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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2.

MONTREAL, MARCH, 1866.

NO. 3.

No country can ever exhibit any signs of "ruin and decay" whose fields are well cultivated, producing clean and excellent crops, whose pastures are covered with good herbage, and stocked with a good and suitable description of animals of every variety required, ample meadows to afford winter food for these animals, convenient and well constructed farm buildings, and a sufficient variety of suitable agricultural implements of the best description. If this were generally the case in Canada there could not be any signs of "ruin and decay" in either town or country. It is such a prosperous state of the country and her agriculture, that would re-open the stores that are closed, and tenant the houses that are now empty, in our cities, and we feel persuaded that those who expect to re-open stores, and tenant empty houses by any other means than by the improvement of the agriculture of the country, will be disappointed. Every country must create its own means of expenditure, unless they find some other country to bestow them the means. This is a fact that cannot be too generally known, or too well understood, and all the philosophy, and political economy in the world, cannot disprove it. It would require a long explanation to show how this is the case directly and indirectly. The amount of the income of individuals from other countries, and that brought by emigrants to Canada, is an exception to this general rule, both of these not being created in this country, and may be expended here, but this amount is not very considerable, although a great advantage so far as it goes, to increase the real annual income

of the country. However capital may be employed, it cannot fail to be useful. It may not be profitable to the individuals who expend it, but after it passes from their hands, it may go into channels that will make the very best and most profitable use of it for the country. The mode of employing capital is of very great consequence as regards the general benefit it may produce to a country; when directly and judiciously employed in creating a new produce, it must be infinitely better than by any less direct mode. By direct application to production, a new value is created at once, and the money expended for its creation has already gone into new channels of employment. The improvement and prosperity of agriculture is retarded and checked, because it has to wait for capital, until it creates it, or accumulates it from a surplus. Hence it is, that a farmer may wait all his life for the necessary capital to effect improvements that would double his annual production. There are some parties who have overcome these difficulties, but it is only when they have great energy, perseverance, and a good idea of their business. It is almost impossible for ordinary farmers, on worn-out and exhausted farms, to improve their condition without some means to commence with. The amount might not be large that would enable them to better their condition very soon, but something is required, and for this purpose, and to supply this want, we have suggested the expediency of introducing "Associations of Agricultural Credit" in Canada, which would benefit every class by the general improvement it would produce.

MESSRS. NESBIT'S ACADEMY, KENNINGTON, LONDON.

In the month of December last, a numerous company of ladies and gentlemen assembled at the above establishment, to witness the examination of the pupils, and the chair was taken by Wm. Shaw, Esq., Editor of the Mark Lane Express, the true friend of Agriculture, supported by many other gentlemen connected with agriculture and science.

The Chairman, after some preliminary remarks, said:—

But I am sensibly impressed with the conviction that we are not at all times to consult our own feelings, but that, as citizens of the world, it is incumbent upon us to take upon ourselves any duty which we can perform, assuming, of course, that its performance is calculated to promote the general good (cheers). Mixed up as I have been all my life with agricultural pursuits, there is no occasion on which I could be called to take part in the proceedings of an evening like this, without a feeling of high gratification; for I consider that in agricultural, as well as in other pursuits, a vast deal depends on the first moulding of the human mind; indeed, I have ever been of opinion that the shortest course to an improved cultivation of the soil is that which begins with the cultivation of the mind; and I am exceedingly glad that Mr. Nesbit has set an example of that course of action, which I believe to be the best adapted and most likely to introduce a better system of education in reference to agriculture. (Hear, hear.) I know that there has been established a seminary of education, entitled the Cirencester Agricultural College; and a friend of mine, who is a zealous supporter of that institution, is present on this occasion. I, for one, rejoice in the establishment of that college, as I rejoice in the establishment of any institution which is calculated to promote sound education; but it has ever been my conviction, in respect to the effecting an improvement in the cultivation of the minds of youths who are intended for the pursuits of agriculture—I speak of improvement in relation to their peculiar business—that the only chance of attaining that object was by the introduction of a new, an improved, and a better system, specially adapted to that particular object, into the schools in which youths are now educated. (Hear, hear.) We have not yet arrived at that point when we can induce the tenant-farmers of this country—and I would go beyond tenant-farmers—I would desire to include the sons of landlords in the improved sys-

