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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2.

MONTREAL, MAY, 1850.

NO. 2.

We have received a communication from a respected correspondent, A. B. C., to which we would beg to direct attention. The suggestions of this gentleman are the more valuable, because we know that agriculture has not a more steady friend and supporter in Lower Canada. We look most anxiously to the next Session of the Provincial Parliament, in the hope that the agriculture of Canada—the first, and principal interest of the country—will receive all the attention that is due to such an important interest. The suggestions of our correspondent are not to be lightly passed over. As we already observed, there is no interest in the country that deserves more the attention of our Legislature, to do all that can be done to promote its improvement and prosperity, and thus secure prosperity to all interests in the Province. It is not alone by premiums at Cattle Shows, that what is necessary to the improvement of husbandry is to be effected, but by providing the means of communicating general and practical instruction in an improved system of agriculture, by Agricultural Colleges and Schools, Model Farms, suitable books for the use of country Common Schools, and by the general diffusion of useful information, and suggestions by agricultural periodicals. In addition to all these, Agricultural superintendence would be necessary, as proposed by our correspondent. All this cannot be accomplished without expences, but as it must be our agriculture that supplies the means of Revenue chiefly, if there is a loan made to her, it will only be to increase the means of future Reve-

nue. This proposition may be questioned by parties, but we are confident we are able to maintain its perfect correctness. Despise agriculture who may, but we are certain there is no hope for prosperity to Canada, except through her agriculture first of all; that, and that alone, must be the basis. Canals and Rail-roads are great advantages, but their principal use and benefit will be to transport the products of a prosperous agriculture. They need not be constructed unless for that purpose, and they could not be maintained by any other means. Parties may fancy our views to be quite erroneous, but if they can show them to be so we shall acknowledge our error. There cannot be any mistake as to the proposition we advance, as we make it clearly and distinctly, "That it is the productions of the soil of Canada that can alone secure a good and sufficient Revenue, and prosperity to every class and interest in the country."

To the Editor of the AGRICULTURAL JOURNAL.

"No direct aid has been given by the General Government to the improvement of agriculture, except by the expenditure of small sums for the collection and publication of agricultural statistics, and for some chemical analyses. This aid is, in my opinion, wholly inadequate. To give to this leading branch of American industry the encouragement which it merits, I respectfully recommend the establishment of an Agricultural Bureau, to be connected with the Department of the Interior. To elevate the social condition of the agriculturist, to increase his prosperity, and to extend his means of usefulness to his country, by multiplying his sources of information, should be the study of every statesman, and a primary object with every legislator."—*Extract from the Message of President Taylor, U. S.*

SIR,—You have already submitted to your readers the very important suggestions of the

above extract from the Message of President Taylor; but, as good counsels are apt to be soon forgotten, I take the liberty of again calling their attention to the same important topic.

The so-called doctrine of annexation recently promulgated, has naturally directed our attention to the sayings and doings—be they for good or for evil—of our Republican neighbours. These words of the chief magistrate of the great Republic, merit the most serious attention of every man having the real interests of his country sincerely at heart.

Agriculture, so important a branch of American industry, has not hitherto been directly represented in any of the principal government departments; hence, the President recommends the utility of immediately establishing an Agricultural Bureau. Nothing impedes the "Annexation" of Canada to so useful a reform, and certain I am that every true friend of Canada will cheerfully "annex" and co-operate in carrying it out. In the true sense of the term, Canada is even a more agricultural country than the United States. Why, then, should not agriculture have its representative in our great public departments?

We have Attorneys General, Solicitors General, a Receiver General, an Inspector General, Adjutant General, Commissioners of Public Works and Crown Lands; and why should we not have an Agricultural Minister?

Are judicial formulas, Public Works, Crown Lands, or Militia Statistics, of higher consideration, of greater importance to the inhabitants of Canada, than the interests of agriculture? This is a hypothesis which none, I presume, will venture to advance.

Have not Prussia, France and Belgium their Agricultural Ministers?

Perhaps it may be alleged, that our administrative machinery is already sufficiently cumbersome and complicated without the inconvenience of an additional cog. But I should reply, that we can easily have an Agricultural Minister without either complexity or inconvenience—whose office may be in connexion with or attached to that of the Public Works or Crown Lands.

To discharge its duties properly, and in a

manner commensurate with so momentous an institution, this office would be no sinecure.

To prepare agricultural statistics, to encourage the establishment of model-farms and agricultural societies in every county, to receive annual reports and embody the same in one general report to be submitted to the Legislature, to foster and promote home manufactures—so far as to fabricate for our own markets articles, the produce of the soil, viz: Iron, Glass, Paper, Flax, Wool, Leather, &c., which are now sold—in a raw state—to foreign manufacturers by whom they are returned to us when prepared for use, and disposed of at an immense profit—to advocate the home manufacture of these productions by calling on the administration for sufficient protection in the regulations of the tariff. Such are the points to which the attention of the new minister would necessarily be directed.

The establishment of such a Bureau would, furthermore, have a moral effect on the mind of the cultivator; his interests being directly represented in high quarters, he would naturally entertain a more exalted idea of his position in society, and consequently become more attached to his condition of agriculturist. The young man, on quitting school or college, would not then despise the parental plough; nor would he barter his inheritance for the taylor's spigot, or the mercer's yard-stick. He would not then abandon his aged parents, to immure himself behind the counter in some of our commercial cities—to the risk of his time, his health, his repose—and what is infinitely more valuable.

A. B. C.

March 27th, 1850.

We have constantly advocated the expediency of improving a native breed of neat cattle, rather than introducing a new breed altogether, whose suitableness to every situation and circumstance had not been proved. The present breed of Ayrshire cattle are in very good repute as regards their suitableness for the dairy, and we have heard of a cow of that breed, not supposed to weigh over 400 lbs. sold for £50, and obtaining a first prize at a cattle show, in the class of milch cows. The native breed of

Ayrshire, previous to their being crossed and improved by other breeds, are described by very good authority, Mr. Wm. Aiton, of Strathaven, Scotland, as "being nearly all of a black colour, not weighing, when fat, over 300 lbs. of saleable meat—that they were driven round their bare leys in summer, with horses, sheep, and young cattle, and getting no other food in winter but a scanty supply of oat-straw, with what they could collect on the fields, they had the aspect of starvelings—their hair coarse, and standing up, their skin thick, and adhering to their bones: their bones large, bodies lank; few of them yielding more than two, or at most three Scotch pints of milk per day. This starveling breed of cows in Ayrshire, in the course of the last forty years (this was written in 1812) has been gradually, and as it were imperceptibly, changed into something very different in point of size, shape, quality, and general aspect. But though an eye-witness to the progress of that important change, and recently having made all possible inquiry, I am not able to account for it otherwise than by greater attention to crossing, rearing, and feeding. Some have alleged the dairy breed of Ayrshire have come from Holland, and others have ascribed to them an English origin. I have no doubt but a tinge of foreign blood may have come into their veins: but I am confident that the breed is chiefly indigenous, and that the principal improvement upon that breed was effected by better feeding and treatment. The Earl of Marchmont, about the year 1750, purchased from the Bishop of Durham, several cows and a bull, of Teeswater or some other English breed, of the *same brown colour*, into which the dairy stock of Ayrshire has since been changed. These were crossed with the stock of many farmers. They were of greater size than the native breeds of Scotland; and some of these having, from time to time, been carried into different parts of the county of Ayr, and being generally placed on richer pasture, and better fed than the ordinary farm

stock were at the time, they yielded a greater quantity of milk, and the farmers became eager to procure calves or crosses with them, in hope of getting similar returns from their progeny. I have not been fully satisfied as to the origin of this stranger breed; they were termed Dutch cows by some, and English cows by others. But from whatever quarter they may have come, it is from them that the brown colour, now so universal, in the Ayrshire dairy breed, has become so fashionable. Perhaps something of the other qualities of the breed may have also descended to the Ayrshire dairy cows by crossing with them. But I am not of opinion that the present stock of Ayrshire are either completely descended, or that their superior excellence has been entirely derived from these strangers. I am persuaded that they have been brought to their improved state, chiefly by better feeding and treatment. As the dairy has been the great boast of Cunningham, (the northern district of Ayrshire,) from time immemorial, the inhabitants could not fail to discover, that some of their cows yielded more milk than others. When one excelled in milking, they would look well for others of the *same shape*, and aspect, and *reject* those that were different. They would naturally rear the calves of the best milkers; in hopes of their inheriting the qualities of their dams. This, and better feeding would improve their stock, and the success would stimulate them to make still greater exertions to render their cattle better and more productive; such improvements once begun on sound principles, could not fail to lead to the most beneficial result. To procure more milk, they select the cows that they find to be most productive of milk, and gradually better her condition. By these means the stock is improved, and by experience and observation the farmers acquire more correct notions of the breed, and in what manner they can be rendered still more productive. It has been greatly more by these means, than by importing a foreign breed, that the dairy

stock of Ayrshire have attained their present unrivalled celebrity, and the farmers having become familiar with the pliancy of the animal, and the proper means of improving, and rendering it productive, they will no doubt persevere in making still greater improvements.

“The shapes most approved in the dairy breed, are as follows:—*Head* small, but rather long and narrow at the muzzle; the eye small, but quick and lively; the *horns* small, clear, bonded, and their roots at a considerable distance from each other; *neck* long and slender, tapering towards the head, with little loose skin hanging below; *shoulders* thin; *fore-quarters* light and thin; *hind-quarters* large and capacious, *back* straight, broad behind, the joints of the chine rather loose and open; *carcase* deep, and the *pelvis* capacious and wide over the hips, with fleshy buttocks; *tail* long and small; *legs* small and short, with firm joints; *udder* capacious, broad and square, stretching forward, and neither fleshy, low-hung nor loose; the *milk* veins large and prominent; *teats* short, pointing outwards, and at considerable distance from each other; *skin* thin and loose; *hair* soft and woolly; the *head, bones, horns, and all parts of the least value*, small, and the general figure compact and well proportioned.” Who that has any experience of dairy cows, that will not admit the correctness of the above description of a good dairy cow?

Mr. Aiton goes on to say:—“The *qualities* of a dairy cow are of still greater importance than her shape. Firmness and docility of temper greatly enhance the value of a milch cow, one that is quiet and contented, feeds at her ease, does not break over fences, or injure other cattle, so much as those that are of a turbulent cast. To render them docile, they ought to be gently treated, frequently handled when young, and never hunted with dogs, beaten or frightened; a moderate degree of hardness, life and spirits, with a sound constitution, are desirable qualities in dairy stock, and all these are found in the Ayrshire. Some have mentioned it as a valuable quality, when a cow subsists on a small portion of food, but this will depend on the quantity of milk which one so fed will yield. If a cow gives much milk on a little food, it is one of the best qualities she can possess, but of this I entertain doubts, which forty years’ experience, enquiry and observation, have

served to corroborate and confirm. I have heard it asserted, that some cows will yield as much milk, and fatten as fast, when fed on coarse, as others will on rich food, but I never met with, nor do I ever expect to see such cows. The old adage so common in Ayrshire, that ‘a cow gives her milk by the mow,’ has always held good, so far as I could perceive. It is of the greatest importance for dairy cows to be fed from their earliest days on food that has a tendency to produce the milky secretions, and even to be fed on that description of food when they are not giving milk. It was common in former times to rear young cows for the dairy, on moors and on heathy ground, and only to lay them on better pastures and dairy food when they came into milk, but this has been found to be an improper mode of raising a dairy stock, and they now fare much better in their youth than they did in former times; when young cows of the dairy breed are reared on moors, or bad pastures, and get only as much fodder as keeps them alive, they grow up what in Ayrshire is termed a *rough beast*, with large horns, coarse hair, thick skin, high bones, and other marks of a starveling, and they *never after become good milkers*. But when they are fed on better pasture, and provided with some green food, and good fodder during the winter, they grow up proper dairy cows, having the shapes and good qualities that have been enumerated. In former times, no other attention was paid to the dairy stock during the winter, but what was necessary to keep them alive. They were fed on the worst and coarsest of oat-straw, or ill preserved bog hay, cut from the marsh meadows, and frequently half rotted in drying. The consequences were that the dairy cows went out to grass in May, mere ghosts, lean, weak, and meagre; with their milk vessels dried up. Hence the summer was far advanced before the cows either gave much milk, or that which was of good quality. A lean starved cow never gives so much or so good milk, as one that is in proper habit of body.

“Even young cows intended for the dairy ought to be fed from the time they are calves, or food suitable for milch cows, and treated nearly as their dams. Such food and treatment have the greatest tendency to form the vessels of the young cows, and rear them with dairy qualities, and when they come into milk after being so formed they will produce the most

copious secretions of the milky fluid. It is by such treatment that a calf is formed into a dairy cow, and those who wish to rear and keep a dairy breed, in any thing like perfection, must provide them with abundance of such food as is suited to the production of milk, and they must supply them with food at all periods of their existence, when they are young, when they are full grown, when they are in milk, and when they are dry."

We have copied the foregoing remarks, as well worthy the attention of Canadian farmers. The native breed of cattle in Ayrshire, (from Mr. Aiton's description, before they were improved, by crossing, selection, and better feeding,) were inferior to the Canadian breed of cattle, and the latter might be improved by the same means that brought the former to so much perfection. The modes of improvement described by Mr. Aiton, as having been adopted in Ayrshire, we have constantly recommended for the last 25 years, as the most suitable for the due improvement of native Canadian cattle. It is from the same cause that the Ayrshire cattle were formerly so worthless, that the Canadian cattle are so unprofitable now. We have not the smallest doubt, that the latter are as susceptible of improvement, by adopting the proper means, as the former starvelings of Ayrshire were. Experience and common sense would point out to us how we were to improve domestic animals, to make them more suitable, and profitable for our use. Formerly, the cattle of Ayrshire were pastured and fed exactly as the cattle of Canada are generally at the present day, when a good system of husbandry was not adopted, and with the same results, namely—an inferior stock of cattle, and a very short produce from them. We may find fault with our general stock of cattle, but we are convinced, it is the fault of their owners, more than any inferiority in the breed, that makes them inferior and profitless. The most profitable dairy cows we ever had, were pure Canadian breed, purchased when young. It is by superior keep, and judicious

selection, that any breed of cattle can be most certainly improved, and made profitable; and the best breeds on earth cannot be made profitable, or maintained in perfection, unless they are fed properly, and all possible attention given to selection and breeding. It is by such means alone that superior breeds of cattle and sheep have been obtained, and it is by such means alone they can be preserved.

