do not know what is. The market is well supplied with butchers' meat, which is sold at moderate rates. Fowls of all varieties are very plentiful, and cheap. Fresh butter is in fair demand, at from 10d to 1s. per lb., and salt ditto from 6d. to 7½d. Thrashing, attention to cattle, providing manure and wood for fire and fencing, is the work that farmers will now be occupied in for some months; but although in this interval nature

may appear to sleep for a season, it is only to take the necessary rest to enable it to awake again in the spring with renovated vigour in all its bloom and beauty, and promise of productiveness, and however we may be disappointed in other respects, we never shall be in return of seed-time and harvest, and the verdure of the fields and trees.

30th November, 1848.

We fear the late Act passed for the "Inspection of Butter," has not produced the necessary change in the packing of butter in suitable casks for exportation. We constantly see farmers bring their butter in those open tubs, small at the bottom and wide at the top, to Montreal for sale; rendering it impossible to export it without re-packing. We have hundreds of times suggested to farmers to put up the butter in proper casks, and even for Canadian consumption, the purchaser of butter might very well rather pay for the proper made cask, than buy it out of an open cask, as the butter is never so good, as when kept in one where the air can be excluded. To expect that we can have a *good* sample of butter for exportation after re-packing out of those open casks, and without any regard to colour or quality, would be absurd. If it was once an established rule with the merchants, to give a higher price for butter properly put up, than for what is not, it would be the most effectual encouragement that could be given to packing in suitable casks.

At a late Agricultural Meeting in Cheshire, Lord Combermere observes:—"If efficient draining was prevalent, he felt confident that the crops of wheat would be doubled. He had land of his own where the yield had been increased from 16 to 35 or 40 bushels, and in Nottinghamshire, there was land that had not produced at the rate of 20 bushels, which, when drained, deeply ploughed, and thoroughly cleaned, produced 48 bushels to the acre."

The Society of Friends in Ireland have collected £50,000 for the purpose of establishing a Model Farm, an Agricultural Seminary and a Museum. We give insertion to the notice on this subject, which appeared in the *Mark Lane Express*. This charitable Society have about 26 small farms in the Country of Mayo, containing in all, near 500 Irish acres, and they employ the poor to cultivate these farms in the best manner, with Turnips, Mangel Wurtzel, Parsnips, Carrots, Peas, Cabbages, and Flax, and we see in the Dublin Farmers' Gazette, a notice of sale by Auction of these crops, on the 13th of November last. By this most charitable plan, the poor are employed, and instructed in the practice of cultivating green root crops. It is by such well directed charity that the condition of Ireland may be improved. The best service that can be done for any country, is to provide employment for the poor, who have no means but their labour—and to instruct the working classes in the best way to execute their work properly.

We also give a notice of "Agricultural Legislation in France," from which it will be seen that the National Assembly have passed a Bill for the establishment of Agricultural Schools and Colleges, on a most extensive scale, in that country. Thus we have examples set to us, and such establishments are not certainly less necessary for us than for the people of Old France. If we wish to give a proper stimulus to our Agriculture, it is by providing a regular and suitable education for our young farmers, and thereby making the business respectable. So long as agriculture is regarded as only the employment fitting for those who are not sufficiently educated for any other employment, we need not hope for its improvement. However we mistake in regard to other subjects there cannot be any respecting the importance of agriculture to the Canadian community, and it is an extraordinary circumstance that in proportion to its importance it appears to have been neglected hitherto. Any step



taken now in the right direction to provide suitable education and instruction in the science and practice of husbandry will be an act that cannot fail to be productive of good to the Canadian people. We should not put off to a "more convenient season" what is so necessary to our prosperity to be done now. If we could only make the whole of the farmers of Canada perfect in the art of agriculture, we should secure prosperity to our country that cannot be secured to it by any other means either of external or internal resources. From the products of our own lands we must obtain the means of general prosperity, and when this fact is understood and admitted, we may hope it will produce the effect required and not before.