tem of instruction (Hear, hear.)—I say, we have not yet arrived at a period when we can induce farmers to send their sons to new establishments. We must bring information home to their doors, instead of sending them to other and new institutions to obtain it—(Hear, hear.)—and I believe that the best and only mode of doing this, is by seeking to bring about a system of education especially adapted to their pursuits, in those schools throughout the country to which they are in the habit of sending their children to be educated. In this way, we shall be setting into motion a thousand established seminaries for improved education for one new one, even if we could succeed in inducing some farmers to send their children to any such new institutions, (Hear.) In these days a great deal of interest is attached to the education of the future agriculturists. From a variety of causes agriculture has become, I may say, the topic of the day. And really it is not surprising that it should be so; on the contrary, it is astonishing that it has not been so long since, inasmuch as you may trace almost every important article which we daily use and enjoy, to the soil for its origin. We do not sufficiently reflect what a large proportion of the articles which we consume, whether as food or otherwise, are derived from the soil, and may therefore be correctly termed agricultural products. While we speak of the food which is raised for our sustenance, and of the wool with which we are clothed, we forget, perhaps, that coffee, sugar, and cotton are also articles of agricultural produce, and which we regard now as necessaries of life; and if you scrutinize the various other articles which enter into our clothing and our food, you will find that by far the greater proportion of them may with propriety be called purely agricultural. At the present moment the education of the future farmer is a subject of redoubled interest, because there is a prospect of our being placed in a situation different from that which we have heretofore occupied. Whatever may be our respective opinions with regard to a certain question which it would not be right to introduce on this occasion, it is, at all events, quite certain that under any conceivable circumstances it is highly desirable that every available appliance should be used to improve the mind of the future farmer, and to enable him to apply the principles of those sciences, a knowledge of which, although it can never be sufficient alone to make a good practical farmer, must, in combination with practice, prove exceedingly valuable. (Hear, hear, and cheers.) Without implying for a moment that the practical farmer ought to become so scientific as to vie with the chemists of the day, it appears to me that it cannot be denied, with respect to chemistry, botany, and geology, that it is highly desirable that the youthful mind should be imbued with the prin-

ciples of those sciences; and that, once in the possession of such knowledge, he will be enabled in after life to apply it to the practice of agriculture (cheers). Now it is to such objects, in addition to the ordinary routine of education, that the Messrs. Nesbit especially direct the attention of their pupils. Many of you, no doubt, heard last year a report of the success which had attended the system adopted up to that period. I have had an opportunity of looking at the questions which have been propounded to the pupils, in the several departments of instruction this year; and I must confess that when I read them I felt sensibly my own insignificance, from the consciousness of my utter inability to answer any of the questions, but certainly not more than here and there one (laughter). I therefore feel that there is being implanted in the minds of the youths placed under the tuition of the Messrs. Nesbit, principles of knowledge which are possessed by few at so early an age; and it is impossible to doubt that the seeds of sound education thus sown in the minds of the pupils will produce hereafter a plentiful crop of intelligence (cheers). It would be improper in me to dilate further on the proceedings of the evening. I will only, in conclusion, express a hope that you will extend to me the kindness which was so readily accorded to my predecessor in the office of Chairman last year, and of which I stand so much more in need than did that gentleman—(cheers).

Mr. Nesbit, in returning thanks for the approval of his system of education, said:—

Mr. Chairman, ladies, and gentlemen, as the proceedings of the evening have nearly terminated, perhaps you will not take it amiss if I now address to you a few observations on the general subject of education (Hear, hear). It is a subject which has engaged my attention for a number of years. My father has been occupied in the work of instruction for about fifty years; having been brought up with him, and having very early in life chosen his profession for my own, I soon perceived the necessity for a change in the old system of tuition; and I have endeavoured as far as possible to bring it into the shape which is most consistent with the powers of man, and with his position in the world (cheers). I maintain that in this country, which depends for its political position upon trade, arts, and manufactures, a system of education which leaves untouched the nature and history of the substances which abound around us is not a proper education. I hold that reading and writing are merely means of acquired education (hear); and that if a person have acquired the power of speaking and writing two or three languages, he is not therefore to be called an educated man; he has, so