SPECIAL MANURES AND THIN SEEDING.

The following experiment, though made on a very small scale, was conducted with so much accuracy that it may interest your readers. The object of this and some other experiments made by me last year was to try the possibility of growing plants on soils totally unsuited to them, by means of special manures and culture; the one I am about to detail on *Wheat* tested also the results of thin seeding.

The Soil.—In what had once been a peat bog, I found a heap of dry peat mould about three feet deep, but without a blade of grass or a weed growing on it. This I fixed on as the worst possible soil for wheat, and levelled a patch six feet square for the experiment: an imperial acre contains 1,210 such portions.

The Manure consists of calcined bones dissolved in sulphuric acid, to which was added a soluble silicate of soda made from common salt, the whole being dried with some lime and peat ashes. The cost of the manure was estimated at 44 or 45 shillings per acre.

For Seed, in order to give no undue advantage by selection, I took a handful from a heap of wheat prepared for market. I dropped from my hand an exact half ounce into a scale, which I counted, and found to contain 349 grains; I separated these into parts; and one of them made up to 175 grains, was the seed used, without any selection or pickling or preparation whatever.

Culture.—I opened 7 drills in the plot, 6 feet long, 3 inches deep, and 10½ inches from middle to middle; in these drills, in the beginning of November, 1848, I spread the manure, equally divided, and over it the seed, 25 grains being deposited in each drill by single grains at 3 inches apart (being at the rate of less than 19 lbs per acre) and all carefully covered 3 inches deep.

For the sake of comparison my experimental portion was surrounded by a drill, in which the wheat was sown in the peat mould without any manure, and this part of the experiment may be dismissed at once with the following observations:—The seed germinated in about the same

proportion as in the the manured part, and kept tolerable pace with it during the winter; but it did not tiller at all; the stalks were slight and weak, and bore flowers, but at harvest when we came to examine them, in no one head of the unmanured portion could we find a single grain of wheat of the size of a pin's head—showing clearly how utterly unfit the soil was for the crop sown on it. I ought to add, that in the month of May I tried to revive and force on some of these weak stalks by watering them with Peruvian guano, at the rate of 4 cwt. to the acre; but though its effects were visible in giving green colour to the straw, it did not produce either tillering or corn.

After Cultivation.—At the end of April, and again when the plants were coming into ear, I hoed the intervals between the first three rows, gathering the mould about the plants as directed by *Thaer*, in what I believe to be the ablest work ever published on both practical and scientific farming; and the effect of the first hoeing on the growth of the plants was such, that a stranger who accompanied me about a week after the hoeing, enquired if the one part of the bed had received a much larger portion of the manure than the other. It also produces a very decided effect in the tillering as may be gathered from the following statement of the number of seeds that germinated in each drill out of 25 seeds sown therein; and the number of tillerings:—

Seeds that germinated.....17-20-17-20-20-18-17
Tillerings in same.....95-92-70-78-67-60-61

Summary.—175 seeds sown, 129 grew, which produced 523 stalks—the three rows hoed and half the middle row which got a half hoeing produced 296 stalks, while half the middle and three unhoed rows produced only 227 stalks. At the end of August we reaped a pretty sheaf, with, I think, the heaviest head I ever felt. The straw weighed 5lbs. 10 oz., being 3 tons 9 p. per acre; the grain, carefully hand-picked, weighed 3 lb 6½ oz., being 4121 lbs. per acre or at 60 lbs. per bushel, 68 bushels, or 8½ quarters.—D.S.P.A.

We would direct attention to the above Experiment, showing as it does how a soil totally unfit for wheat, may, by the application of suitable manure, be made to produce a very large crop of that grain.

HORSES.

Grain is generally the principal food of horses: most persons give the preference to oats. But when any other kind of grain is substituted for oats in quantity proportioned to its nutritive

power, and mixed with straw of finer quality and greater quantity than usual, the most attentive observers are unable to discover the slightest difference. Rye is the grain most generally substituted for oats. The use of unground barley is disapproved of by some persons, because they say a large portion of it passes through the body undigested; others, on the contrary, strongly recommended its use. Wheat is rarely used as food for horses; some persons who have been obliged to resort to it have found it very injurious, but various reasons induce me to believe that the evil entirely arose from not having mixed the wheat with a proper quantity of cut straw; without this addition it is very apt to clog the stomach. At one time when this kind of grain was very cheap as compared with others, I gave it to my horses with very good effect, but always mixed with a considerable quantity of cut straw.

The food of a horse is usually measured in oats, this being the most usual food. There is however no kind of food which varies so much in nutritive power as oats given by measure. Many persons have therefore very judiciously resorted to the expedient of giving their oats by weight, or at least modifying the quantity according to this method. Of some kinds of oats the scheffel weighs but 36 lbs, while of others it amounts to 54 lbs; in such a case the light oats will not fully supply the place of the heavier even if the quantity be regulated by weight; nine metzen of the former are not equivalent to six metzen of the latter, because a given weight of the former contains more husk and less farina. Ten metzen of the 36 lb. variety would probably be required to supply the place of eight metzen of the 54 lb. Taking the 48 lb. oats, which may be considered very good, as the basis of the calculation, we may reckon three metzen or 9 lbs. for a horse of average size, employed in ordinary work, it is understood, however, that the same horse have 8 lbs. of hay; with such food horses of this description usually keep up their strength very well; but when they are put to extraordinary work, it is proper to give them an additional quantity of food. Smaller horses, which are not put to forced labour seldom have more than two metzen even of light oats. The larger horses of Saxony, Westphalia, Bavaria, and Austria, are supplied with at least four metzen, and sometimes five. Wagon horses frequently have eight metzen, especially when but little hay and no cut straw is given to them. The difference of three and five metzen—the former for small, the latter for large horses, is often made without producing any great difference in the size and strength of the animals, or the manner in which they perform their ordinary work. Horses of the smaller races are therefore, preferable, where they are not continually wanted to draw heavy loads, especially since,

even in the latter case, the work may be performed by increasing the number of horses employed.

Rye, which is most frequently used as a substitute for oats, produces the same effect when given in half the quantity of the latter by measure, or still better by weight; some persons reckon the proportion of rye to oats for feeding horses only as 7 to 12; they admit, however, that their horses thrive better on the former than on the latter.

The seed of pulse, such as peas, beans and tares, the last of which is considered the best for horses is not reckoned of greater value than rye. They are however decidedly more substantial, as appears from the observations already made on their nutritive properties; and likewise, from the testimony of those who are acquainted with this mode of feeding. In many countries these pulse constitute almost the sole nourishment of horses; they do not as some persons assert, disorder the respiration of the animal. The English give them without reserve to their race horses. The prejudice in favor of oats in preference to all other kinds of grain chiefly arises from this cause, that all diseases which may attack horses fed upon oats, in a country where this mode of feeding is not customary, are imputed to the oats, and the matter is talked of for years, whereas, if the same disease had attacked horses habitually fed upon this kind of grain, some other cause would have been sought for and discovered. It is certain, however, that very substantial food should be cautiously given or it will be likely to bring on indigestion. For example, mischief may easily occur when servants in the midst of the heavy harvest work, secretly put aside a certain number of sheaves of new rye, and given them to the horses without measuring the quantity, and yet many farmers who are perfectly aware of this trick shut their eyes to it, and regard it as a kind of established custom. Grain of the more substantial kinds likewise requires to be mixed with more or less of finely cut straw: with oats, this is not absolutely necessary though always useful. To prevent the horses from blowing away the chaff, and separating the grain from it, the mixture should be wetted. This wet fodder, though it can never do any injury when cautiously given, will be likely to act as a cause of disorder, if the horses are heated and eat it with avidity, an occurrence which will not unfrequently happen, especially when they have been taken to the field before they have finished their meal, and find the rest of it in the manger on their return. There are many reasons for never leaving moist food in the mangers.

Grain given to horses should not have undergone fermentation: it should be dry but not heated; in some seasons badly gathered and heated oats occasion fatal epidemics among

horses. Sprouted grain does not injure them provided it has been housed in a perfectly dry state, and has not contracted a smell of fermentation. Malted grain, particularly barley, mixed with the food, is considered very beneficial to horses, especially when given in the proportion of a third of the total quantity.

Some persons have effected great saving by having their corn crushed before giving it to the horses, for without this preparation a great part of it passes unchanged through the body. This may easily be done if we have a mill at our disposal, but there will then be still greater necessity for mixing the corn with cut straw.

The grain must always be sifted to remove the dust, unless it has been subjected to the more effectual process of fanning a short time before.

Most horses are fed upon hay in addition to their corn, and some have nothing else.

It is certain that hay may be substituted for corn feeding, but opinions are divided respecting the extent to which this substitution ought to be carried, and likewise with regard to its economical expediency; in fact it is impossible to lay down any general rule on the subject. Eight pounds of hay are generally regarded as equivalent to a metzen of oats, and when estimated by weight, hay is said to bear to oats the ratio of eight to three. Very nutritious hay grown on low meadows, or fodder made from clover, lucerne, or sainfoin, is undoubtedly more substantial, and may be estimated in the proportion of seven to three, whereas the same kinds of fodder, when coarse and poor, do not exceed the ratio of nine to three. But generally speaking it is found that when the quantity of hay is increased and that of corn diminished, the horses gain more flesh, and are better able to perform slow work, but do not stand long journeys or great exertion so well. If, on the contrary, the hay is diminished and corn increased in quantity, the horses grow lean, but become stronger and more lively: provided, however, that their supply of straw is increased. An increase in the quantity of the one or other kind of food will be found advantageous according to the particular circumstances in which we may be placed, and the prices of various kinds of fodder.

Besides the cut straw, other straw is likewise given to horses, particularly that which has been most broken; in thrashing this is put into the rack. Contrary to general opinion, wheat-straw is the best: it is the most proper substitute for hay when that kind of fodder is deficient, and is likewise the kind of straw which horses eat most willingly. The haulm of tares, lentils and beans are doubtless still more nutritious, especially, when part of their leaves are left on them in the green state. Some farmers are afraid to give pea-straw, they say that it sometimes

brings on colic: but this opinion is founded on mere prejudice.

Opinions are divided respecting the propriety of feeding horses in the stable on clover, and other kinds of green meat. For my own part I am persuaded that horses may be kept in this manner in good health and full vigor, at least when a proper system is pursued. It is, however, the quantity of this fodder, and the price current of grain, which determine the amount of saving that may be obtained by this mode of feeding. I kept my horses in this way for several years, when corn was high-priced, and always with advantage; they improved in condition, without losing strength, even when they are not spared in respect of work. In the following winter also they were in surprisingly good condition. The transition from dry to green fodder must however be gradually made. At first the clover must be cut up with straw, and first one portion of it then two given daily in place of oats: afterwards when the clover is in flower, it is given to them in as great a quantity as they like, but then the corn is stopped. It is not good to give corn with green meat, because the former then passes through the body undigested. If corn and green feeding are to be united, the corn must then be given in the morning and the horses not allowed any green fodder before noon, or any corn in the after part of the day. Green lucerne and tares (especially the latter,) which have begun to form their pods, are better for horses than clover. The same gradual change must be observed in passing from green to dry feeding.

Horses are sometimes turned out to grass in summer either with other cattle or in fields by themselves. If they are properly attended to and left completely at rest, this removal to their natural state agrees with them perfectly well. But horses cannot be often left unemployed, and therefore it is rarely possible to have them turned out to grass. For a horse to thrive when fed, in this manner, the pasturage must be abundant, but he will then spoil a great deal of it with his feet, hence two cow pastures are reckoned for one horse pasture.—*Thaer's Principles of Agriculture.*

With respect to the dung proceeding from the fodder consumed by cattle, and the straw or other substances composing the litter, no difference is made, in general estimates, between the various kinds or breeds of cattle by which it has been produced. We shall, however, offer a few observations on this subject.

The amount of dung which will be produced from the same quantity of food by lean, ill conditioned, weakly cattle, will neither be so great, so rich, nor so fertilizing; nor does it contain so

much animal matter as that which is produced by strong, healthy and well fed animals.

Sheep, if fed on the same quantity of provender, will produce dung which goes further, but the action of which is not so durable. These animals appear, however, to be decidedly the most advantageous for the manuring of pasture land; the dung which they evacuate over the meadows is not only more equally diffused, but also amalgamates more freely with the soil, and acts more promptly on the vegetation. If the sheep are brought up from the pastures at night, and confined in a paddock or sheep-fold, they will produce a proportionally larger quantity of manure than cattle, supposing that each species has been allowed the same extent of pasturage. This reason causes the meadow and pasture-lands in England, where it is customary to leave the sheep out night and day, gradually to become ameliorated and improved, and to be capable of feeding an increased number of these animals every year, when these lands are broken or ploughed up they are found to have a much greater proportion of nutritive matter than those on which cows have been fed; in fact these latter usually decrease in fertility about the third or fourth year, particularly where the soil is of a dry hot nature.

When sheep are depastured it is usually reckoned that 1,200 will yield about the same degree of amelioration to an acre of land in 24 hours as would be produced by one half of the quantity of stable manure generally allowed; 1,800 sheep are supposed to manure an acre and a half tolerably well, and 2,400 to manure it abundantly, so much so indeed as to render it too rich for most kinds of grain; if ten sheep when pastured are regarded as equivalent to one cow, and if one cow produces 15 lbs. of dung during the night, 180 cows will only produce, 2,700 lbs. and 240 cows 3,600 lbs. which is not enough to manure one acre of land, but the effects and the nutritive properties of manure thus derived are much more permanent, and are retained much longer in the soil than the dung of sheep.—*Id.*

ON CHEESE MAKING.