The following extract from the speech of Mr. Stephenson at a meeting of the Newcastle Farmers' Club, England, is worthy of attention:—

Agriculture, he said, was the first employment given to man by the Creator of the Universe, when he was told that by the "sweat of his brow he should earn his bread." We have, therefore, no promise of plenty without cultivation although some countries bring forth almost spontaneously, yet the inhabitants are far below us in the art of Agriculture. Industry alone promotes peace and plenty, the want of this principle reduces every country to poverty and its subjects to a state of destitution and discontent; in proof of this statement we need only refer to Ireland. I am aware that the value of agriculture has not been properly estimated, but I believe that the upright principles and perseverance of the farmers of England, have in a great measure contributed to raise this nation to the proud position it now occupies in the eyes of the world. The cultivation of the soil, therefore, ought always to be an especial object of interest to all classes of society, because all are alike involved in sharing in its benefits, and hence should use their utmost efforts to assist in making it bring forth whatever it is capable of producing \* \* \* Generally speaking, farmers are a hard-working race of men, for they can only gain their living by the strictest industry, being obliged to work at all times and at all seasons. They must also give close attention to their business for several years before they become acquainted with the nature and properties of the soil in their charge. I have frequently seen various blunders made in this respect, for in every

locality the land varies, and it therefore requires a particular system of management, and the difficulty arises at the commencement, in the farmer not being perfectly acquainted with those properties when he enters upon his farm. Nothing can give an agriculturist greater pleasure than to witness the different stages of growth in his crops, especially when he has taken pains in the working of his land and in the proper selection of seed for the different soils. In the Spring months how minutely does he watch the corn and tender grass shooting up their heads—his mind is elevated, and he looks forward with great delight to the approaching harvest, when he shall reap the reward of his anxiety and toil \* \* \* Knowing as I do that the profession of an agriculturist is precarious and full of risk, I would simply say to all both good and bad, and to the parsimonious farmer, that my principal object in bringing this subject before the Club, is to endeavor to instil a more active and liberal spirit of industry amongst us, in order that we may keep pace with the ever onward march of improvement, progressing in every branch of the national economy, so that at least agriculture may maintain the position to which its great importance entitles it.—*English Farmer's Magazine.*

**SHADE TREES FOR CITIES AND VILLAGES.**—These are not only ornamental and convenient, but highly useful. So long as shade trees are only considered a luxury in towns or cities, and contribute solely to the improvement of the taste and comfort of the pedestrians, we despair of their general introduction. But since the utility they have proved to be, in stopping the recent tremendous conflagrations in Albany and Brooklyn, we trust they will commend themselves to the acceptance of owners of real estate. But for their presence in both places the fire would have crossed streets and extended its ravages far beyond the present ruins. When the Insurance Companies will take risks at 25 per cent less premium where the buildings are protected by a dense mass of foliage in front, then we may hope to see beautiful shade trees lining a majority of the streets of the United States.—*American Agriculturist.*

The Canadian Cities and Villages should adopt the same plan, and we think they could not introduce a greater improvement.

**EFFECTS OF DOMESTICATION ON BIRDS.**—"They lose the power of flight by the increased size of their abdomen, and the diminished power of their pectoral muscles; and other parts of their body are attired to suit this conformation. All their habits change; they lose the caution and sense of danger, which, in their natural state; they The male no longer retires with a single female to breed, but becomes polygamous, and his propossessedgeny loose the power and the will to regain the freedom of their race."—*Professor Low.*

## DISEASES OF THE HORSE.

I am confident that the reader will have perceived, from the brevity with which I was compelled to treat many of the preceding subjects, the extreme difficulty of entering into all details relative to an animal of such importance as the horse, in the limits of so small a volume; he will then, I hope, have ceased to expect here a minute dissertation upon that animal's diseases. In fact, even were it practicable to give such a dissertation, I can safely aver that it would be of no manner of service, but rather the reverse. The horse is too valuable, too *costly* an animal, to be rendered, at any time, the subject of blind quackery. It has been well said, that he who undertakes his own defence in a court of law "*has a fool for his client.*" I affirm that he who endeavours to "doctor" his own horse is a greater fool still. No—veterinary surgeons are now happily plenty; as soon as you find your horse indisposed, send for one, or send the animal to him. Hundreds of gentlemen are annually educated for practising this profession, both in London and Edinburgh (the latter college, by the way, owes its establishment and present high character solely to the exertions of that justly celebrated veterinarian, William Dick); and surely it is better to disburse a moderate fee than to sacrifice, or risk sacrificing, a valuable horse. In order to treat the diseases of the horse, you should understand his organization, habits, &c. To attain to this would require years of close application, followed by years of diligent practice. Is it not, then, better to avail yourself of the aid of those who have passed this ordeal, who have acquired this necessary knowledge, and who have, in fact, made its practical application their profession? In the preceding pages I have probably done more good than I could effect in ten volumes on the subject of disease, as I have shown, I hope, the means by which the access of disease may in many cases be *prevented*, and you know the old adage.