far, only got the means of acquiring information (Hear, hear). I have endeavoured since I came to the metropolis to carry out these views. We have had many examinations, conducted by parties quite independent of myself, in chemistry, geology, botany, and mathematics; and though we teach, I believe, as well as they are taught in most schools, the ordinary branches of a good education, including the dead languages; we have chiefly brought under your notice those points of our system in which this school differs from most other educational establishments. We have proved it possible to give a knowledge of chemistry, geology, botany, and mathematics, without trenching at all on other parts of education. It may now go forth to the country, as the result of our own experience during a long series of years, that it is quite practicable to engraft on the common system of education in this country, a higher and more extended system, and to combine the two. No one can doubt that where the two are combined the education given will make those who receive it, better able to cope with the difficulties which they meet with than they otherwise would be. If they become farmers they will possess a knowledge of the composition of the land, and the nature of crops and manure; if they become miners they will understand minerals, and be able to analyze substances without being dependent on a chemist; if they should be engaged in dyeing processes, or in the arts of manufacture, they will have the means of determining what wash liquors contain, and what materials they ought to buy. Thus I might proceed through all the pursuits to which pupils may devote themselves after the completion of their education. But, higher than all this I wish to place before you the influence which this course of instruction must produce on the human mind; higher than all this, I say, is its influence in developing the faculties of the human mind, and affording food for thought when the reflective faculties have become developed (cheers). I hold that the best system of education is that which supplies the mind of youth with the greatest number of facts, because, without facts there can be no play of the reflective faculties. This is the kind of education which I have endeavoured to convey; how far I have succeeded you will judge from the examination which you have witnessed this evening. I have endeavoured to show that we have effected our object, and if all the schools throughout the kingdom would pursue the same course, I am convinced that the result would be most beneficial to the country. I should be exceedingly glad to give to any party who is engaged in the business of education any information which I can convey as to the peculiar methods and plans which I have adopted in conducting this academy (cheers).

At the conclusion of the meeting, the Chairman, Mr. Shaw, again observed :—

It had been his lot, as a boy, to receive just that exclusively classical education which had been described that evening; and the result was, that on going into the world he found himself ignorant of almost all that species of knowledge which was requisite for business purposes (Hear, hear). It was certainly astounding that up to that period it had not been considered necessary to fit men for the practical duties of life until after they had left the Universities, and, as the phrase ran, had completed their education (Hear, hear).

From the proceedings, we may perceive how the people of England view the subject of a suitable education for agriculturists, and how essential they conceive it to be to all who engage in the business of farming. Indeed, it is impossible that farmers can have the same chances of success with other classes, without receiving a suitable education for their particular business. It is truly a matter of astonishment that this discovery should not have been made sooner than in an advanced period of the nineteenth century. Youth intended for every other business or profession, except that of farming, are suitably educated and instructed, but for farming it was not thought necessary that they should receive from books the slightest information relating to the business of their future life. Matters are changing now, and we hope they will continue to change until the principle is generally established, that an agricultural education is necessary to be given to every young farmer. We give a letter from Mr. Nesbit, showing that he also takes his pupils to visit the country, in order better to explain the subjects he teaches in his school :—

THE ANNUAL EXAMINATION AT MESSRS. NESBIT'S ACADEMY.

To the Editor of the Mark Lane Express.

There are certain points connected with our system of instructing, which, though not particularly alluded to at the examination, are nevertheless so important that I wish to place them prominently before our friends and the public.

A great deal is spoken in the present day respecting *theory or science versus practice*. It is

not generally understood that a *really scientific* education is a *practical* education.

In teaching our pupils geology, for instance, we have not been content with merely giving dry details and exhibiting a few fossils. We have given opportunities to our pupils to study this science by visiting localities where different soils are the best developed and the most easily examined.

To illustrate our labours in this direction during the past year, I may mention the places we have visited. Last Easter we took a number of pupils into Dorsetshire. Hammer in hand we inspected the *lais* at Lyme Regis, and extended our observations along many miles of the coasts, where the strata, cut off by the sea, offer beautiful natural sections. We visited the Isles of Portland and Purbeck; and in the course of our tour examined nearly all the strata from the tertiary to the *lais*. The specimens collected have been subjected to chemical analysis, and the results have yet to be communicated to the public.

In May, we, accompanied by our geological professor, took about five-and twenty pupils to Reigate, in Surrey; and examined carefully, in that district, the whole of the soils from the chalk to the weed; including a visit to the quarries of *freestone* at Godstone.

We subsequently spent three days in the neighbourhood of Folkestone, Hythe, and Dover; got a very good idea of the soils of the neighbourhood, and obtained many fossils.

We also visited different cuttings on the North Kent Railway, and likewise obtained many fossils.

In the autumn of this year myself and fourteen of my pupils paid a visit to the North of England. We spent a week in looking over the mining districts of Derbyshire. We saw Dove Dale, Haddon Hall, and Chatsworth; viewed Castleton, with its "Castle of Peveril on the Peak;" ventured into all the great natural chasms and caverns of the district; and finally wended our way through the romantic woodlands of Derbyshire to the city of Manchester. We employed a week in inspecting the manufactures of this "Metropolis of the North." One day was spent in the engineering establishment of Sharp Brothers, the eminent locomotive makers; the rest of the time was occupied in looking over the various textile manufactures in silk and cotton, for which this city is celebrated. Particularly were we delighted with the silk mill of Mr. Thomas Crompton, and the spinning establishment of Mr. Thomas Holdsworth; and we viewed with wonder and surprise, cotton yarn spun so fine that one pound of it would stretch two hundred and twenty-five miles.