CHESHIRE CHEESE.

That of Cheshire, as described in Holland's Survey, is generally made with two meals of milk; and that, even in dairies where two cheeses are made in a day: indeed, in the beginning and end of the season, three, four, and even five or six meals are kept for the same cheese. The general custom is, to take about a pint of cream, when two-meal cheeses are made, from the night's milk of twenty cows. In order to make cheese of the best quality, and in the greatest abundance, it is, however, admitted that the cream should remain in the milk; for whether the cream that is once sepa-

rated from it, can by any other means be again so intimately united with it as not to undergo a decomposition in the after process, admits of some doubt. The more common practice is, however, to set the evening's milk apart till the following morning, when the cream is skimmed off, and three or four gallons of the milk are poured into a brass pan, which is immediately placed in the furnace of hot water and made scalding hot; then half of the milk thus heated is poured upon the night's milk, and the other half is mixed with the cream, which is thus liquified, so as, when put into the cheese-tub, to form one uniform fluid. This is done by the dairy-woman while the other servants are milking the cows, and the morning's milk being then immediately added to that of the evening, the whole mass is at once set together for cheese.

The rennet and colouring* being then put into the tub, the whole is well stirred together; a wooden cover is put over the tub, and over that is thrown a linen cloth. The usual time of "coming," or curdling, is one hour and a half, during which time it is frequently to be examined. If the cream rises to the surface before the coming takes place, as it often does, the whole must be stirred together so as to mix again the milk and the cream; and this, as often as it rises, until the coagulation commences. If the dairy-woman supposes the milk to have been accidentally put together cooler than she intended, or that its coolness is the cause of its not coming, hot water, or hot milk, may be poured into it, or hot water in a brass pan may be partially immersed in it. This must, however, be done before it is at all coagulated, for the forming of the curd must not be tampered with. If it has been set together too hot, the opposite means, under the same precautions, may be resorted to; but the more general practice is, to suffer the process to proceed, hot as it is, until the first quantity of whey is taken off, a part of which, being set to cool, is then returned into the tub to cool the curd. If too little appears to have been used, it renders the curd exceedingly tender, and therefore an additional quantity may be put in; but this must be done before the coagulation takes place, for, if added afterwards, it will be of little effect, as it cannot be used without disturbing the curd, which can then only acquire a proper degree of toughness, by having some heated whey poured over it.

Within an hour and a half, as already mentioned, if all goes on well, the coagulation will be formed—a point which is determined by gently pressing the surface of the milk with the back of the hand; but in this test experience is the only guide, for the firmness of the curd, if the milk be set hot together, will be much greater than that from milk which has been set cold together. If the curd be firm,

the usual practice is to take a common case-knife, and make incisions across it to the full depth of the blade, at the distance of about one inch, and again crosswise in the same manner, the incisions intersecting each other at right angles. The cheese-maker and two assistants then proceed to break the curd, by repeatedly putting their hands down into the tub, and breaking every part of it as small as possible, this part of the business being continued until the whole is uniformly broken small: it generally takes up about forty minutes and the curd is then left, covered over with a cloth, for about half an hour, to subside.

The bottom of the tub is now set rather a tilt, the curd is collected to the upper side of it, and a board is introduced, of a semicircular form, to fit loosely one-half of the tub's bottom. This board is placed on the curd, and a 60 lb. weight upon it, to press out the whey, which, draining to the lower side of the tilted tub, is ladled out into brass pans. Such parts of the curd as are pressed from under the board, are cut off with a knife, placed under the weighted board, and again pressed, the operation being repeated again and again until the whey is entirely drawn from the curd. The whole mass of curd is then turned upside down, and put on the other side of the tub, to be pressed as before. The board and weight being removed, the curd is afterwards cut into pieces of about eight or nine inches square, piled upon each other, and pressed both with the weight and hand, these several operations being repeatedly performed as long as any whey appears to remain in it.

The next thing is to cut the curd into three nearly equal portions, one of which is taken into a brass pan, and is there by two women broken extremely fine; a large handful of salt being added, and well mixed with it. That portion of curd being sufficiently broken, is put into a cheese-vat, which is placed to receive it, on a cheese-ladder over the cheese tub, the vat being furnished with a coarse cheese-cloth. The second and third portions of the curd are treated in the same manner, and emptied into the vat; except that into the middle portion eight, nine, or ten times the quantity of salt is usually put. By some dairy-women, however, each portion is salted alike, and with no more than three large handfuls to each. The break-

* Spanish annatto is the drug usually employed: little more than the quarter of an ounce of which is sufficient for a cheese of 60 lbs. Other colouring matters are, however, used, such as marygold boiled in milk, which gives a pleasant flavour; and carrots also boiled in milk and strained, which impart a rich colour, but rather strong taste. The annatto is generally put in by rubbing a piece of it in a bowl with some warm milk, which is afterwards allowed to stand a little in order to drain off the sediment, and is then mixed with the entire quantity.

It takes up more or less time, as the cheese was set together hotter or colder; half an hour is, perhaps, the longest time.

The curd, when put into the cheese-vat in its broken state, is heaped above the vat in a conical form: to prevent it from crumbling down, the four corners of the cheese-cloth are turned up over it, and three women, placing their hands against the conical part, gently, but forcibly, press it together, constantly shifting their hands when any portion of the curd is starting from the mass, and folding down the cloth upon it. So soon as the curd adheres together so as to admit of it, a small square board, with a corner of the cloth under it, is put on the top with a 60lb. weight; or a lever such as that previously described is pressed upon it. Several iron skewers are at the same time stuck in the cone, as well as through holes in the side of the vat, from which they are occasionally drawn out and fixed in other spots, until not a drop of whey is discharged. The weight and skewers are then removed, and the corners of the cloth are either held up by a woman or by a wooden hoop, while the curd is broken as small as possible, half way to the bottom of the vat; and the same operation of pressing and skewering is repeated. The women then take up the four corners of the cloth while the vat is drawn away and rinsed in warm whey; a clean cloth is then put over the upper part of the curd, and it is returned inverted into the vat. It is then broken half way through in the same manner as before, which several operations occupy from three to four hours.

When no more whey can be extracted by these means from the cheese, it is again turned in the vat, and rinsed as before in warm whey. The cloth now made use of is finer and larger than the former, and is so laid, that on one side it shall be level with the edge of the vat, and on the other wrap over the whole surface of the cheese; the edges being put within the vat, thus perfectly enclosing the entire mass. In this stage of the business the cheese is still higher than the edge of the vat; and to preserve it in the due form, recourse is had to a binder about three inches broad, either as a hoop or as a cheese-fillet, which is a strong, broad, coarse sort of tape, which is put round the cheese, on the outside of the cloth, and the lower edge of the binder pressed down within the vat, so low as that the upper edge of it may be level with the surface. The cheese is then carried to the press, and a smooth, strong board being placed over it, the press is gently let down upon it, the usual power of which is about 14 or 15 cwt. In most dairies, however, there are two presses, and in many three or four of different weights; the cheese being by some put first

under the heaviest, and by others under the lightest.

As soon as the cheese is put into the press, it is immediately well skewered—the skewers being of strong wire eighteen or twenty inches long, sharp at the points and broad at the other end; the vat and binder having holes, seldom more than an inch asunder, to receive them. As the press always stands near the wall, only one side of the cheese can be skewered at the same time, and it must therefore be turned half-way round, whenever that is necessary; but this occasions no inconvenience, as the skewers must be frequently shifted, and many more holes are made than skewers to fill them. In half an hour from the time the cheese is first put into press, it is taken out again, and turned, in the vat, into another clean cloth, after which it is returned to the vat; but is by some persons previously put naked into warm whey, where it stands an hour or more for the purpose of hardening its coat. At six o'clock in the evening the cheese is again turned in the vat into another clean cloth, and some dairy-women prick its upper surface all over an inch or two deep with a view of preventing blisters.* At six o'clock in the following morning it is again turned in the vat, with a clean cloth as before, and the skewers are laid aside: it is also turned two or three times more, both morning and evening, at the last of which finer cloths are used than those at first, in order that as little impression as possible may be made on its coat.

After the cheese has remained about forty-eight hours under the press, it is taken out, a fine cloth being used merely as a lining to the vat, without covering the upper part of the cheese, which is then placed nearly mid-deep in a salting-tub, its upper surface being covered all over with salt. It stands there generally about three days; is turned daily, and at each turning well salted, the cloth being changed twice in the time. It is then taken out of the vat, in lieu of which a wooden girth, or hoop, is made use of, equal in breadth to the thickness nearly of the cheese, and in this it is placed on the salting bench, where it stands about eight days, being well salted over, and turned each day. The cheese is then washed in lukewarm water, and after being wiped, is placed on the drying bench, where it remains about seven days: it is then again washed and dried as before, and after it has stood about two hours, it is smeared all over with about two ounces of sweet whey but-

* This, however, if they occur, can be remedied by opening them with a pen-knife, and pouring hot water into the incision; then press down the outer rind, put on a little salt, and place a piece of slate with a half-pound weight upon it.

ter, and then placed in the warmest part of the cheese-room.

While it remains there it is during the first seven days, rubbed every day all over, and generally smeared with sweet butter; after which it should for some time be turned daily, and rubbed three times a week in summer, and twice in winter. The labor is performed almost universally by women, and that in large dairies where the cheeses are sometimes, upon an average, upwards of 140lbs. each.

The details of this process, it will, however, be observed, apply only to cheeses of 60 lbs. weight, and the quantity of salt used to them is uncertain; the greatest of which Mr. Holland knows is about 3 lbs. each, but much of it is wasted, and whether the cheese acquires much saltiness in the salting-house, dairy men themselves are doubtful, though much salt is there expended. Respecting the heating of the milk, the practice must evidently vary according to the weather; and although it is his opinion, as well as that of Marshall and other well-known writers, that it most requires warming when produced upon poor, clay lands, and that upon rich soils it will not bear much heating, yet that is contradicted by Aiton, who says, "he never understood that the milk of the cows so fed or even upon wild, waste land, or moss, requires to be heated more than that of cows fed in the warmest valleys, or on the richest haughts in our best cultivated districts." The sponginess and heaving of the cheese, which are sometimes complained of, are faults which Mr. Holland attributes more to inattention on the part of the workpeople than to want of skill, "their certain preventives being careful breaking, good thrusting, frequent skewering, and powerful pressing;" but may not improbably arise, partly from the use of cold and warm milk, which, if mixed together, will generate air. Those of pungency and rankness, which are generally imputed to impurity in the rennet, and by some to the want of salt, he, however, thinks may be also more properly ascribed to the fermentation occasioned by the imperfect discharge of the whey.—*British Husbandry.*

* On the cheese coming into the salting-house. it is, in some dairies, taken out of the vat, and after its sides are well rubbed with salt, is returned into the vat with a clean, fresh cloth under it: the top being covered with salt, it is placed on the salting benches, turned and salted twice a-day, and the cloth changed every second day. On the salting benches it is continued seven or eight days, when it is taken out of the vat, and with a wooden hoop, or cheese-fillet, round it, is put into the salting tub and managed as before described.

IMPROVEMENT OF POOR SANDY LAND.—The poor sandy heaths which have been converted into productive farms, evince the indefatigable industry and perseverance of the Flemings. It is highly interesting to follow step by step, the progress of improvement. Here you see a cottage and a rude cow shed erected on a spot of the most unpromising aspect, where the loose white sand blown into irregular mounds is only kept together by the roots of the heath. Trenching and levelling the surface is always the first operation. A small spot only is first cultivated, but gradually the whole is reclaimed from its wild state, by the aid of unremitting industry, and above all by the dung and compost heap and by the urine of animals. If there is manure at hand the only thing that can be sown on poor sand at first is broom, this grows in the most barren soils, and in three years it is fit to cut, and produces some return in faggots for the bakers and brickmakers; the leaves which have fallen have somewhat enriched the soil, and the fibres of the roots have given a certain degree of compactness. It may now be ploughed, and sown with buck wheat, and even with rye without manure; by the time this is reaped some manure will have been collected, and a regular course of cropping may begin; as soon as clover and potatoes enable the farmer to keep cows, and make manure, the improvement goes on rapidly—in a few years the soil undergoes a complete change; it becomes mellow and retentive of moisture, and enriched by the vegetable matter afforded by the decomposition of the roots of clover or other plants. If about twenty small cartloads of dung can be brought on each acre of the newly trenched ground, the progress is much more rapid, potatoes are then the first crop and generally give a good return. The same quantity of dung is required for the next crop, which is rye, in which clover is sown in the succeeding spring, and a small portion is sown with carrots, of which they have a white sort, which is very productive and large in good ground, and which even in the poor soil, gives a tolerable supply of food to the cows in winter. Should the clover fail, which sometimes happens, the ground is ploughed in spring and sown with oats and clover again. But if the clover comes up well amongst the rye stubble of it is cut twice after having been dressed with Dutch ashes early in spring. It is mostly consumed in the green state, the clover lay is manured with ten cartloads of dung to the acre, and rye sown again but not clover. After the rye comes buckwheat without any manure, then potatoes again manured as at first, and the same rotation of crops follows. It is found that the poor land gradually improves at each rotation from the quantity of dung used; for want of sufficient manure broom seed is sometimes sown with the rye and clover. The rye is

reaped and the broom continues in the ground two years longer. It is then cut for fuel. The green tops are sometimes used for litter for the cows and thus converted into manure. It is also occasionally ploughed in, when young and green to enrich the land. Oats, clover and broom are occasionally sown together. The oats are reaped the first year, the clover and young broom tops the next, and the broom cut in the third. This is a curious practice and its advantages appear rather problematical. All these various methods to bring poor lands into cultivation, show that no device is omitted which ingenuity can suggest to supply the want of manure. After the land has been gradually brought into a good state, and is cultivated in a regular manner, there appears much less difference between the soils which have been originally good and those which have been made so by labour and industry; at least the crops in both appear more nearly alike at harvest than is the case in soils of different qualities, in other countries. This is a great proof of the excellence of the Flemish system. For it shows that the land is in a constant state of improvement, and that the deficiency of the soil is compensated by greater attention to tillage and manuring, especially the latter. The maxim of the Flemish farmer is that, without manures there is no corn, without cattle there is no manure, and without green crops and roots cattle cannot be kept. Every farmer calculates how much manure is required for his land every year. If it cannot be purchased it must be made on the farm, a portion of land must be devoted to feed stock, which will make sufficient for the remainder, for he thinks it better to keep half the farm only in productive crops well manured, then double the amount of acres sown on badly prepared land, hence, also, the acres next reckon what the value would be of the food given to the cattle, if sold in the market, but how much labour it costs him to raise it, and what will be the increase of the crop from the manure collected. The land is never allowed to be idle so long as the season will permit any thing to grow. If it is not stirred by the plough and harrow to clear it of weeds, some useful crop or other is growing in it. Hence the practice of sowing different seeds amongst the growing crops, such as clover and carrots amongst corn or flax, and those which grow rapidly between the reaping of one crop and the sowing of another such as spurry or turnips, immediately after the rye is cut, to be taken or eaten off before the wheat sowing. These crops seem sometimes to be scarcely worth the labour of ploughing and sowing; but the ploughing is useful to the next crop, so that the seed and sowing are the only expenses, and while a crop that is of some use is growing weeds are kept down and prevented taking in the soil.—*Rev. W. S. Rham's Flemish Husbandry.*

CULTIVATION OF THE STRAWBERRY.