There are still however, cases in which you may advantageously become your "own horse-doctor," and I must give you some instruction relative to these.

*Bleeding.*—For instance, every man who keeps horses should know how to bleed, as timely bleeding will, in many instances, avert a dangerous fit of illness. Colds, caught by being suddenly turned out from a hot stable to a damp pasture, or in cold or wet weather, or from being left out at night under similar circumstances, may lead to serious results, and amongst others fever, that may probably terminate fatally. Prompt bleeding will often avert this; and, perhaps, by the time a veterinary surgeon could arrive, the disease might have passed to another stage, in which bleeding would not only be too late, but improper. I shall therefore tell you how to bleed.

In bleeding, the *lancet* is doubtless preferable to the *fleam*, but *only in the hands of the veteri-*

*nary practitioner.* The place for bleeding is usually the jugular vein. You have the horse blindfolded: smooth the coat along the course of the vein; have the head of the animal turned from you by an assistant; with the fingers of the left hand, which holds the fleam, press upon the vein just sufficiently to bring it well into view. The best point is about two inches below the junction of the two branches of the jugular, near the angle of the jaw; place the fleam exactly on the course of the vein, and strike smartly, but not too violently, on the back of the fleam. Bleed always from a *large orifice*, and for this purpose a large bladed fleam is preferable: for a small quantity of blood rapidly abstracted will produce more valuable effect than a large quantity gradually drawn. When enough of blood has been taken, remove the pressure, bring the lips of the wound together, pass a pin through them, and roll some tow or silk thread round it, over the extremities of the pin. Secure the horse for a couple of hours, so that he cannot rub this off against the manger. There is a *spring-lancet*, to be obtained from most cutlers, that is to be greatly preferred to the fleam. See that the blade be *clean*. Blood may be, for local purposes, abstracted from any superficial vein in the same manner.

*Drenching.*—You should also know how to administer DRENCHES. Never use a *bottle* for this purpose, as the horse might bite away the neck, and either swallow a portion of the glass, or otherwise injure himself. Have a cow's horn for this purpose, the larger end cut in a slanting direction; pass a halter into the mouth, and let an assistant keep the head elevated, by means of a stable-fork, as high as he is able; you then draw forth the tongue with your left hand, and, with the right, introduce the small end of the horn into the mouth, gently of course, over the tongue; a turn of the wrist will then empty the contents into the mouth; a simultaneous movement withdraws the horn and lets go the tongue. Keep the head up till all is swallowed; and if the horse retain some of the drench obstinately in the mouth, a slap on the nose will generally compel him to swallow it. Do not try to give too much at once; be sure to introduce the horn far enough, and to turn and withdraw it quickly, but without hurting the gums or lips of the horse.

*Balls* are given in a somewhat similar manner; but the head does not require to be held so high.

*Accidents.*—There are also some ACCIDENTS that the proprietor of a horse may with safety look after himself. For instance, BROKEN KNEES. When a horse falls and lacerates his knees, your first object should be, by careful washing, to remove all foreign substances from the wound. In the next place, ascertain whether the joint cavity has been penetrated. I cannot recommend you to use a *probe* for this purpose; but apply a poultice of linseed meal, and when, in about eight or ten hours afterwards, you take it off, you will see a yellowish, glairy fluid, effused upon it, if the joint

have been penetrated. Should this have been the case, send at once for the veterinary surgeon. When the joint has not been penetrated, get the lips of the wound together, and keep them so by a compress and bandages, which need not be renewed till the third day. The earlier the wound is closed the less mark will be left on the part.

**Lameness.**—It is sometimes difficult to detect the cause of lameness, especially of the anterior extremities; I would, however, say, that it is a safe criterion to watch how the horse moves. If he lift his feet, the *shoulder* is not the injured part; but if the *shoulder* be affected, pain that any raising of the foot occasion will cause him to drag the toe along the ground, instead of attempting to raise the foot. In *shoulder-lameness* you can do nothing but get the surgeon as soon as possible; in the other case, examine the *foot*, as found-nail or bad shoeing may be the exciting cause.