By the kindness of the Earl of Ellesmere, a boat and men were placed at our disposal, for

the purpose of visiting the Bridgewater coal-pits at Worsley. After proceeding some miles along an underground canal, we descended a shaft and inspected the workings; then each boy, turning collier, obtained a specimen of coal for himself.

We proceeded to Liverpool and Birkenhead, and saw what was to be seen.

We spent five days in Birmingham, and were hospitably entertained during that period by a generous friend of science. We had an opportunity, in conjunction with the members of the British Association, then assembled in Birmingham, of visiting the caverns at Dudley, which, by the permission of Lord Ward, were splendidly illuminated.

We inspected the various manufactures of Birmingham; and after a week's tour, our pupils returned home with more sound practical knowledge of things as they exist than could be given in the schoolroom in twice twelve months.

In teaching chemistry our course is equally practical. Each substance is separately placed in the pupil's hands, until he understands its properties. Mixtures of various bodies are then given, and the pupil is required to detect and separate the different ingredients.

A *practical* knowledge of things is thus obtained, which, in conjunction with the *practical* information hereafter to be gained on the farm, in the mine, or in the arts, must inevitably prove of essential benefit to its possessor.

That the system of education which we advocate is a right and natural system, I have no doubt; and I hope to live to see the day when it shall be thoroughly carried out in every school in the kingdom.

I inclose you the reports of our various examiners; which clearly show, through independent parties, that by our system, we do, in addition, give an amount of *practical, scientific, and useful* information, which must be of essential benefit to our pupils in after-life

I remain, dear Sir,

Yours very truly,

J. C. NESBIT.

CLOVER.

Clover, mown just as it is going to flower, loses about four-fifths of its weight in drying completely; that which is in a more advanced stage of growth and in full flower, loses but three-quarters, but the proportion is probably somewhat affected by the more or less humid state of the atmosphere during the time of growth. On the average we may reckon that, in the state of advancement which we have noticed as proper for mowing, 100 lbs. are reduced to 22 lbs.

The produce of clover is usually estimated in

dry fodder, because it is much more difficult to weigh it in the green state. There is much diversity of opinion respecting the medium produce of clover—estimates vary from 16 to 50 quintals per acre—and there is certainly an almost endless diversity, according to the nature of the soil and the cultivation bestowed upon it. A friend of mine weighed the quantity of fodder which he had obtained in two cuttings from an acre of clover, carefully measured, and on which the clover appeared to grow as thickly and strongly as I had ever seen. He weighed this fodder in a state of perfect dryness, and tied up in bundles, and found it to amount to 37 quintals 30 lbs. The soil was not peculiarly favourable to the growth of clover, but it was in a state of great fertility, and had been manured on the surface with ashes from the soap factory. I have therefore reckoned 40 quintals as the highest amount of produce that an acre of clover will yield in two cuttings. Since the time of which I am speaking, I have only once seen clover superior, or perhaps even equal, to the above; but, according to the descriptions which I have heard of that which grows in the most fertile regions, in Altenbourg, for example, samples are to be found which far surpass it. I have now before me a specimen of clover from that country, which, as I am assured by eye witnesses, has not been picked out as particularly fine, but rather taken as an average sample. It is, in flower, three feet high, and has twelve complete stems. The lower leaves are, in the dry state, four-fifths of an inch broad, and two inches long. I admit, then, that the produce of clover in dry fodder may far exceed 40 quintals per acre, but only under extraordinary circumstances.

In the first part of this work I mentioned 2400 lbs. per acre as the average produce of clover on a sandy clay, (good barley land,) provided, however, that the clover occupied an advantageous place in the rotation, and one in which the soil was in good condition. This appears to me to be the nearest approach to truth for land of this description.

In a well organized rural establishment, the necessary quantity of clover-seed should be obtained from the land itself, for the purchase of it would not only be very costly, but also attended with many inconveniences. It is certain, however, that the soil is impoverished by the reproduction of the seed; this effect is not very obvious, but any one who wishes to convince himself of it has only to grow clover-seed for two successive years on the same land. If he do not supply the loss thus occasioned by manuring, he will see his crops continue inferior for several years on the spot where the seed has been gathered. The impoverishing of the soil is not, however, so great as to preclude the possibility of its being richly repaid.