Permit me to offer a few practical remarks on the cultivation of the strawberry, a fruit not much inferior in some respects to the vine, and one in more general cultivation.

The mode we adopt in light sandy soil is as follows:—After preparing ground in the usual way, we mark off the rows at 26 inches apart; after stretching the line, we tread with one foot on each side to compress the soil; being now ready to receive the plants (we generally plant about the middle of March), we select the strongest plants of any variety, and commencing at one end we plant on the part which was trod upon—5 plants, in a circumference of about 18 inches, and 12 inches apart. After the ground has been planted on the above system, we procure some barrowfuls of sheep droppings, for it is on the application of such to strawberries on light dry soil, that the value of our remarks (if any there be) is to be considered. And with a small spade we put in a quantity on the space of ground within the circle of the plants, and after the plants have commenced growing, we give now and then, perhaps once a-week, a watering with water, in which about a bushel of the droppings to 4 gallons of water is used. By this means strawberries can be produced as good as where the soil is more adapted for bringing them to a high state of cultivation, as light dry soils in general do not produce such large nor well flavoured fruit.

Again upon stiff clay soils, we have acted differently, and found the plan we now recommend to suit better than the old system. In digging the ground intended to be cropped, we raise the ground where the plants are to run to the height of 6 inches, and about 8 in breadth, the distance between the rows will be about 22 inches, 4 on each side of the plant, and 14 the space to dig. It may be asked what advantage is to be gained by placing the plants on this raised ground over the old system of having them on level ground; the advantages to be derived are two-fold, at least in a cold wet climate, such as Lochaber; first the roots being nearer and more exposed to the action of the solar rays, the blossom is produced much earlier, and, consequently, the fruit; and the over abundance of moisture is allowed to escape by the fall towards the middle of the row. However much they delight in a moist atmosphere, during their growing season, they are improved by being preserved, as much as possible, from the rain lodging between the rows. When the fruit is fit for gathering in stiff retentive soils, this plan will be found most desirable, and in digging and manuring them, instead of injuring the roots by the spade, we lay on the manure, and afterwards fork it in with a three pronged fork, and the crops in general are much improved over the old system. By attending to this, much success will be the result, I have no doubt.

The plants are planted in the usual way on the ridges, and in making the ground up, lay a good course of rotten cow dung for the roots of the plants to feed upon.

ASPARAGUS.

Asparagus beds which have been well manured and deeply trenched during winter will be in a fine state to receive the roots, which should never be more than one year from the seed. The proper time for planting is when the buds have begun to spring; indeed many excellent cultivators do not plant until the shoots have attained the length of four or five inches. Planting at that stage requires great caution that the shoots be not broken; it, however, prevents the chance of planting roots with defective or blind buds, which is of frequent occurrence. If the crop is intended to be permanent, plant in single rows four feet apart, and twelve inches plant from plant, in the line; but if it is intended to take up the roots for forcing, rows of plants may be set in four-foot beds with three feet alleys between them. In cold damp soils, and probably in all soils in cold situations, the soil in the alleys should be thrown on top of the beds, leaving the former a foot deep, thus placing the roots in a dry position, and also that they may more fully expand to the influence of the sun and air. When planted sow the ground with salt, and this stimulant should be applied frequently during the growing season. In dry weather Asparagus will be much benefited by liberal supplies of liquid manure, both at planting and afterwards.

Various methods have been tried whereby cuttings of tender plants may be safely conveyed to a distance, all of which are in some respect or other defective. A most ingenious and effective method was shown to us the other day by Mr Daniel, gardener to the Baron Hugal of Vienna, who is at present travelling in this country collecting animals and plants for the young Emperor of Austria. We may also remark that Mr Daniel is a native of Holland, a most enthusiastic gardener and botanist, has made several tours to this country, as well as having visited most of the best collections in Europe.

He carries with him several cylinder-shaped glass bottles, with wide mouths and glass stoppers similar to those used in chemists' shops for holding medicine; into these he throws his cuttings, just as they are taken from the plant, without any particular arrangement or order; a very little water is placed in the bottle, and when filled with cuttings, the stopper is hermetically sealed up. In this way he has been collecting for several weeks, and those he had from both Mr M'Nab and our-

selves, although they will not reach Vienna for probably a month or six weeks, he is satisfied they will arrive in safety and grow. He stated to us, that cuttings kept in similar bottles for fifteen weeks had grown most freely, and that many instances had occurred where they had sent out roots during their journey, and were immediately potted on their arrival at Vienna. So simple and efficacious a mode of sending cuttings deserves to be brought before the notice of cultivators, the rationale of which will be readily comprehended by such as have studied the principle of the Wardian case. To prevent damage during transit, these glasses may be packed within small wooden cases, for short journeys, but as light may have something to do in the matter, when sent to a great distance, arrangements might be easily made by which they could be placed within its influence.

Specimen heaths of the rarer and more difficult sorts to grow are wrought by Mr Daniel upon the stronger growing kinds, such as melantha, arborea, &c.; on these the tricolors, Massoni, elegans, &c., are grafted, and some attain a very large size; nor does it appear from Mr Daniel's experience that they are afterwards short-lived. He was most struck with many of the plants in the Edinburgh Botanical Garden, and pronounced several of them as unrivalled in Europe. Nor was he less gratified in having an opportunity of seeing Mr M'Nab's most judicious method of shifting large plants, it so happening that the splendid plant, Cocos nucifera, was undergoing that operation during the time he was in the garden.

REMEDY FOR PREVENTING TURNIPS TASTING MILK AND BUTTER.—It is simply to cut a good slice off the top of the turnip, and another off the bottom, taking care to have all the roots off with the last slice; give the remainder or centre of the turnip to your cows, sliced as usual. If this simple method be strictly followed I will guarantee milk and butter sweet, and in quantities according to the allowance of turnips the cows get. I must add, I got this recipe from a friend, but never could get butter without a taint until I had turned off three or four men who attended my cattle, as they considered the topping and bottoming turnips was very troublesome, and always went back to the old method. I have now only to say, that I am feeding fifteen milch cows since the 20th of October, and have allowed them seven stone of turnips a day, and the butter last week produced best price in the most unfair butter market in Ireland. I give the tops and bottoms of the turnips so cut off to dry cattle.—E. W. C., Dumkeeran, Dec. 6th, 1849.

EFFECTS OF CULTURE.—The almond, with its tough coriaceous husk, has been changed by long culture into the peach, with its beautiful soft and delicious pulp, the acid sloe into the luxurious plum, and the harsh bitter crab, into the golden pippin; attention to nutrition has produced quite as marked changes in the pear, cherry, and other fruit trees: many of which have not only been altered in their qualities and appearance, but even in their habits. Celery, so agreeable to most palates, is a modification of the opium graveolens, the taste of which is so acrid and bitter that it cannot be eaten. Our cauliflowers and cabbages which weigh many pounds, are largely developed coleworts, that grow wild on the sea shore, and do not weigh more than half an ounce each. The rose has been produced by cultivation from the common wild briar; many plants may be modified with advantage, by supplying the growth of one part, which causes increased development of other parts.—*Dr. Trueman on Food.*

FATTENING OF HORNED CATTLE.—In countries where grain is cultivated in large quantities, there exists a deep rooted opinion that the fattening of horned cattle is positively disadvantageous except in large brandy distilleries; this opinion is, however, often unfounded. Local circumstances may alter the relative value of fattening, according to the results afforded by maintaining cattle for other purposes.

In calculations which profess to show that this branch of economy is unprofitable, the question is not correctly stated, the food given to cattle being estimated at the market price instead of at the cost of production; every one knows that the maintenance of cattle is indispensable to grain cultivation. The influence of this maintenance on the produce of the grain has indeed been developed in several parts of this work. Moreover, in the greater number of cases, we cannot dispense with horned cattle. The real question at issue therefore, is which kind of cattle are to be preferred, and with regard to horned cattle in particular, whether the quantity of fodder and pasturage devoted to them can be more advantageously consumed by milch cows or fatted oxen.

This question merges into the following:—

1st. What is the proportion between the quantity of fodder consumed by a milch cow during the whole year, and that which an ox consumes in the time required for fattening him?

2nd. What is the profit of an ox during the time that he is fattening, and that of a milch cow during the whole year?

We have already spoken of the quantity of fodder consumed by a milch cow, and the differences observed with regard to this matter. That required for an ox put up to fatten likewise

varies according to the size of the animal and the quantity of flesh and fat which we wish to give him. But it is perhaps easier to fix a rate for each particular case of fattening than for those which relate to the management of milch cows. In localities where fattening is practiced to a considerable extent, the daily allowance which ought to be given to an ox of a certain breed is determined with tolerable accuracy. Hence in these countries it is usual to fix the weekly price which a butcher or cattle dealer is to pay for the feeding of an ox. This price, however, is subject to certain modifications, according to circumstances of place and time. This it is easy to calculate beforehand, and to resolve the question for one's self. The result shows that fodder is often better repaid by fattening oxen than by milch cows, especially when the short time of fattening is compared with the maintenance of a cow for the whole year, and the care of the dairy; to this we must add that the fattening of oxen during the winter takes place at a season when labor is abundant, while the maintenance of cows continues during summer, when laborers are often difficult to obtain. In many cases also it must not be forgotten, the capital devoted to fatten oxen returns in four or five months, while that expended on milch cows is always floating.

On the average we may reckon that an ox while fattening consumes almost as much fodder as will suffice for a cow during the whole year, but at the same time the dung yielded by an ox while fattening, is equal to that which a cow furnishes in an entire year, and perhaps of better quality; besides, this dung is obtained at a time when it can be easily carted.

Even if it be thought advantageous to make fattening the basis of the economy of live stock, it may nevertheless be very useful as an accessory branch. When the whole economy of fattening is once thoroughly understood and organized, it will always be easier to regulate the number of animals put up to fatten according to the annual quantity of fodder, than that of any other description of cattle. We must be careful not to increase the number of animals maintained beyond what we are certain of being able to support even in bad years; the excess of fodder obtained in good years may be employed in fattening oxen which are always easily procured from without, even if we have none of our own that we wish to improve. It is commonly more profitable to sell fat than lean cattle.

Whoever would undertake the fattening of a large number of cattle must endeavour to acquire experience in the knowledge and valuation of them, and of all that relates to this branch of commerce, or at least must avail himself of the direction of a well informed and intelligent man. The choice and valuation of cattle require a certain practice of the eye, and still more a certain

tact of hand, which cannot well be acquired without long practice. It would therefore be useless to describe them here; they can only be obtained by actual inspection and comparison of a large number of cattle. Great facility in valuing cattle, and certainty in buying and selling, as well as in the whole process of fattening, are obtained by the use of a machine for weighing living animals; such an instrument is neither expensive nor complicated. A box formed of boards joined together, and of sufficient length and breadth to allow an ox to stand upright in it, is suspended by a chain from the shorter arm of a balance beam. There is a door for the animal to enter, and on the other side a rack into which a little hay is put to induce him to go in. The box rests firmly on the ground, the other arm of the balance beam, which may be of wood is ten times longer, a dish is suspended from it for holding weights. The equilibrium should be established by means of this dish in such a manner that the addition of the smallest weight shall raise the box when empty. The longer arm of the beam being ten times as long as the shorter, any weight placed in the dish produces a tenfold effect upon that which is in the box, the tenth part of a pound in the former will support a pound in the latter, and one pound will support ten. The weight of the beast is ascertained as soon as the box begins to move in the slightest possible degree; it must not be lifted for fear of frightening the animal. Such an instrument may be placed in a stall, the pivots on which the beam turns being suspended between two beams; it may also be put up in a yard, but it will then require a stand to support it. A machine of this description is also very useful for weighing fodder.

Some persons profess to determine the weight of a beast by the dimensions of particular parts, and the use of certain arithmetical formula. But even supposing this method to be applicable with tolerable certainty to the greater number of cases, the rules in question can be adapted to a particular race only, and one that is well fixed, so that every breed must require a distinct formula practically determined. That such is really the case has long been known in England. In the actual state of things it would be very hazardous to rely on such data.