**Stabs or Cuts.**—Let your first care be to remove the cause, if any such remain in the wound; send at the same time for the nearest veterinary surgeon. If there be much effusion of blood, strive to check it as much as possible, pending that gentleman's arrival: this may be best done by producing pressure on the bleeding vessels, and affusion of cold water. In some cases a solution of alum, or any other harmless astringent, may be useful. Pricks in the sole are a very frequent cause of "*Quittor*," and should, therefore, be timely looked to; but it is well to caution you to observe the manner in which the farrier removes the shoe for the purpose of examination. Do not suffer him to take it off *violently*; each nail should be *separately extracted*, and the shoe then removed, otherwise the affair will probably be made worse. When the shoe is thus *gently* removed, the appearance of matter or moisture on some particular spot will usually indicate the seat of pain.

As we are speaking of *farriers*, it may not be amiss to add, that many cases of lameness are induced by *bad shoeing*. Want of space renders it impossible for me to enter into a treatise on the *foot of the horse*; but it may be well to state that the reader can purchase separately many excellent works on that most important subject. My own advice is, to send your horse always to a forge that is under the superintendence of a *veterinary surgeon*.

**Colic** attacks a horse in many instances very suddenly, and requires immediate relief. Send for the veterinary surgeon, but pending his arrival, give as a drench, about two ounces of oil of turpentine with six drachms of laudanum, in a pint of castor or linseed oil, *warm*. After the spasms have disappeared, rub the horse dry, the belly and flanks especially; but I do not, as some do, recommend the horse to be trotted about—better let him rest. Give no *spirits*, *pepper* or other *stimulants*.

**Fits.**—You had better in this case send for the

surgeon at once, if your horse be valuable; if otherwise, get rid of him.

**Farcy** and glanders are, to a considerable extent, connected, as each, when neglected or proving obstinate, is apt to run into the other. Like glanders, farcy is highly contagious; but is not like that disease, wholly impregnable to the attacks of science. When the disease first appears—and its appearance is familiar to all about horses—give an aperient drench. If it be the *button-farcy*, touch the *buttons* with the extremity of a hot iron; if you have no "budding-iron" by you, the top of an "Italian iron," such as laundresses use, may be made to answer. Examine the sores daily, and as soon as they begin to slough, touch with a solution of a drachm of corrosive sublimate, in an ounce of spirit of wine, to which is added two drachms of creozote. Give internally a ball daily, composed of corrosive sublimate, twelve grains; two drachms of powdered gentian, one drachm of ginger, and one ounce of powdered brimstone. As soon as the mouth begins to look affected by the mercury, or the animal is violently purged, omit the corrosive sublimate, but continue the remainder of the ball. Keep the animal in an airy situation, but one not exposed to draught or damp; and feed on green meat, such as parsnips and carrots especially, which roots possess *sweetening* qualities of a high order.—*Richardson on the Horse*.

This attractive power of the earths and of plants, for the aqueous vapour and the oxygen gas of the atmosphere is, as I have on more than one occasion contended, one of the most important facts to be kept in mind by the farmer, with regard to the deepening and pulverisation of his soil.

The advantage of a free access of oxygen through the earths of the soil to the roots of plants was, some time since, shewn experimentally; it has been proved that their vegetation is greatly increased by nourishing them with water impregnated with oxygen gas; hence, too, the superiority of rain water. Some remarkable experiments were made by Mr. Hill, demonstrative of the great benefit plants derive from oxygen gas being applied to their roots: hyacinths, melons, Indian corn, &c., were the subjects of the experiments. The first were greatly improved in beauty, the second in flavour, the last in size, and all in vigour. This, too, is another use of increasing the moisture of the soil by deep and complete ploughings, for M. Humboldt and M. Schubler have clearly shewn that a dry soil is quite incapable of absorbing oxygen gas. Thus, it must be evident to the most listless observer, that the more deeply and finely a soil is pulverised, and its earths rendered permeable, the greater will be the absorption by them of both oxygen and watery vapour from the surrounding atmosphere.