The seed is usually taken from the second crop; in this case the first crop is mown rather earlier than usual, in order that the second may shoot forth more quickly, and flower sooner. The first crop must not, however, be taken so early as to allow the backward shoots belonging to it to grow up after the first mowing, for they would then get the start of the second crop, and ripen too soon; as, however, an unfavourable state of the weather may sometimes prevent the setting of the clover, and cause it to flower without forming seed. It is advisable, for the sake of additional security, to obtain a portion of the necessary seed from the first shoot as its flowers are observed to set particularly well; the proper cutting of the seed may be judged by compressing the flowers between the fingers. They ought to be hard and resist compression. It is best to reserve for gathering seed a part of the field on which the clover is not thick, but uniform and free from weeds.

The ripening of the seed should be as complete as possible; some of the flowers get the start of the rest, and their seed falls to the ground in dry weather before the others have time to ripen; this inconvenience is experienced more with the first crop, when the weather is hot, than with the second. We ought never to pay so much regard to it as to mow the crop before the greater portion of the plants are ripe, for even if a portion be lost by waiting, the produce will, on the whole, be greater than it would be if the crop were taken before it was all ripe. We may know when the clover is ripe by pressing one of the heads between the hands till the moisture contained in it is completely exhausted; the husk may then be separated by blowing upon it, and the seeds will rest in the palm of the hand. If the seeds be of a violet color, they are ripe, but this is rarely the case with all of them. They should be hard and convex, presenting no depressions.

Seed clover should be mown in the dew, or at least not under a hot sun—it should be made into small cocks and left till quite dry. It dries much more quickly than young clover. Care should be taken not to shake it in carrying, and to place it where it will be well exposed to the air, if possible, on poles above the barn floor.

As soon as the clover is gathered in, especially if it has been housed in a state of perfect dryness, it is thrashed in order to separate the heads from the stalks on which they grow; this operation may, however, be deferred till the driest frost of winter. The husks, separated from the straw, are subjected to the flail, and the seed thus obtained from them is separated by means of a sieve; what remains on the sieve is passed through the fanner, that the empty husks may be carried away by the air, an operation which greatly facilitates the thrashing of the rest. This remaining portion is then taken

to the barn and spread out, for the sake of exposing it to the air, and drying it well; it is then thrashed again during dry weather, and the same process repeated. This series of operations may be repeated three or four times without effecting the entire separation of the grain. This separation is accomplished much more easily when the heads are dried by artificial heat. If the heat be too great, the seed loses its lustre, and assumes a brown tint. This color renders clover-seed very suspicious. The purchaser should look well to it. The safest method is to place a number of tables in a chamber which can be heated, and cover them with cloths on which the clover may be spread. The room is then to be heated strongly for some days, care being taken to guard against fire; when the quantity of clover-seed is sufficient to furnish a year's stock in advance, the best thing we can do is to defer the thrashing till the hottest days of the summer following. Such a provision is, in every respect, advantageous, inasmuch as clover-seed keeps perfectly well, especially before it is thrashed. The clover, in its husk, is removed from the barn floor, and placed on cloths spread out in the sunshine; it is then several times stirred with a rake, after which it is again carried to the barn floor and thrashed. This is the easiest mode of separating the seed.

When a large quantity of clover-seed is gathered, it may be separated in a mill suitable for the purpose, and adjusted in such a manner that it will not crush or break the seed. We may usually obtain 300 lbs. of clover-seed from an acre of ground, and therefore realize a considerable sum by the sale of it, especially when we keep the seed which has been obtained in a plentiful season, in order to sell at times when it is scarce, and consequently dear. To save the trouble of thrashing, many cultivators sow their clover in the husk; this method succeeds very well—the germination of the clover may indeed be retarded a little—but it will be rendered less precarious. But when clover is sown in this manner—we cannot guard against the seed being too thick in some places—and to ensure a sufficiency all over the field, it is necessary to sow twice as thickly as if the seed had been previously cleansed from its husk. The labor of thrashing is undoubtedly tedious, but it is incomparably more economical than the use of so great a quantity of seed, particularly if we have the means of preserving or disposing of the surplus. The straw and chaff of clover are not nearly so valuable as young clover hay; they may, however, be usefully employed in feeding cattle.