According to the experience of English graziers, the weight of an animal in butcher's meat may be estimated with tolerable accuracy by its weight while alive.

By weight in butcher's meat we mean that which a beast weighs when hung up with his head, forelegs, entrails, and suet removed, the weight in net flesh as it is called. But for this purpose the health and condition of the animals must be taken into consideration. For an ox not absolutely lean, but still not fattened, Professor Anderdon gives the following rule: Take half

the weight of the animal while alive, add to it four sevenths of the whole, and divide the sum by two, the quotient will be the weight of net flesh. For example suppose a live ox to weigh 700 lbs.

Half of 700...	350 lbs.
Four sevenths of 700...	400 lbs.
	750 lbs.
Half sum.....	375 lbs.

In this case 25 lbs would yield 105lbs. But when oxen are a little fattened it has been found that 20 lbs. commonly yield 11 lbs., and when they are completely fattened 12 or 12½ lbs. For as an ox gets fatter the proportion of his flesh to the refuse becomes greater.

Finally in fattening cattle the greatest regularity must be observed in distributing the food, cleanliness, &c.

Matters of which I shall speak under the head of each description of fattening. In this place I content myself with recommending that no one undertake the fattening of a large number of cattle unless he can have an eye to them himself, or at the least, unless he can obtain the services of a man deserving of the most implicit confidence and thoroughly devoted to this branch of economy.—*Thaer's Principles of Agriculture.*

THE PREVENTION OF SMUT IN BARLEY BY STEEPING.—I saw in the Gazette of the 15th ult. a report from J. L. Hughes, in which he mentions about the barley in this district being seriously injured by the smut, and, taking a great interest in the prosperity of Ireland, I beg leave to mention an experiment that I tried this year with success. I have sown Italian barley for some years, on account of the additional straw, and it not being so subject to lodge as the other varieties; but having observed that the smut was increasing every succeeding year, I resolved to try an experiment on it, by pickling with two pounds of blue stone per quarter of seed barley, in the same way as I do with my wheat. But instead of sowing when newly pickled I kept it in the steep for forty-eight hours, and then sowed four bushels per Scotch acre, instead of three that I usually sow, and I found that the braid was no thicker than when sown only with three bushels. I sowed, on the same field, and on the same day, some barley in the usual way, which came up twelve hours before the pickled, although sown dry. I have the crop now cut, and on the portion of the field that was sown in the usual way, there is an increase of smut on last year, but where it was pickled there is scarcely a head of smut to be seen. If this system to prevent smut in barley has not been tried, and if you think it deserves a corner in your valuable paper, you may insert it.—Yours, &c.,
A SCOTCH FARMER.

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, MAY, 1850.

We feel it our duty constantly to advocate the necessity for providing an agricultural education for the children of the rural population. It may not be possible, at once to introduce a perfect and general system of agricultural education, as we have not school-masters instructed to teach such a system; but by the establishment of one or more Agricultural Colleges, Model Farms, or Normal Schools, we should soon have a sufficient number of qualified school-masters to give an agricultural education at all the country schools. We do not propose that the sons of farmers should be confined to the study of agriculture alone. On the contrary, they should have education, where circumstances would permit, equal to any other class of the community; but, in addition to the education bestowed upon other classes, they should also be instructed fully in the science and art of agriculture. While preparing the machinery of this general system of education, there is nothing to prevent the immediate introduction into every country school, of suitable agricultural books and periodicals, for the reading and study of farmers' children. This is an advantage the children should have, whose fathers contribute towards the support of the schools. It is time that the rural population should have suitable, and the most useful instruction provided for their children, and not be obliged to be content with an education quite unsuitable for them, as under the present system. It is a generally admitted principle, that impressions made upon the youthful mind are the most lasting. "Just as the twig is bent the tree is inclined," is an

old adage, and, we believe, a very true one. At the common country schools, what are the impressions likely to be made upon the minds of farmers' children, by the general course of teaching adopted, and the books provided for their reading and study? Has any part of their reading or teaching the slightest tendency to recommend agriculture to them, or instruct them in the science or practice of it? No!—the "twig is bent" in quite another direction. The mind is occupied with anything or everything rather than agriculture, or the business of their parents, and that in which themselves are to be employed for their future lives. Under different circumstances, if the children of both sexes were occupied during a portion of their time at school, in reading suitable agricultural books, that treated of the principles of agriculture, the proper cultivation of the soil and garden, the management of crops, of horses, cattle, sheep, swine, poultry, the dairy, and general industry of the farm, and the house, when they returned from school in the evenings to their families, they would very probably be anxious to repeat what they had read at school, and learn to practice also, what they had been reading. This course of reading and study at schools, would unquestionably give an importance to agriculture in the estimation of the young, that it never has had, and never will have while the present system of education is persisted in. We do not offer these suggestions with a view of attracting the youth of other classes to agriculture, but rather that the children of farmers should have every opportunity afforded them, while at school, of obtaining with all other desirable knowledge, instruction in the science and art of agriculture, that might assist them to practice it hereafter with credit and advantage to themselves, and for the general benefit of their country. We cannot see any reasonable objections that can be urged against the course of study, reading, and where possible, the teaching we propose. The young, on leaving school, where probably they have never

heard or read of agriculture, or devoted one hour to its study, very naturally conclude, that it must be a business of no importance, and an occupation only suitable for the most ignorant of mankind, and that if it were otherwise, youth would be regularly educated for it, as for every other business and profession. These impressions give them a distaste and disinclination to agriculture, and if they are forced to the business, they are not likely to become good or successful farmers. This, we conceive to be a correct statement of the case. Parties may imagine it time enough after leaving school, for young farmers to study agriculture. To this we reply—there may not be inclination, time, or opportunity for this, when they return to their father's home; and why should the time be wasted at school in the least useful studies, while the most useful are wholly neglected? These matters may not appear of sufficient consequence to occupy attention, because they concern chiefly the unassuming rural population, but the period is not very distant when they will be forced upon public attention. Agriculture must be the main stay of Canadian prosperity, and no other speculations that ever can be planned or executed, can secure prosperity to this country. This is a plain, simple FACT—that all the philosophy and political economy in the world cannot disprove, as regards Canada. From our peculiar position and circumstances, whatever degree of prosperity the country may attain to, it must, in the first instance, be derived from the production of her own soil. It is from this source the means of life and action must be obtained for every other business, trade, and profession, that the various classes of the Canadian population may be engaged in. It is this conviction, formed, we are persuaded, upon sufficient grounds, that has prompted us for a quarter of a century to persevere in advocating the cause of agriculture, and the necessity of affording encouragement and instruction for its improvement. We may have failed in convincing others of the vast

importance of agriculture to the Canadian people, but, nevertheless, the fact is not the less certain, although a thousand to one were of a contrary opinion. If, then, our proposition be correct, and the prosperity of the country be desirable, how necessary must it be to give every possible aid and encouragement to the improvement of agriculture? We do not pretend to say that the whole population should confine themselves to husbandry. By no means; we only wish that agriculture should obtain the attention proportioned to its vast importance to every inhabitant of this Province. We are perfectly sensible that commerce, trade, and manufactures, are necessary to a prosperous condition of the people of Canada, but the success of commerce, trade, and manufactures, depend upon a prosperous condition of our agriculture. Commerce will have no employment, and trade or manufactures will have no customers, unless agriculture prospers, and produces abundantly. All may proceed harmoniously, if we begin at the beginning and obtain our first resources from the soil a bountiful Creator has provided for us, to be cultivated by our skill and industry. This is a certain source that never fails, and never has failed from the first creation of mankind, and it is from this circumstance that agriculture must be placed at the head, and before all other occupations and professions, and must be the source of wealth and prosperity, not only to this country, but to all others. When agricultural education becomes general, and fashionable, this matter will be better understood and appreciated. It is time, certainly, in the middle of the nineteenth century, that a suitable education should be provided for those to be employed in the most important and useful occupation of mankind. A country must create the means of her own expenditure, by raising what she wants, or the means to purchase what she may require. Canada cannot be a manufacturing country, further than to supply some of the wants of her own population. It is, therefore, upon

the products of her soil she must chiefly rely, now, and always. Any other means she may obtain, she must purchase by an equivalent, and where is this equivalent to come from, unless from the soil? It will be useful for us to understand our true position, that we may work out our prosperity where alone it can be found. Improve the agriculture of Canada, augment its productions, as much as possible, in quality and value, encourage the most simple and useful manufactories of our own raw productions for the supply of our own wants—let us export all the products that we can to advantage, and if all these do not secure the prosperity of Canada, nothing else will. The improvement of our water communications, and the extension of our Rail-roads, will, of course, proceed with agricultural improvement,—the one will give healthful action to the other. There must be better times in store for Canada. Such a noble country, possessing the best of soil, a favourable climate, the most extensive means of water communication, perhaps, in the world, and a thousand other advantages, cannot but become great and flourishing, when her people apply themselves in good earnest to make it so, and adopt the proper means. Let us not flatter and deceive ourselves by other speculations. The only hope of the country, we again repeat, is in the prosperity of her agriculture, so as to afford the means of healthful action to her trade, manufactures, and commerce, and all classes dependent upon them. We may be thought tiresome on this subject, but we feel it to be our duty constantly to advocate what we humbly conceive necessary to advance the improvement of agriculture, as it is with that object this Journal is published, and we propose to persevere until it is proved that we are in error in our views. There is another matter we most continue to refer to, as a means of accomplishing the improvements that instruction in the art of agriculture would show farmers to be necessary—that is—“Associations of

Agricultural Credit.” Such establishments for the accommodation and assistance of well instructed farmers, would soon make Canada a very different country from what it is now, and certainly improve the condition of every class in it, except perhaps, the few who may now have money to lend, or to sell at a high price. The measures we respectfully suggest, cannot fail to benefit a vast majority of the people of Canada, and would not be unjust towards any portion of them. It remains to be seen what action will be taken on these subjects, or whether they will receive any attention. There may be some other means proposed by parties who may understand the subject better than we do, but if it should be so, we shall be perfectly satisfied to see the good produced to our country, by any lawful means, whoever may propose them. All we desire is—that what is necessary to promote the improvement and prosperity of Canada may be effected by some parties; and we hope that what is necessary will not be put off to a “more convenient season,” that may never arrive. “Hope deferred maketh the heart sick.”

AGRICULTURAL REPORT FOR APRIL.

At the commencement of the month, a considerable quantity of snow remained on the ground on the north side of the St. Lawrence, and for some miles on the south side also. The weather continued very cold, with severe frost up to the 19th, and rendered it impossible to execute any work in the fields, except to cart out manure, as top-dressing, or for other purposes. The ground was again completely covered with snow on the 14th. There was no chance to sow wheat previous to the 20th, in the neighbourhood of Montreal, or north of the St. Lawrence. Consequently, we fear it will be rather a dangerous experiment to sow much of the old Canadian varieties of four months wheat, as it would be liable to be injured both by rust and fly. It is certainly better for the crops to be a few days

later in sowing, and not be checked in their growth afterwards, than be sown early and have hard frost after the seed had vegetated and appeared over ground. We remarked, when the snow was first disappearing off grass or meadow land in April, the grass was very green and healthy, but we are not quite certain that this promising appearance was not considerably changed for the worse by the severe frosts when the land was exposed, and not very dry. The grass plants, however, are very hardy, and may recover this check. The deep covering of snow upon them up to the 1st of April, cannot fail to be very beneficial to grass lands. The winter altogether has been a very favourable one, and by no means severe. The only objection to our winters, is, when they are protracted, and continue far into the month of April. When this is the case, the working time in spring is greatly shortened, and farmers are frequently unable to finish their sowing in time or execute the work properly. They may not be able to procure hands or horses to execute the work properly in a late season, that they might get very well through, with less help, in an early season. Labourers, at a call when required, and money to pay them, are essentially necessary to good farming in our climate, and, frequently, short working seasons. When both are not forthcoming, farmers have not a fair chance of success. Every work has to be done in due season, and if not, serious loss is sure to be incurred. There is no work of the farmer, so far as regards the crops, from the time of sowing the seed until the crops are harvested, that can be put off without loss; and it is this circumstance that makes it so necessary that the farmer should have the command of labour in his own family, or be able to procure it when required, and pay for it. We continually see in Canada a considerable extent of land sown with seed, in a slovenly manner, manifestly requiring more labour of men and horses. The consequence is, that weeds prevail, and are not

taken out of the crops, and hence the produce is diminished materially. Slovenly cultivation of large tracts, and a waste of much seed, is a very general fault in the agriculture of North America. A better system, and applying more labour and skill, would yield more produce from half the quantity of land. We have been assured by a Canadian farmer who has adopted an improved system of husbandry, that the year before last, he had raised from 11 minots of seed sown a greater quantity and weight of grain than a neighbour of his had raised from 70 minots sown. This shows the advantage of a good system. It is very necessary, under the present circumstances of the country, that farmers should give their attention to raise products that will find a market. Perhaps horses and neat-cattle would pay as well as any products that could be raised for sale. Horses of the pure Canadian breed, and of good size, will, we have no doubt, always meet a ready sale for the United States, and at remunerating prices. We hope that all we have said in reference to Canadian horses will not be disregarded, and that farmers will in future be particular to raise a pure breed. To do this requires great attention. Mares should not be allowed to breed before they are four years old, and come to full size, and no entire horse should be permitted to go at large, after he is one year old. If stud horses are found to sell to Americans better than geldings, farmers should of course keep them in that state, but not allow them to go at large. We never can have a good breed of either horses or neat-cattle, while male animals of every age and description are allowed to go at large with the females of every age and description. This general plan has greatly deteriorated the horses and neat-cattle of Canada, and no wonder. If they were to act thus in the British Isles, their cattle would be much inferior to what they are at present. The keeping of stock in a proper manner, is also necessary to their perfection and profit. The