By facilitating the admission of air to the soil,

another advantage is obtained, that of increasing its temperature. The earths are naturally bad conductors of heat, especially downwards: thus, it is a well-known fact, that at the Siege of Gibraltar, the red hot balls employed by the garrison were readily carried from the furnaces to the batteries in wooden barrows, whose bottoms were merely covered with earth. Davy proved the superior rapidity with which a loose black soil was heated, compared with a chalky soil, by placing equal portions of each in the sunshine; the first was heated in an hour from 85° to 88°, while the chalk was only heated 69°. This trial, however, must not be regarded as absolutely conclusive, since the surface of the black soils naturally increases more rapidly in temperature when exposed to the direct rays of the sun than those of a lighter colour. A free access of the air to the soil also adds to its fertility, by promoting the decomposition of the excretory matters of plants and other organic substances of the soil.

In the truth of these conclusions and laborious experimental researches of the chemist, does not the practical testimony of the ablest cultivators of all ages and in all countries concur? At this very period do not the best of England's agriculturists find the greatest advantage from stirring the ground between their rows of drilled turnips, which only operates so beneficially for the plants, by promoting the access of the air to their roots; and that, too, on soils where a weed is hardly to be seen? Is not one great object of fallowing to produce by pulverising and deepening the soil the same result? Did not Jethro Tull labour long, and sometimes too sanguinely, in illustrating the same position? The farmer, too, is aware that when the inert substratum of most cultivated soils is first brought to the surface, it is utterly barren, and that yet, by mere exposure to the atmosphere, it soon becomes productive.

From these laborious researches of the chemical philosopher the intelligent farmer may derive many new and important conclusions with regard to the improved cultivation of the earth. They may serve, amongst other great truths, to explain to him one great reason, why fallowing and pulverising the soil, either by machinery or by the mixture of chalk or sand with heavier clay soils, promotes so decidedly, or so permanently, their fertility. And again, the advocate for all old customs and obsolete modes of tillage may hence, among other things, learn *why* it is that deep ploughing, either by the common or by the sub-soil plough, produces such beneficial results; how the gases and aqueous vapour of the air are hence rendered more serviceable to the roots of his crops; and *how* it is that this free passage of these elastic fluids, first caused by the action of the plough, is preserved and facilitated by that of the common, or the horse-hoe. Such researches, too, into the important properties with which the Creator had endowed the soil will be serviceable

to the cultivator in even an indirect manner. These investigations will, assuredly, suggest to him the very reasonable conclusion, that there may be yet other chemical properties hidden in the land, which will serve to awaken the curiosity and reward the labours of future scientific cultivators for many succeeding generations. (*British Farm. Mag.* vol. v. p. 1.)

**AGRICULTURAL EDUCATION IN FRANCE.**—The question of the establishment of public seminaries for the improvement of agriculture was discussed in the Assembly, last week.—The Bill introduced by the Minister of Agriculture was strongly opposed by several Members, partly on account of the great expense which it would entail upon the country, and partly on account of the great mass of additional *employés* which it created. A motion was made by M. Luveau, that the Bill should be postponed; but, on a division, the motion was lost by a majority of 649 votes to 449. The Bill will consequently be proceeded with. The Minister of War has taken all necessary measures for the immediate execution of the decree of the 19th ult., by which the National Assembly has sanctioned the creation, in Algeria, of agricultural undertakings, for affording means of existence, based on property, to unemployed workmen in Paris and other large towns. A Commission has been appointed to examine the claims of applicants. The Minister of Agriculture and Commerce has just addressed a circular to the Prefects, calling on them to send in returns as to yield of the late harvest. They are also directed to state particularly the produce of the potato crop.

**INGENUITY OF SCIENCE.**—Who would have imagined, when gun cotton was produced by M. Schonbein, and the world was threatened with destruction, by being blown up by this terrible explosive material, that, within a few months, it should be discovered to be an excellent styptic for dressing cuts and wounds? But so it is. Dissolved in ether, and applied to the severest cut, it forms an adhesive covering of singular closeness and adhesiveness, protects the wound, and excludes atmospheric air, or any irritating matter, so that the process of healing is carried on speedily and effectually; and when all is well the "protectionist," having done its duty, is removed. So, also, has Dr. Simpson, of Edinburgh, we are informed, similarly applied chloroform and gutta-percha! This mixture, in a liquid condition, at about the consistence of fine honey, is kept in a phial or bottle, and, when an accident of the kind to which we have referred occurs, it is simply poured upon the wound; the chloroform instantly evaporates, and the gutta-percha remains a perfect, flexible, second skin over the injured part, preserving it for weeks, if necessary, without the need of dressing, bandages, or any other appliance, till there is no more occasion for this admirable agent.—*Literary Gazette.*