The observation, that clover does not succeed when repeatedly grown on the same spot, is too general to admit of its being called in question. False rumours and prejudices do, indeed, spread

in defiance of reason, but they do not, like this opinion, originate among the several nations at once—instances may, however, be found of clover having been sown for three or four times on the same land, and with uniform success. If now we examine the former cases with attention, we shall find that where the deterioration has been observed, the soil has been turned up to a small depth, only, as for example, in Norfolk, and in the duchies of Magelburg, Brunswick, &c. On the other hand, where clover has been found to succeed uniformly, it has been sown on gardens in the alternate system of four or five years, as in Belgium, for example. In these situations it is once ploughed to a considerable depth between two sowings of clover. In places where the land is manured with lime, marl or ashes, clover is not found to fail when often grown on the same spot. Gypsum, on the contrary, which is usually so beneficial to clover, is of no further use in those cases. I content myself with stating these facts without attempting to explain them.

It has been often and warmly disputed whether clover improves or exhausts the soil, and particularly whether it favours or injures the succeeding crop. Most persons incline to the former opinion, but it cannot be denied that many have experienced the truth of the latter. It has been positively ascertained that clover does not directly exhaust the land, for it is always observed that the success of the following crop is in proportion to the beauty and abundance of the clover, provided only that the latter has not been left to perfect and ripen its seed. The contrary would certainly happen if clover drew from the land a large portion of the nourishment by which it grows. But clover, when thin and weak, has a bad effect upon the soil, because it then permits the growth of weeds, particularly of dog's grass and other grasses, which have a disposition to spread; moreover the ground is hardened from losing the beneficial shade of the clover, particularly when the clover, in spite of its poorness, is left standing for a long time, and the land which has borne it is ploughed but once. If, then, we would obtain a good result from clover in this respect also, we omit nothing which tends to make it grow thickly and strongly. It must be sown on a rich, well cleansed soil, which has been lightened by fallowing or the cultivation of hoed crops; the sowing must be performed with great care, and the crop mowed at the proper time. The clover must then be ploughed up, when it has grown up a little after the second mowing, and long enough before the seed time, to allow the soil to settle itself, and the clover stubble to root; if, in spite of all the care bestowed upon the clover, it should grow but poorly, in consequence of unfavorable weather, and should be partly destroyed by winter, we must content ourselves with one

crop, and fallow the soil with three ploughings, succeeded by harrowing. When these rules are observed, the fertility of the soil will always be sensibly improved by the growth of clover, independently of the enrichment which it receives from the increased quantity of manure produced by the crop. Corn obtained after this plant is often finer than that which is grown upon a non-manured fallow.—*Thare's Agriculture.*

WHITE OR DUTCH CLOVER.—*Trifolium Repens.*
—There are various kinds of clover which bear white flowers, even that of which we have been speaking sometimes changes color, but the name of white clover is almost always confined to the species of which we are about to treat. This species of clover is indigenous on almost all moist clayey soils; in our climate, it forms indeed part of the sward, and even if not perceived at first sight, it is soon discovered on closer inspection. It soon shows itself after the soil has been manured with substances congenial to its nature, such as lime or ashes, to such an extent indeed that some persons have imagined that its seed must be concealed in these substances.

Some cultivators also sow Dutch clover with the intention of mowing it, but it requires a very rich soil to cause it to grow to any considerable height. On a soil of this description it will sometimes yield a crop equal in thickness to that of common purple clover, and, according to some persons, preferable to the latter, as a fodder plant, of better flavor, yielding more nourishment, and above all, more conducive to the production of milk. But it yields only one crop, and does not rise much above the surface.

It is more frequently used to form pastures, and is certainly the most generally approved of all plants that are cultivated for this purpose. It is peculiarly fitted for a pasture plant by the disposition which it has to send forth shoots, and the quickness with which its leaves are reproduced, a quality in which it surpasses the purple clover. Again, Dutch clover is not so easily choked by weeds, but exterminates them by means of its roots, which thrust their way through the soil; hence it does not require a soil so well cleared, and may, with greater facility, be sown after repeated grain crops. It has also been remarked that Dutch clover is not, like purple clover, averse to growing frequently on the same soil, although that soil may have been but superficially ploughed, a consequence, no doubt, of the plant being indigenous, and growing spontaneously in this country. Some persons have, however, observed that on soils not very well adapted to its cultivation, it thrives better when first introduced than after the land has borne it for a number of years.

Purple clover is not found to be injured when sown alternately with white clover.—*Ibid.*

LUCERNE.