native breeds of horses and cattle, if managed judiciously, selecting the best animals for breeding, providing good and sufficient food for them, and crossing the cattle with a different breed of males of suitable size, we should have a very good and profitable stock for the country. We are not in a position here, in our present state of agriculture, to introduce a new and large breed of horses and neat-cattle. When the system of agriculture is in such an advanced state as that of the British Isles, we may wish to have large stock as they have in these countries. For our own part, under any circumstances, we would prefer moderate sized animals to the larger sized, for this country, and we have no doubt that they will always prove the most profitable stock, yielding more for what they consume than any other. Attention to the dairy is next in importance to the rearing of stock. This is a branch of farming very much neglected in Canada, and has not produced hitherto, in value, half what it might do annually, under better management. The butter of very many dairies, is of very inferior quality. We have frequently seen it selling in the Montreal Market, both fresh and salt, of very bad quality—the salt butter of various colours, and the several layers of butter separated in the cask and not closely or properly packed. Butter made up in such a manner is only fit to sell as grease for factories. On the other hand, we have seen most excellent butter, fresh and salt, selling at the same market, and this difference results generally from better management. Farmers who make bad butter, sustain a heavy loss, as they might have good from the same cows and milk. We have been told by a Montreal grocer, this winter, that he had purchased seven or eight casks of salt butter from a farmer in February, and that he had sold it again by the cask to housekeepers at 10d. per lb., and could sell a much larger quantity of the same quality of butter at the same price. This grocer had also most excellent cheese of Canadian make. If then some

farmers can make good butter and cheese in Canada, why should not all others be able to have both good? Suitable dairies are very necessary, but if farmers would take a little trouble they might have dairies that would answer. The milk and cream should certainly be kept cooler than the temperature of the air in our summers, and any dairy that will not keep it so, is unfit for producing good butter. Butter and cheese of good quality, would generally find a market here at remunerating prices. Farmers do not make the most of their advantages or they would be better off. Butter and cheese, to make them profitable, must be of good quality, and they will then find a ready market. The butter must be put up properly, and be of uniform quality, colour, and saltness. Attention to all these matters is indispensable. In Cheshire, England, five cows are expected to yield in the season, a ton of new milk cheese, besides affording milk to feed their own calves. The calves are kept to four or five weeks old, and then sold to the butchers. If we could do this here, it would pay well. Of course, cows should be of a good description, and properly kept, both in summer and winter. In England, although so famous for root crops in many places, they prefer feeding their cows with bruised or ground oats to turnips, and consider it as cheap as turnips, and much better for the milk. In Canada, we consider oats more suitable than roots in the extreme cold of winter, though, perhaps, not so cheap. Ground oats or barley, at the low prices they have brought this year, would be much cheaper for cattle than waste grains of brewers or distillers. It is an extraordinary fact, that in the City of London, brewers' grains sell for about half, or two thirds the price charged for them in Montreal. In London, they do not charge quite a penny for waste grains per bushel, for every shilling per bushel they pay for the barley. Here the difference is more than double that proportion. Wheat should be the staple crop cultivated here, and perhaps the price

may seldom be so low that a good crop will not pay, at all events, better than any other grain. By careful experiments, new seed, and good cultivation, good crops might be raised, and if 20 bushels to the acre was raised and sold at 4s. the bushel, it would be equal to 16 bushels at 5s., and this proportion of price may apply to greater and less returns from crops. In any case, judicious cultivation, we have no doubt, will pay better than bad and slovenly cultivation, whatever may be the price per bushel of the produce. We do not know to what extent wheat may have been sown in April this year, but farmers should be prepared to sow what is to sow about the 20th of May, and should not allow the sowing to extend many days beyond that time. This period is very late, if we could safely sow previously, because unless the season is very favourable, the young plants are very liable to be checked by drought and heat that frequently occur about that time, and the sowing of grass seeds with the wheat is rendered very uncertain from these causes. In no case should the wheat be sown without being well washed in a strong pickle of salt and water, skimming off all the light and inferior grains. Barley should be sown as soon as possible, washing the seed in pickle, and skimming off all light grains. Steeping the seed in liquid manure, or the dung-heap drainings, for a day or two, is recommended, drying it with lime, ashes, or gypsum for sowing, as with wheat. This preparation is said to prevent smut in barley, and it greatly hastens its growth. As we observed in a former number, barley is the best crop to seed down land with. Oats should be sown the moment the soil is fit to harrow. When sown after grass ploughed in the fall or this spring, it would greatly improve the crop to run the plough in the furrows with a single horse, twice or three times, and shovel the loose earth off the furrows on the ridges. An active man might shovel the furrows of an acre in a day, and this expenditure would be amply repaid

by increased straw and grain. We have, in another place, treated of flax, hemp, carrots, parsnips, mangel-wurtzel, and Jerusalem artichokes, and need not introduce their mode of cultivation in this Report. Rye is often sown in the old country to cut as green food for stock. It should be sown much thicker than if intended to stand for a grain crop. Indian corn also answers well to cut for soiling cattle, and yields a large quantity of green food sown broad-cast, or a continuous row in drills. Buck-wheat is sometimes sown in England for soiling green, and is cut for this purpose immediately before, and when coming into blossom. Cattle and pigs are said to be very fond of it. It is also preserved for winter food for cattle, and answers well. For this purpose it is sown very thick, and is cut when in the blossom, and stacked, mixed with layers of dry straw. The straw imbibes the sap of the buck-wheat, and both keep well without being damaged—salt is scattered over each layer, but not in too large quantity. Cattle are said to eat this mixture with avidity, and to thrive upon it. Farmers cannot complain of want of good winter provender for cattle, when it can be so easily raised. Indian corn stalks might be kept well mixed with straw as in the case of buckwheat. Land, that is scarcely producing anything, might, if ploughed, yield a considerable quantity of provender for cattle; and after yielding this quantity of green food, might be summer fallowed, and greatly improved for a crop the following year. In the last number of the Journal, we submitted some remarks on the planting of potatoes, and do not think it necessary to add more at present, except to warn farmers not to apply fresh farm-yard manure to the seed when planting, and to complete the planting at once. Peas and beans should be sown as soon as possible—the beans in drills, formed as for potatoes. Planting potatoes and beans in alternate drills, we have already recommended as a good plan. We omitted to mention that salt is a very good dressing for wheat

or barley, particularly where the soil is very fertile. It prevents the crop from lodging, and is applied at the rate of from six to ten or twelve bushels to the acre. Independent of strengthening the straw, it is otherwise beneficial to the soil and crop. Indian corn succeeds best when planted from the 10th to the 21st of May. It is necessary that the soil should be dry and suitable. The corn that has been preserved upon the cobs to the period of planting, is the best for seed. It should be perfectly ripe, and not suffered to heat after the time of harvesting. Unripe or heated corn is unfit for seed. The market has been well supplied with butcher's meat, and some of most superior quality. We have seen beef and mutton that would be no discredit to any market in England. Indeed, the mutton, we considered much too fat—weighing, we suppose, 30 lbs. the quarter. In England, the fattening beef or mutton to an extraordinary degree of fatness, is being discontinued, as it was found to be unfit for the table, and what cost the farmer from six pence to a shilling per pound weight, was only fit to make soap or candles, and not worth half the cost of producing it. We hope we shall not get into similar error in Canada. It is, however, only a few farmers that are likely to do so. There is much more meat exposed for sale in the market, that is wanting in sufficient fatness than that which is over fat. All these matters will be better understood after some time. There can be no mistake, however, that the farmer who sells an animal to a butcher, not sufficiently fat, is at a loss, and is much more to be condemned than he who fattens his animals to a degree that rather exceeds what is necessary. If we could determine the happy medium, and act up to this, it would be a great advantage to all. On the 20th of April, we sowed some of the wheat formerly grown in Canada, on land in very good condition, the dust rising from the harrow. The same day, in the same field, we sowed some Black-Sea wheat. We intend to report

the result at harvest time. We would not think it safe to advise sowing the variety of wheat heretofore grown here, after the 1st of May, although we have known it to succeed when sown in the beginning of May, when the season turned out very favourably in August and September for ripening and harvesting; but this was previous to the appearance of the wheat fly. This destructive insect has done so much damage to the farmers of Canada, that every precaution is necessary to preserve the wheat crop from its ravages. We may make up our mind, that any wheat coming into ear from the 25th June to the 15th of July, will be in a greater or less degree damaged by the fly, but farmers may be guided by their own experience in the matter of sowing. Windy weather prevailing for a few days at the time of the wheat coming into ear, might tend to preserve the crop, but this seldom happens, as about that period, we generally have very calm evenings, and nights, that is so favourable for permitting the ravages of the fly. Sowing in drills about twelve inches apart, and hoeing and keeping down all weeds, grass, &c., not allowing any plant to live except the wheat, we conceive would greatly check the ravages of the fly; the grass and weeds about the roots of the wheat afford shelter to the insect during the day, and must doubtless encourage their presence. A free circulation of air to the crop, that would be given by sowing in drills, would cause the fly to seek better shelter, being a most delicate insect, and the hoeing would also disturb it in its place of repose, and very probably destroy it, or drive it from the field. It would be very desirable to sow some of our wheat in drill; it would always ensure a good cultivation of the soil to admit of this mode of sowing. We have seen in one of our late exchange English papers, a method of forming drills for grain that appears very simple. The following is the description of it:—"Ransom's, wheel ploughs are getting into much repute in Kent; and Mr.

Dickson, who has a good knowledge of mechanics, has made an improvement on them, by fixing a metal or iron wheel on the stilts, immediately behind the board, which revolves as the plough goes, and forms an indentation of from three to five inches deep, for the seed to fall into. This wheel is 120 lbs. weight. I held the plough having one of them attached to it, and found it very easy held; and the draft to the horses seems to be quite ordinary." "Some of our mechanics might surely make such a wheel and attach it to a plough to act as the one in England is described to do. A wheat drill has been imported from the State of New York this spring by a Director of the L. C. A. Society, which we hope will answer, and bring drills into use. We hope if farmers have not been able to sow much in April, that they will have employed themselves at manure, by top-dressing and placing it in a convenient situation to be put into the soil as soon as possible. Farmers may rest assured that the sooner manure is put into the soil after it is made the more valuable it will be, no matter whether the seed is to be sown immediately after or not. Manure will produce more benefit rotting in the soil than in the farm-yard or dung-heap, though it should be put into the soil months before the seed is to be sown. We do not say that in every case this should be done, but we say that when the farmer has manure, if he has opportunity to plough it into the soil, he should do so at once, and leave it there, rather than in the yard or in a heap, to rot. Manure never gains by keeping, and from this fact it may be imagined what a loss of manure there must be, when it is kept over in the farm-yard for years, as it frequently is in Canada.

FLAX AND HEMP.

We have long recommended the cultivation of these plants in Canada, but we regret to say, that our recommendation has not been acted upon. We hope, however, that the time is now arrived that some action will be taken in the matter, and that these valuable plants will be

extensively cultivated, both for their seed and fibre, for home manufactures, and for exportation. We give in this number, some simple instructions for the preparation of the soil for growing flax and hemp, and the mode of sowing and management until harvested. We shall from time to time, refer to the subject again, and endeavour to show the necessity and profit of establishing machinery for the preparation of the fibre for future uses:—

FLAX.

The soil best suited for this plant is deep clay soil, sufficiently drained, and of moderate fertility. It is generally sown in Holland and other countries; after wheat or oats one ploughing is sometimes sufficient, but two are generally safest: one in autumn and again in spring. After the lea land oats, two ploughings are indispensable, and a third is frequently advisable, for the land must be perfectly pulverized, and cleared of all roots of every sort, or no crop; do not plough deeper than the vegetable mould, or so deep, if the soil is not good.

Sowing.—Sow early in May, so soon as the weather permits, the earliest sown is always the best crop; do not await perfect dryness in the soil. It is preferable somewhat moist, that the seed may vegetate quickly. Sow two bushels to the acre, of good and clean seed, when more is sown the crop is generally too thick; but thin sowing never gives fine flax. The ground being perfectly pulverized and cleaned, give a turn of the roller, and sow on the rolled ground, where clover and grass seeds are sown with flax (after wheat) the person who sows them follows him who sows the flax-seed, and both are covered with a double turn of the grass-seed harrow, which is light but broad, the teeth thickly set and short. Rolling the crop after sowing is injurious.

Weeding.—If weeds come, they must be drawn; but if the plough, the hoe and the hand have been sufficiently applied to the green crop (potatoe or other root), if flax is sown after either, and the roots of weeds and grass have been all gathered previous to sowing the flax, the weeding will seldom be necessary; however, whether sown after roots or grain, if there are weeds they should come away.

Ripening.—The test recommended to ascertain the degree of ripeness that gives the best produce with the finest fibre, perfect. It is this: try the flax every day, when approaching ripeness, by cutting the *ripest* capsule on an average stalk, across (horizontally), and, when the seeds have changed from the white, milky substance, which they first show, to a greenish colour, pretty firm, then is the time to pull. The old prejudice, in favor of much ripening, is most injurious, even as regards quantity, and the usual test of the stalk stripping at the root and turning yellow, should not be depended on. Where there is one man who pulls too green, five hundred allow to be over-ripe.

Pulling.—Use the Dutch method, say, catching the flax close below the bolls, this allows the shortest of the flax to escape, with next handful the puller draws the short flax, and so keeps the short and the long each by itself, to be steeped in separate ponds. It is most essential to keep the flax even at the root end, and this cannot be done without *time* and *care*, but it *can* be done, and should always be done. The sheaves should be small, evenly sized, straight and even, and should be put up in stocks or wind-rows, to dry before it is put into stacks.

HEMP.