Let ploughmen now be taught to look at the good and the great, as having gone to the same hallowed labor before them, and let them be made to feel its importance, and to love their work. A good seaman loves the ship in which he has ploughed the vast ocean: he looks upon her almost as a living thing; calls her his "heart of oak"; and treads her clean decks with the pride and delight of a true British Tar. The veriest old tub that swims is loved, and in after times, is often viewed with a tear of joy. A railway engine driver claps the burnished sides of his steed of brass and iron with a feeling of pride; tells of its speed; says it can do all but speak; and off he starts it with a scream and a snort, like a warrior of old rushing to the wars. Why not then plant the same index of pleasure in the breast of the ploughman, whose work is of more consequence than any other, and whose peaceful sword cleaves the earth for the food of all mankind? If a good loam be needed, what can give it better than deep stirring up the dead soil. Mingling the varied strata, airing and vivifying the sterile subsoil, into a state fit for maturing vegetation. Again then, I say, whatever the soil, plough as deep as you can, make the plough imitate the spade, and let the fields bring forth abundantly, as do gardens.

Amongst many proofs of the benefit of deep ploughing and stirring the soil, I will mention one or two in this immediate neighbourhood.

In 1845 a nine-acre field of good turnip land was divided into three equal proportions; number one containing exactly three acres, was ploughed up the usual depth of five inches; number two of three acres was ploughed ten inches; and number three was ploughed first eight inches deep, a second plough following and loosening the soil five inches more. Eight loads of yard dung, and three bushels of "Lawe's patent manure," were used per acre. The seed was sown in May, on the ridge.

All came up pretty evenly. In July, numbers two and three took the lead, and produced both of them good plants. In November, a rood of each taken fairly from the field, was weighed:

|                              |                    |
|------------------------------|--------------------|
| No 1 produced at the rate of | 16½ tons per acre. |
| 2 do. do.                    | 22 do.             |
| 3 do. do.                    | 27½ do.            |

In 1856, the same field was got ready for barley. Seeds were sown, and was served alike. In September, the crops was threshed—

|   |
|---|
| From No. 1, 11 sacks to the acre were obtained. |
| do. 2, 12 do. do.                               |
| do. 3, 13½ do. do.                              |

The clover layer was not weighed, but the eye could tell the difference between shallow and deep ploughing.

Black sandy land has been similarly tried with advantage.

Further proofs I could bring, but let the above suffice for the present. England can grow the best corn, as she already does the most, per acre,

if she will. The game is in her own hands. A system of deep ploughing, rich manuring, thin seeding, and constant stirring and cleaving, with judicious cropping, will advance the interests of the British farmer more than all the Parliamentary petitioning in the world.—*West Norfolk.*

#### AGRICULTURAL LEGISLATION IN FRANCE.—

On Tuesday week, the National Assembly terminated the debate on the bill for the establishment of agricultural schools and colleges. The bill as introduced by the Government has passed with hardly any change: all the numerous amendments brought forward have been pitilessly rejected. The object of the bill is to establish three different classes of establishments of agricultural education; the first, to be called *fermes ecoles*, are to be devoted to instruction in the manual part of farm work, and are intended chiefly for the education of a better class of farm servants; the second class, to be called *ecoles regionales*, are intended for practical farmers, and combine both theoretical and practical instruction; in the third, which is to be called the *Institute Agricole*, agriculture is to be treated as a science, and the teachers in the other branches of the art are to be educated.

#### Animal Power.—According to M. Gerstner, (Veterinarian,)

|  |           |
|--|-----------|
| 200 lbs. of burden, equivalent to a speed of | = 4 feet. |
| 150 lbs. ditto                               | = 2 feet. |
| 100 lbs. ditto                               | = 4 feet. |
| 50 lbs. ditto                                | = 6 feet. |
| 0 lbs. ditto                                 | = 8 feet. |

That is, the strength of a horse is equal to maintain 200 lbs. while standing, as it is to make an effort of speed of the extent of 8 feet, freed from all burden.