Mr. William Pepper, of Falcon Lodge, near Sutton Coldfield, in Warwickshire, cultivates lucerne, and he decidedly prefers the broadcast to the drill system; and he has very kindly furnished these particulars. He says that "a light dry soil should be chosen in the neighbourhood of the farmstead, and the deeper it is the better, as lucerne has a long root, which I have known to strike as deep as 6 feet. The ground should be quite free of weeds, and well covered with good fold-yard manure, which should either be dug down 18 inches deep, with a double spit of the spade, or ploughed down with a double furrow, by one plough following another. The best time of sowing the seed is about the middle of March, when it should be sown *broadcast* at the rate of 20 lbs. per acre, at a cost of 1s. 8d. per lb. It may be harrowed with barley, upon land that has carried turnips, as being then in the cleanest state; but it may be sown after grass or stubble, provided the land has been properly laboured and cleaned."

I may relate here Mr. Pepper's entire culture of this plant. "Towards the latter end of October, or beginning of November," continues Mr. Pepper, "the lucerne should be covered with light stable manure to preserve it from the frosts during the winter; and towards the beginning of March, in the ensuing season, it should be harrowed with light grass-seed harrows, to remove the few remaining weeds, and rolled. After it has been mown in May for the first time, it would be advisable to scatter over it again a light dressing of manure, in order to encourage the growth of the second crop. When the ground is cleared in the end of the season, it will be necessary to apply harrows upon it of a heavier description than those employed in the season before, as early in the season as the crop will admit; and continue to harrow until the ground is free of all weeds, and almost like a fallow, as the lucerne roots will now have got so deep as not to be injured by harrowing; and then immediately covered with manure, it will be found free of weeds in spring."

This mode of cultivating this useful plant will produce eight tons of forage per acre; but it should be borne in mind that, when so much is taken from the ground much manure will require to be given in return. The broadcast plan is very much preferable to drilling. I have known many sow it in drills, and, after a few years, give it up, in consequence of the great trouble and expence incurred in hoeing and cleaning; but the broadcast system saves all the trouble.

I sowed my lucerne in 1830, and have continued mowing and manuring it every year since; and in some seasons I have got as much

as 12 tons per acre. It is a hardy plant, and will endure cold if cultivated in dry soil; but it flourishes best in a hot summer, when I have seen it run to the height of 5 feet 5 inches, though its usual stature is about 4 feet; and when all the other grasses were burnt up, it has remained green and succulent. It is particularly calculated for horses, though pigs will greedily consume the refuse that comes from the stable, and thrive well upon it; but it is too strong in the stalk for cows, and by no means so good for them as tares. If cultivated upon proper soil, an acre will keep three strong cart-horses for 6 months, from 1st May to October; and after the first year may be mowed twice or thrice, according to the season.—*H. Stephens' Book of the Farm.*

QUANTITY OF LIME USUALLY APPLIED TO LAND.

The quantity of quick lime laid on at a single dressing, and the frequency with which it may be repeated, depends upon the kind of land, upon the depth of the soil, upon the quantity and kind of vegetable matter which the soil contains, and upon the species of culture to which it is subjected. If the land be wet, or badly drained, a larger application is necessary to produce the same effect, and it must be more frequently repeated; but when the soil is thin, a smaller addition will thoroughly impregnate the whole, than where the plough usually descends to the depth of eight or ten inches. On old pasture lands, where the tender grasses live in two or three inches of soil only, a feeble dressing more frequently repeated appears to be the more reasonable practice, though in reclaiming and in laying down the land to grass, a heavy first liming is often indispensable.

In arable culture larger and less frequent doses are admissible, both because the soil through which the roots penetrate must necessarily be deeper, and because the tendency to sink beyond the reach of the roots is generally counteracted by the frequent turning up of the earth by the plough. Where vegetable matter abounds, much lime may be usefully added, and on stiff clay lands after draining, its good effects are very remarkable. On light land, chiefly because there is neither moisture nor vegetable matter present in sufficient quantity, very large applications of lime are not so useful, and it is generally preferable to add it to such land in the state of compost only.

The largest doses, however, which are applied in practice, alter in a very material degree the chemical composition of the soil. The best soils generally contain a natural portion of lime, not fixed in quantity, yet scarcely ever wholly wanting; but an ordinary liming, when well mixed up with a deep soil, will rarely amount

to one per cent. of its entire weight. It requires about 400 bushels (12 to 15 tons) of burned lime per acre to add one per cent. of lime to a soil of twelve inches in depth. If only mixed to a depth of six inches, this quantity would add about two per cent. to the soil.

Though the form in which lime is applied, the dose laid on, and the interval between the doses varies, yet in Great Britain, at least in those places where lime can be obtained at a reasonable rate, the quantity applied amounts to, on an average, from 7 to 10 bushels a year.