Next in importance to the cultivation of flax would be that of Hemp, which is very largely imported into England. Nine-tenths of the whole quantity comes from the Russians alone. Large tracts of marshes and lands situated near rivers, occasionally flooded, would, undoubtedly, produce rich crops of hemp, if properly cultivated for it. We hope that some measures will be adopted to encourage the extensive growth of this highly productive and valuable plant in this country, that is well suited for it. Hemp, or *Canabis Sativa*, is an annual plant, usually rising to the height of five or six feet, in some situations, it is, however, capable of attaining to a much larger growth, and does so naturally in Canada. The flower and fruit grow upon separate plants. Those bearing the flower are called the male hemp; those bearing the fruit or seed, the female, the fruit grows in great abundance on the stem of the female hemp. This seed is not preceded by any corolla: a membranous hairy calyx,

terminating in long points, encloses the pestil the base of which becomes the seed.

The male is quicker in its growth than the female hemp, and generally rises half a foot or more higher, by which provision of nature the farina from the stamina, or the fecundating dust, which conveys fertility to the seed, is readily shed on the lower plant.

Most soils may be made fit by good manuring for the cultivation of hemp, but rich moist earth is considered the most favourable to its growth. It seldom thrives on a stiff clay soil; a poor land will yield but a scanty crop, the quality, however, will be proportionately finer: while a strong rich land produces a great quantity, but this will be coarse, cultivators are therefore regulated in their choice of soil by the description of hemp which they wish to raise.

In England, where strong and heavy hemp is grown, the hemp gardens are small, and near the houses of the growers. These gardens absorb vast quantities of manure, and produce hemp every year without any alternation of the crop, or any change, except that, in years when the hemp is pulled early, a few turnips are sown for a stubble crop; when hemp is required for cordage it should be sown in drills, as a stronger and coarser fibre will be produced. When it is wanted for the purpose of weaving, then broad cast is the best method, as the stems rise more slender and fine, in proportion to their proximity, provided they are not so near to each other as to choke and impede the growth; there should never be a smaller interval than a foot between each plant. Three bushels of seeds is the ordinary allowance for an acre, when sown broad cast; this quantity being more or less according to circumstances. If sown in drills, a bushel and a half is found sufficient. After the seed has been sown, great vigilance is required to keep off the birds. After this period, the hemp ground requires very little care or labour, till it is fit for pulling. This plant is never overrun with weeds, but, on the contrary, has the remarkable property of destroying their vegetation.

Agriculturists sometimes take advantage of this well known fact, and by sowing a crop or two of hemp on the rankest soils, they subdue all noxious weeds, and entirely cleanse the ground from these troublesome intruders. The male

hemp comes to maturity three weeks or a month earlier than the female. It is known to be ripe by the flowers fading, the farina falling, and the stems turning partially yellow. This period is usually about twelve or thirteen weeks after sowing. It is the frequent practice to pull these before they are quite ripe, for after having arrived at their full maturity, the fibres adhere so tenaciously to the seeds as not to be separated readily without injury. In some cases cultivators gather both male and female plants at the same time, reserving a small part for seed. In Lincolnshire and on the Continent of Europe, they gather the male plant a month earlier than the female, and therefore small paths are made at intervals through the field, in order that the persons employed may pluck the plants which are ripe without trampling down those which are to remain.

The ripeness of the female hemp is known by the same indications as that of the male, and also by the calyx partially opening, and its seed beginning to change colour. They are both less injured by pulling too soon than too late; but when very young, though the fibres are more flexible and fine, the ropes which are made with them are found not to be so lasting as when the plants are gathered in a more matured state. Hemp is never suffered to remain ungathered till the seed is perfectly ripe, as at this period the bark becomes woody, and so coarse that no subsequent process can reduce its fibres to a proper degree of fineness. Some plants should, therefore, be preserved for seed. These require no particular cultivation, but the male hemp is likewise left rather longer than usual, that it may attain to maturity, and shed its farina upon the seed bearing plant. Forty plants raised is the common way, yielded only one pound and a half of seed, whereas from a single plant, which grew by itself, seven pounds and a half were obtained.

When the hemp is pulled, it is taken up by the roots, and before the plants are taken from the field, the leaves and flowers, and sometimes the roots, are taken off with a wooden sword; these are left on the ground, as they greatly contribute to enrich the succeeding crop; the stalks are then arranged, as nearly as possible, in equal lengths, the root ends being all laid on

the same side of each handful or bundle, which is then tied round with one of the stalks.

When the hemp is gathered from the seed which is to be preserved, it is exposed eight or ten days to the air, after which the heads are cut off, and the seed thrashed and separated in the same manner as linseed. The processes to which the hemp is subjected, before it is rendered marketable and in a state fit for spinning, are very similar to those practised with flax. The same end is required to be attained, that of separating and cleansing the fibres from the woody and gummy matters which adhere to them, and the means used are therefore the same, the time and degree of each operation being proportionate to the different nature of the two fibres.

The heckles used for hemp are somewhat coarser than those for flax, the teeth of the coarsest are usually about an inch in circumference at bottom, diminishing gradually to a sharp point, and they are set about two inches apart from each other. The produce of an acre of land, sown with this plant, usually averages from four to five hundred weight of cleansed hemp, and from sixteen to twenty-four bushels of seed. The culture of hemp is considered to be very profitable, and therefore, as we have observed, when treating of flax, many attempts have been made to encourage its further growth, in England; but a great prejudice formerly existed against this crop, as it was supposed to exhaust the land.

Under an improved system of husbandry, however, particularly with reference to the seed, if made into compound, upon the same principle as linseed, to fatten cattle, its deteriorating effects would be entirely obviated. Hempseed affords a very useful oil, similar in its qualities to linseed, and also cake, which is largely imported, with the refuse of other oleaginous plants, roots and nuts, and sold to the farmers of England under the new fashioned name of feed-cake. In buying seed for sowing, the greatest care is necessary, lest it should have been kiln-dried, as it generally is previously to exporting it from Russia. We were disappointed in this way once—after going to considerable expense in preparing soil for hemp, there were not a dozen plants came up in an acre, the seed

having been worthless. After the first year farmers should be able to save their own seed, and be sure it is good.

PARSNIPS

Should be sown this month; to ensure a good crop, deep cultivation is necessary, and the earth finely broken, with the removal of all large stones. The manure should have been ploughed or dug, in the autumn so as to be incorporated with the soil. If that has not been done, the manure applied at the present season should be well decomposed and divided. They may be sown in beds, in rows across the beds 18 to 20 inches apart, or in raised drills, as for turnips formed by the plough, 28 inches apart, to permit horse hoeing, &c. In either beds or drills, the plants should be singled out to 8 inches apart. It is a good plan to germinate the seeds of parsnips and carrots, by mixing them with damp sand or earth, and placing them in a moderate hot-bed, or any dark warm place; they should be turned over daily, and sprinkled with water, and upon showing symptoms of vegetation they should be sown immediately. By germinating the seeds, they may be sown a fortnight, or three weeks later than by not doing so, and this gives additional time to prepare the land, and confers the benefit of knowing that the seed is good. The best varieties are the common long rooted, and hollow, crowned Jersey. Two pounds of sound seed are sufficient for an acre, and the seed should not have less than half an inch of close fine cover, and not more than one inch. The parsnip delights in deep loams, and deep well drained heavy soils.

CARROTS.

The preparation of the carrot is precisely similar to that described for parsnips, but the carrot may be sown a fortnight later than the parsnip, whether the seed be prepared or unprepared, and carrots delight in deep sandy soils. The most approved varieties for field culture are the long orange, altringham, purple, and white, and red Belgian, the white varieties grow the largest, but the red ones are the most nutritious. As spring food for horses, they are excellent, they fatten cattle amazingly, and they communicate no disagreeable flavour to the milk or but-

ter of cows, and pigs thrive rapidly on them. Carrots are as easy to raise as any root crop we grow, and if the land is suitable, and properly prepared for them, no crop will pay better. Of course, there would be no advantage in sowing too large a quantity, but every farmer should sow some in proportion to his means of storing them in winter. We always mix the seed largely with fine sand, and in sowing, if by hand, place two or three seeds at intervals of about 6 or 8 inches in the row? Thus much trouble is saved in the hoeing and weeding.

Preparing and manuring, and for Mangel-wurzel? The application of lime is considered necessary to produce a luxuriant crop of mangel-wurzel in the British isles, if lime is not naturally present in the soil; in every case a sufficient quantity of farm-yard manure is indispensable. The land should have been ploughed and drained in the fall. The deeper the soil the better. The moment the land is in order in spring, it should be well harrowed, having previously applied the lime, if this substance can be had. The land should then be ploughed, and allowed to remain in this state until the time of sowing, which may be early in May. Harrow the land well, and roll it, open the drills 28 inches apart, apply a sufficient quantity of manure, and immediately cover it with the plough. Flat the tops of the drills with a light roller, or by some other means, and sow the seed, (having previously steeped it in liquid manure for 48 hours) in a continuous row, or dibble them in, two or three seeds in a hole, at nine inches apart, when well up remove all but one plant. The after culture consists in keeping the plants thoroughly clean with the hand hoe, horse hoe, and grubber, or dig between the drills with a digging fork. When the plants begin to touch each other, remove every other plant, which may be consumed by pigs and milch cows; the plants will then stand eighteen inches apart, which in deep, well manured and well cultivated land, will be necessary to ensure a heavy crop.

JERUSALEM ARTICHOKE

Is a tuberous-rooted plant, with leafy stems, that grow from four to eight feet high. It thrives well on all rich soils, and it is said to succeed

in moist peat soils, but we have not tried it on the latter. We have not cultivated them to any great extent, but we have been told, that the crops are equal in value to oat straw, and will produce as much fodder per acre, and the roots or tubers are said to yield half the quantity of an ordinary crop of potatoes. The soil for this crop may be cultivated in all respects like the potatoe, and the after culture may also be the same. In good loose soil, the Artichoke will yield a considerable crop. After the most careful taking up the crop, as much seed remains in the soil, generally, as will be sufficient to produce the next crop. We would not, however, recommend that the land should be left to depend upon this mode of seeding. We should prefer preparing the soil annually, and supplying it with manure and fresh seed. The fibres of the stems may be separated by macegation, and manufactured into cordage or cloth; and this is said to be done in the north and west of France, where this plant is cultivated to a considerable extent as a field crop, and on poor sandy soils. There are very many rich and fertile portions of land, about farm houses, barns, and fences, producing only hurtful weeds, that if cultivated for the artichoke, would produce considerable food for men and animals—that would be much more profitable and creditable, than to have them occupied as at present, scattering seeds of weeds all over the country. The Jerusalem Artichoke is a very suitable plant for cultivating in waste corners, along fences, &c., and the product would be clear profit, and would not displace any other crop. By attention to these little matters, the condition of farmers would be much improved, as well as the appearance of the country. The stems of the artichoke have quite a luxuriant appearance, infinitely more pleasing to the eye than the common weeds of the country. We would observe, in conclusion, that we have not made use of the stems as fodder, but we do not see why they should not be good fodder, and that, as regards quantity, it is generally very large on land of ordinary fertility.

to reply to this question, excepting so far as regards agricultural products. To *compete successfully* with English products, with any we can raise, is scarcely to be expected. It is, however, in our power to send some of our products, to show what this part of the British Empire can produce, and we can send some that may be very creditable to the country, though perhaps, not equal to those of the first agricultural country on earth. As members of the great British family, it would, we conceive, be expedient to send specimens of every agricultural produce we raise in Canada, not as competitors, but to show what this country is capable of, as an agricultural one. There may be a few of these products that may be equal to any at the Exhibition. Our meadow grass, timothy, would, we are certain, be equal to any specimen of hay at the Exhibition, and this is a material item of the produce of land. Our peas are, also, of excellent quality; but for our other grain, we could not expect to have any equal in quality to those of England although we may show very good samples. Hemp, if cultivated here this year, would afford a sample equal to any grown in Europe, and this sample we should endeavour to send. Flax, cultivated in a proper manner, we should send a sample of, in seed and fibre. This country, we are satisfied, would produce very superior flax-seed, and it would be a most useful product for our own use, or for exportation. For any products we may send, it would be better we should make up our minds not to expect to *compete successfully* with those of the same species that are brought to greater perfection in England than in any country on earth. Indian corn might be produced here, by careful cultivation and a favourable season, equal perhaps, to any in North America. Our root crops, such as carrots, parsnips, and mangel-wurtzel, might make a very respectable appearance. We have fruits of various kinds that are excellent, so far as to show what our country and climate can produce. Next for our do-

What shall we send to the Grand Exhibition of the Industry of all Nations, to be held in England in May, 1851? We shall not attempt

mestic animals. Undoubtedly, we have some of every species very good, but what are the best of them to English stock in general? We send to England for neat-cattle, sheep and swine, to improve our stock. All we could show with them, would be to prove we did not allow the stock brought from our father-land to degenerate, no more than we did ourselves. The Canadian breed of neat cattle derive their origin from European breeds, but we should be glad to see specimens of the best of them sent to the Exhibition. The Canadian horse is also a European breed, and as this horse is, in our humble estimation, a very valuable one, we should rejoice to see an excellent specimen or two sent. In the last number of the Journal, we mentioned the Canadian hay-cart, as a superior implement of husbandry, worthy to be exhibited. There might be prejudice against them, as we have often witnessed with surprise in this country, when we have seen the cumbrous Scotch cart, and frame upon it, used for carting hay and grain, in preference to the hay-cart. Objection is made to the hay-cart, that the hay is not so readily discharged from the body of the cart, as it would be from one that was open; but by any man who takes the trouble to fill the cart properly it is discharged with perfect ease and facility. We have other implements of excellent make, but although they may be equal to those of England, we cannot flatter ourselves that they are superior. We omitted to mention maple sugar as a product that we should send, both clayed and refined. This is a product that we should be more interested about, and greatly augment the quantity raised. We have maple trees without number, and they are cut down and destroyed every day. We suppose, that sugar might be made from the maple tree as cheaply as from the sugar cane. We have the maple trees, and certainly we have a sufficient variety and quantity of other trees for use, that we might spare those that would produce sugar. This is a matter that should be

attended to. We might as well cut down fruit trees as the maple, and particularly when there is no necessity to do so. The maple trees should be preserved, and the making of sugar from them be made a regular business. We submit these suggestions for consideration. The Lower Canada Agricultural Society would have it in their power at their Cattle Show and Exhibition, which is proposed to take place at Quebec, next fall, to collect the best specimens of agricultural products and domestic manufactures which they may think expedient to send to the great English Exhibition. This will be the fitting time and place for this Society to make the selection. We can have no pretensions to do more than show that we can raise agricultural products of very good quality, and can manufacture many articles of an excellent and suitable description, for our own use. How the selections that may be made, are to be forwarded to the great English Exhibition afterwards, is a question we shall not attempt to solve. Whatever may be done in this matter, the Lower Canada Agricultural Society will not be wanting, we are convinced, in doing all that can be expected from them.