In the horse, 25 lbs. of burden are equivalent to one foot of speed.

|   |                          |
|---|--------------------------|
| At a walk, a movement of 4 feet of speed, (or distance,) is equivalent to | .....100 lbs. of burden. |
| At a gentle trot of 8 feet to   | .....200 ditto.          |
| At a swinging trot of 12 feet to  | .....300 ditto.          |
| At a gallop — of 16 feet to   | .....400 ditto.          |
| At a swing gallop of 20 feet to   | .....500 ditto.          |
| At a racing pace of 24 feet to  | .....600 ditto.          |

**Common Salt**—This is a manure that has been long creeping into use. It is an excellent fertilizer when partially or entirely decomposed, by mixing it with twice its weight of lime in the dry state, and allowing the mess to remain undisturbed for two or three months; in this way two salts are produced—carbonate of soda, and muriate of lime—two bushels for wheat, and forty bushels for oats. Salt can be had at the Salt Works in Cheshire and Worcestershire, (England,) at from 10s. to 13s. the ton weight.—*Farmers' Magazine.*

The following remarks on the Maple Tree, the leaf of which has been adopted as an emblem by our French Canadian brethren, will prove interesting:—

Virgil celebrates the maple as the throne of Evander, and its branches as the canopy under which he received and seated Æneas:—

“On sods of turf the soldiers sat around  
A maple throne, raised higher from the ground,  
Received the Trojan Chief, and o'er the bed  
A lion's shaggy hide, for ornament, they spread.”

Pliny enumerates ten different kinds of maple that were known to the Romans in his time, the timber of some of which was in the highest estimation on account of its fine grain and beautiful veins. It was considered next to the citron-wood in value; and we are told that in some instances, when it was finely spotted, it brought its weight in gold. To such a height did the fondness of the Romans for curious wood carry them at one point of their history, that their tables were more expensive than the jewels of their ladies.

The sugar maple enters largely into the forests of the northern States, and grows no where in greater abundance than between the latitude of 46 and 43 degrees, which embrace Canada, New-Brunswick, Nova Scotia, Vermont, New-Hampshire and Maine. In some parts of New York and Pennsylvania, it is also common and abundant. It was estimated by Dr. Rush, that in the northern parts of these two States there were ten millions of acres containing the sugar maple, at the rate of thirty trees to an acre. In Virginia, the Carolinas, Georgia and Mississippi, it is seldom if ever found.

The sugar maple occupies a more extensive range of American territory, than any other species of this genus. It flourishes best on elevated, and even mountainous situations, and in moist soils, and is often found in company with beech, ash, and birch.

This tree often rises to the height of 70 or 80 feet, though more commonly to 50 or 60—The great height, extended branches, regular form, rich verdure, and neat appearance of the leaves, render it a most beautiful shade tree, and well deserves to line the side of all our streets throughout the Union.

The wood when first cut is white, but by exposure for a short time, takes a rosy tinge. The grain is fine and close, and when polished, has a silky lustre. It is strong and heavy, but not durable when exposed to the weather.

Two accidental forms are found in some specimens of the sugar maple, which are much valued and sought for by cabinet makers, as they give beauty to their work. The first is *curled maple*, having an undulating form in the grain of the wood; the second, which is found only in old trees in a sound state, is a singular appearance of

small radiating spots, more or less thickly interspersed through the wood, and furnishes the material called *bird's-eye maple*. These singular spots are more numerous near the sap than near the heart of the tree.

The cause which produces these singular appearances in this timber has never been satisfactorily explained. Both, however, are beautiful, and if brought from a foreign country, the furniture made from it would be prized as the richest specimens to adorn our parlors.

The sap of the sugar maple furnishes no considerable resource for the economy, the comfort, and even the wealth of our northern citizens; especially to those occupying regions newly settled.

**A SOLUTION FOR THE STEEP OF THE GRAIN OF CEREAL PLANTS.**—I beg to recommend the following composition:—

Take of—Muriate of Ammonia (Sal Ammonia,)  
Sulphate of Soda (Glauber's Salts.)  
Phosphate of Soda,  
Nitrate of Potass (Saltpetre,)  
Sulphate of Magnesia (Epsom Salts,)—  
of each 4lbs.

Dissolve the whole of the above salts in 18 gallons of boiling water, and when quite cold, the seeds are to be steeped in the solution 24 hours. If the seeds are not to be used immediately, then they must be thinly spread out upon the floor, and their drying may be hastened by lime dust sprinkled over them. But the sooner they are sown, after having undergone the processes of steeping and drying, the better. On an average, two quarters of wheat may be used for the 18 gallons of solution, or one gallon and a half for every bushel of wheat or barley. Rye, oats, and the inferior cereal grains, do not require so much of the above-named salts to the 18 gallons of water—3lbs. of each salt will be sufficient. As cash is a great object to the small farmer, the chloride of lime may be employed, in the proportion of 2½lbs. to the 4lbs. of the other salts, instead of the phosphate of soda: it is cheaper, and, on the farm of my friend, it has been equally beneficial.—*H. W. D.—The Agriculturist.*

**THE AGRICULTURAL COLLEGE OF THE SOCIETY OF FRIENDS**, with that eminently practical talent which accompanies even their benevolence, rendering charity scarcely less advantageous in the future than presently serviceable to its objects, are about to establish an agricultural seminary upon a large scale, in perhaps the part of Ireland where instruction in the cultivation of the soil is most needed by the people. They have, it is said, a sum of £50,000 on hand, collected for this purpose, and with which they intend to purchase a farm of 400 acres in Roscommon, which will be cultivated according to the most improved system, and

where the neighbouring peasantry and farmers will be practically taught those lessons indispensable in our present social condition to the maintenance of the population. This model farm, with which an agricultural seminary and museum will be joined, will be superintended by Dr. Bewley of Moate, a gentleman who to great practical skill as an agriculturist joins intimate knowledge of the habits of the people. The doctor is at present on a tour through the best cultivated districts of England and Scotland, in order to become acquainted with the methods of improvement. He will be stimulated to develop the full advantages of the new institution by a salary of £300 a year, besides half the profits of the farm.

**ECONOMICAL BREAD.**—The Rev. Mr. Haggitt, of Durham, England, has stated a successful experiment for saving the consumption of flour in making bread. Mr. Haggitt gives the following account of the process: I took five pounds of bran, boiled it, and with liquor strained from it, kneaded fifty-six pounds of flour, adding the usual quantity of salt and yeast. When the dough was sufficiently risen it was weighed and divided into loaves; the weight before it was put into the oven being ninety-three pounds thirteen ounces, or about eight pounds ten ounces more than the same quantity of flour kneaded in the common way. It was then baked two hours, and some time after being drawn, the bread was weighed, and gave eighty-three pounds and eight ounces—loss in baking, ten pounds and five ounces. The same quantity of flour kneaded with common water loses about fifteen pounds ten ounces in the baking, and produces only sixty-nine pounds and eight ounces of bread; gain by my method fourteen pounds, that is, a clear increase of one-fifth of the usual quantity of bread from a given quantity of flour. He also states that the bran, after being used in this way, is equally fit for many domestic purposes.—[N. E. Farmer.]

### NOTICE.

**THE QUARTERLY MEETING** of the **LOWER CANADA AGRICULTURAL SOCIETY** will take place at their **ROOMS, No. 25, Notre Dame Street, Montreal, on TUESDAY, the 12th December instant, at ELEVEN o'clock, A. M.**

By order.

WM. EVANS,  
Secy, L.C.A.S.

### REAPING MACHINES.

**T**HE Subscriber has on hand three **REAPING MACHINES** of the latest and most improved construction, *capable of cutting twenty-two acres per day.* Being manufactured by himself, he is prepared to warrant both material and workmanship as of the best order. **PRICE—MODERATE.**

**MATTHEW MOODY, Manufacturer.**  
Terrebonne, July, 1848.

### NEW SEED STORE.

**T**HE Subscriber begs to acquaint his Friends and Customers that he has, under the patronage of the Lower Canada Agricultural Society,

#### OPENED HIS SEED STORE,

*At No. 25, Notre Dame Street, Opposite the City Hall.* Where he will keep an extensive assortment of **AGRICULTURAL and GARDEN SEEDS and PLANTS** of the best quality, which he will dispose of on as favourable terms as any person in the Trade. From his obtaining a large portion of his Seeds from Lawson & Sons, of Edinburgh, who are Seedsmen to the Highland and Agricultural Society of Scotland, he expects to be able to give general satisfaction to his Patrons and Customers. He has also made arrangements for the exhibition of samples of Grain, &c., for Members of the Society, on much the same principle as the Corn Exchanges in the British Isles. He has a large variety of Cabbage Plants, raised from French seed, which he will dispose of to Members of the Society, at one fourth less than to other customers.

**GEORGE SHEPHERD.**

**P. S.**—An excellent assortment of Fruit Trees, particularly Apples, which he will dispose of at one-fourth less than the usual prices.

Montreal, May 30, 1848.

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