The beneficial influence on this country of means of communication by water, rail-roads, and other roads, must be manifest to every one who considers the subject. It increases the value of what we have to sell, by diminishing the cost of transport to market, and it lessens the expense of what we have to buy, from the same cause. Hence it is the interest of Agriculture that our means of communication should be ample, extending to every section of this fine country. We have constantly advocated these improvements wherever necessary, particularly the great canals which connect the great Lakes of Upper Canada with the Ocean, and make them accessible to sea-going vessels, and the larger class of steamers. This grand undertaking was condemned by many parties as a most absurd and foolish expendi-

ture. The great work was, however, so manifestly necessary, that what surprised us was, that the British Government had not long before executed the work at the expense of the British nation, as a means of connecting this great country with the British Empire. We would have been unworthy of this noble country, and the vast inland seas of Upper Canada, if we had not made the great canals which connect these great waters with the Atlantic Ocean. The lakes were comparatively useless before these canals were constructed. Now we may indeed be proud of the works that connects them with the sea, and with all the world, we may say, as we have seen a ship pass down this canal from the upper lakes, that has gone round Cape Horn into the Pacific Ocean. We have made a great commencement in the Lachine, St. Lawrence, and Welland canals, that are unequalled in any country. If we go on with the improvement of our rivers to make them navigable, and with rail-roads where actually necessary, we shall greatly benefit the country. The great point is, that our expenditures for these purposes, shall be made where they are likely to be best employed, and make the greatest returns. This is necessary for a country that has not too much capital.

We have seen various samples of glass-ware from the manufactory of Messrs. Boden and LeBert, at Shneider's Landing, Vaudreuil, and feel great satisfaction in stating that the samples are very creditable to them, and we are confident that if this Native Glass Manufactory meets with the encouragement it is entitled to, the proprietors can, in time, supply every article of glass-ware required in Lower Canada. There is a fair commencement made, and we shall see what disposition there is to encourage a native manufacture. As to the excellent quality of the manufacture, there can be no question of it. Any orders can be executed according to the patterns given, or what may be required. Samples of the glass may be

seen at the People's Hotel, Notre Dame Street, Montreal, and the friends of native manufactures are invited to inspect them. Messrs. Boden and LeBert deserve great credit for their establishment. They have not confined it to the easy and simple manufacture of common window glass, and black bottles, but they have assumed the great expense and risk of manufacturing all descriptions of glass-ware, and if they are not encouraged and supported, it will be a certain proof of the want of patriotism in Canada, and a melancholy want of due encouragement for native industry.

Dr. Boutillier, M. P. P., of St. Hyacinthe, has sent to the Office of the Lower Canada Agricultural Society, a sample of dry peat, very similar, in consistency and appearance, to Irish peat or turf, and we have no doubt, would burn well in grates, and make a pleasant fire. We have not tried it in a stove, but suppose it would answer well. This peat is more like that of Ireland than any we have seen in this country. The Canadian peat or moss is generally very brittle, and when dug out crumbles down by exposure, into small particles; but this sent by Dr. Boutillier, is not so, but adheres very closely together, and in fact would make very good turf for fuel. At no distant period, it is very probable, that we shall be glad to have turf to make use of, and some of our moss could not be applied to a better purpose, as the land would be better after some of it was taken off, provided it could be drained, which in general is possible. Hand turf is made in Ireland, from the wastes of cut-away bog. This waste is something similar to our natural moss, as it will not adhere, until worked into a sort of pulp, by wetting it, and working it with the feet of horses or oxen. It is then formed by hand into shapes, larger than bricks, and set on the ground to dry. When partly dried, it is set on the ends, a few together, until it is perfectly dry and fit to be carried home, and secured for use. This sort of turf is of

excellent quality for fuel, and very lasting. We believe our moss is quite capable of being converted into a good material for fuel, particularly in grates. There is no fire more pleasant than one made of good peat; it has no unpleasant smell, and is not so soiling as coal. Larger grates would be necessary than those made use for coal.

We have been told by a gentleman, a subscriber to this Journal, that several farmers objected to subscribe to it, on the grounds that we endeavour to make it appear, that there were not any good farmers in Canada. If any farmer, who may have seen the Journal, has given this interpretation to any remarks we may have submitted, we can assure them we never wished or intended to be so understood. Very much the contrary—we have constantly stated, that because we had many good farmers who raised good crops, and products of every description, other farmers might do likewise, by adopting the same good system of husbandry. We brought it forward as a proof, that it was not the soil or climate that prevent better farming generally, but because bad farmers did not follow the example of good ones. We have stated further, that the Journal was not written or published for good farmers, that were perfectly satisfied with their own system and the results obtained from it, but for the instruction and encouragement of farmers that were less fortunate, and did not understand or practice a good system of husbandry, or have good crops or cattle. The good farmers, however, might be so generous as to subscribe to the Journal, if only for the pride and satisfaction of knowing how superior their system of Agriculture was in its practice and results, to any proposed in this Journal. This gratification would be cheaply purchased at five shillings annually, although the Journal would be useless to them for any other purpose. The excuse given for not subscribing the small amount of five shillings annually towards the support of the only agricul-

tural periodical published in Lower Canada, is by no means satisfactory to us, as a just or well founded one, and we submit it to the friends and supporters of the Journal, if we have ever given any just cause for the objection. We have undoubtedly said that the very best system of agriculture, practiced in Canada, was far behind in its practice and results, the best system in the British Isles. Who that knows both countries will dispute this? A field may occasionally be seen here exceedingly well cultivated in every respect for this country, but where is our thorough-draining, and drilled grain crops, as in England, and 50 or 60 bushels of wheat to the acre produce from it? There are very few farms in Canada sufficiently drained, and that do not require many improvements to make them equal to an English farm. We do not say that it would be prudent to make so large an expenditure in this country where produce is so low, we only speak as to the fact—that we are far behind the best British farming. What are our pastures here compared to those of the British Isles? And with the exception of our cultivation for green crops, what cultivation do we give for wheat compared to what land receives in the old country for this grain. How few farmers in this country keep their cattle and sheep of different ages separated as in the old countries. This may appear of little consequence, but we know it has considerable influence on the thriving and profit of stock, although we have not been able to have them separated always. We do not say but many farmers may keep their stock properly separated, but we have not seen many do so. The strictest attention to all these matters is essentially necessary in a well conducted farming establishment, in the old countries, and without the same attention in this, we cannot pretend to carry on a perfect system of husbandry. The stock upon a farm should be of equal value to the tillage, and unless properly managed in every respect, they cannot be profitable; and this good management includes the

keeping separate the different ages and descriptions of farm stock.

THE PRESERVATION OF EGGS, CREAM, AND BUTTER, FOR LONG SEA VOYAGES.—The best possible method of keeping eggs fresh, sweet, and sound for use, is to anoint them just as they are laid, and yet warm, with sweet fresh butter or hog's lard. This stops the pores and completely excludes the oxygen of the atmosphere which the egg would otherwise imbibe. They may by this means be kept any length of time, but it will be necessary to wipe them clean occasionally, and anoint them afresh, lest the greasy matter should turn rancid. In packing, they should be placed on the small end, having the large uppermost. It must be observed that eggs so kept are not fit for hatching, the closing of the pores destroying the vitality of the cicatricula. In addition to which the late Mr. H. D. Richardson recommends, packing them in a mixture of salt dried in an oven, and charcoal; the latter, he says, preserves the vital principle, so that they may be hatched. We would recommend you to preserve the butter by melting it. Put it in a suitable vessel; place the butter in another, containing water: set the whole on a slow fire till the butter is thoroughly melted; keep it in this state for an hour, or till all the impure parts have fallen to the bottom, and has the appearance of pure transparent oil; pour it off into clean vessels, and when it cools it may be salted with half an ounce of pure-salt, one eighth salt petre, and a quarter of an ounce of sugar to 16 ounces of butter; it may also be preserved by mixing it in its fluid state with any quantity of pure honey from one to four ounces of the latter to every pound of butter. This mixture is said to keep for several years without becoming rancid, and is most suitable for warm climates; the jar should be tied down with bladder; milk may be preserved by evaporating it in a water bath to half its volume, frequently removing the albuminous matter or skin as it appears on its surface; it is then strained and set to cool, and when thoroughly so, put into bottles, and well corked again, placed in the water bath, (leaving the necks above water) for two hours. A small por-

tion of well beaten egg yolk should be added to the evaporated milk, which will prevent the cream from separating from the serous parts; thus treated, milk has kept sweet for two years. According to Mr. Appert; cream, when condensed or reduced in the water bath about one fifth, and afterwards strained, bottled and treated in the same manner, kept perfectly sweet for two years.

PROPORTION OF LINSEED MEAL TO FEED CALVES WITH.—You must accustom the calves to the use of linseed meal, gradually; begin with $\frac{1}{2}$ lb. daily, made into gruel and mixed with the milk each meal, and increase it for the first month up to $1\frac{1}{2}$ lbs.; the second $2\frac{1}{2}$ lbs.; the third $3\frac{1}{2}$ lbs.; and the fourth $4\frac{1}{2}$ lbs. The increase depends upon the quantity of milk available. Calves, after a month or six weeks, can be fed on linseed meal alone, without any milk. There is no decided rule, circumstances must decide, some calves requiring much more than others. We think you ought to rear a calf to every cow; a dairy is unprofitable if it does not turn out 100 lbs of butter at least, and a calf to every cow.

"KOHLE RABI."—Kohle Rabi, when intended for transplanting, should be sown from the middle of April to the middle of May; if not to be transplanted, the sowing may be put off to the middle of May; drills should be formed, and the seed sown in the same way as is usual for turnips, or the drills formed and the plants planted out on the crowns of the drills, when of sufficient size, which should be by the middle or end of June. Let the rows be twenty eight inches apart, and the plants eighteen inches apart in the rows: they require as much manure as turnips; the purple variety is the largest; the roots may be grown, up to seven or eight pounds.

NOTICE.

THE ANNUAL GENERAL MEETING of the LOWER CANADA AGRICULTURAL SOCIETY will take place at their Rooms in this City, on **FRIDAY**, the 17th day of **MAY** instant, at **ELEVEN** o'clock, **A. M.**

By order,

W. M. EVANS,
Secy. L. C. A. S.

Montreal, May 1st, 1850.

CANADIAN GLASS MANUFACTORY,

NEAR SNYDER'S LANDING, VAUDREUIL,

Erected and carried on by Messrs. Boden & Le Bert.

THE Proprietors of this establishment are prepared to Manufacture LOOKING GLASS PLATE and WINDOW GLASS, of every size, coloured and fancy, according to patterns or orders. Shades for Oil and Gas Lamps, plain, tinted, or coloured, in the richest hues—Coloured Glass of any pattern for Churches, similar to those of European Churches; also, for Cottages, Gardens, Houses, and Steamers—Bottles and Vials for Druggists made to order.

—ALSO,—

SODA, GINGER, and ROOT BEER BOTTLES, with or without the maker's name.

—AND,—

MILK CANS, of suitable sizes.

All these articles shall be of the very best quality and disposed of on reasonable terms; and the proprietors solicit a share of public patronage, and the examination of their Manufactures.

For orders or further particulars enquire of the proprietor, at the People's Hotel, No. 205 and 207, Notre Dame Street, Montreal.
Vaudreuil, January, 1850.

FARMING IMPLEMENTS.

WE, the undersigned, certify that we have carefully inspected a variety of Farming Implements manufactured by Mr. A. Fleck of St. Peter Street, and we feel great pleasure in recording our unqualified opinion that they are very much superior to any article of the kind which we have seen manufactured in the country, and equal to any imported.

And we would particularly recommend to the notice of Agriculturists throughout the Province his Subsoil Grubber, which he has improved upon from one which took a premium of £10 from the Highland Society of Scotland. This implement seems well adapted to improve and facilitate the labours of the Farmer, and we cannot doubt that it will soon be extensively used in improved cultivation. His Scotch and Drill Ploughs are also very superior, and well worthy of the inspection of every one desirous of possessing a valuable article.

M. J. HAYS, Cote St. Antoine,
President M. C. Agricultural Society.
P. P. LACHAPLLE, Sault au Recollet.
WM. EVANS, Sec. L. C. Ag. Society.
JAMES SOMERVILLE, Lachine.
EDWARD QUINN, Long Point.
T. E. CAMPBELL, Major, Civil Secretary.
HUGH BRODIE, Cote St. Pierre.
P. F. MASSON, Vaudreuil.
P. E. LECLERE, St. Hyacinthe.
JAMES DAVIDSON, Quebec.

REAPING MACHINES.

THE 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.

MATHEW MOODY, *Manufacturer.*

NEW SEED STORE.

THE 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.

Montreal, April, 1849.

NOTICE—Some excellent Barley and Oats for sale, for seed, the produce of seed imported expressly last Spring from Britain—Samples to be seen at Mr. Shepherd's Seed Store.

Montreal, January, 1850.

Agents for the Agricultural Journal.

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Capt. Stewart.....Clarenceville.
R. J. Robins, Esq.....Pointe à Cavignol.
Rev. F. Pilote.....College of St. Anne.
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All communications connected with this Journal to be addressed, post paid, to the Secretary of the Society—WILLIAM EVANS, Montreal.

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