The most remarkable visible alterations produced by lime are—upon pastures, a greater fineness, sweetness, closeness, and nutritive character of the grasses: on arable lands, the improvement in the texture and mellowness of stiff clays, the more productive crops, their better quality, and the earlier period at which they ripen, compared with those grown upon soils to which no lime has ever been added.

But those effects gradually diminish, year by year, till the land returns again nearly to its original condition; on analysing the soil when it has reached this state, the lime which has been added is found to be in a great measure gone. In this condition, the land must either be limed again, or must be left to produce sickly and unremunerating crops.

This removal of the lime arises from several causes:—

1. *The lime naturally sinks more slowly, perhaps, in arable than in pasture or meadow lands, because the plough is continually bringing it to the surface again, but even in arable land, it gets at last beyond the reach of the plough, so that either a new dose must be added to the upper soil, or a deeper ploughing must bring it again to the surface.*

2. *The crops carry away a portion of lime from the soil.*—Thus the following crops, including grain and straw, or tops and bulbs, carry off respectively:—

	OF LIME.
25 bushels wheat, about	13 lbs.
40 “ barley, “	17 “
50 “ oats, “	22 “
20 tons turnips, “	118 “
8 “ potatoes, “	40 “
2 “ redclover “	77 “
2 “ rye grass “	30 “

The above quantities are not constant, and much of the lime is, no doubt, returned to the land in the straws, the tops and the manure; yet still the land cannot fail to suffer a certain annual loss of lime from this cause.—*Johnston's Agricultural Chemistry.*

SCHLESWIG AND HOLSTEIN DAIRY MANAGEMENT.

The pride and boast of the Holsteiner is his dairy; and as Holstein butter may well claim to be the best in the world, the following sketch of the management by which the dairy in that country is more especially distinguished, may not prove uninteresting nor useless to the English farmer.

A dairy consisting of 200 cows, gives employment to the following number of persons:—a dairy-man, a dairy-maid, a cook, a cooper, two cow-herds, an odd man, a cheese-maid, and ten dairy girls. The dairy man's duty involves a general charge of the cattle, the calves, and the swine; he is responsible for their being regularly and suitably fed; that the cow-herds do their duty; that hours of milking, &c., are punctually adhered to; and that everything and every person is in proper place and keeping. He must pay strict attention that the cows are milked thoroughly out, on which so much depends. The dairymaid has the superintendence of every work which belongs to the treatment of milk, butter, and cheese, from the moment that the milk is brought to the dairy room, and is answerable for the cleanliness of the whole dairy house; she is also housekeeper, and orders the extra work for the girls not included in the dairy, as gardening in summer, and spinning in winter. Her own particular work in the dairy is to skim the milk, to manage the process of converting the cream into butter, to beat the butter as will be afterwards described, to superintend the cheese making, to put in the proper quantity of rennet and salt, and to look after the cleanliness of the dairy utensils. The cheese maid attends to the manipulation of cheese making, and has to measure the fresh milk as it is put into the tubs, to clean out the dairy room, and to rub and turn the cheese.

The 10 dairy girls have each to milk from 16 to 18 cows, to do all the work in cleaning the dairy utensils and the dairy house, and either to spin or work in the garden, and any other work which is ordered by the dairy-maid. The cooper repairs and renews the dairy utensils, and makes the casks to contain the butter for sale; he assists at the milking, and takes the duties of the dairy-man in case of his illness, as far as the care of the cows and pigs. The odd man milks his number of cows, feeds the pigs, and carries the skim milk out of the dairy room into the cheese tub. When the cows are in the stables, these two last persons assist the dairy-man, with the help of the cow-herds, to give the hay and corn to the cows. One cow-herd is kept for each 100 cows, their duty being to watch the cows as long as they are in pasture, and to collect them together at the milking times. In the winter, when the cows are housed, they have to give them straw and water,

POSITIVE PENURY.—To abound in all things, and not to know the right use of them, is positive penury.

and to make up the beds four times a day, so that the cows always have clean straw to lie down upon. The dung is removed by a man whose time is fully occupied by that particular duty.

The routine of dairy work is regulated to follow in 12 hours, to leave exactly the space of time between each operation with the milk, cream and butter. The morning work commences in summer at two o'clock, by the establishment being called by the girl whose duty for the week has been to remain up the night, preparing the hot water required for the first operations. On entering the dairy-room, the dairy-maid, with the assistance of the cheese-maid and two of the handiest of the girls, skims the milk, which has stood in the tubs 36 hours; it is carried by the odd man into the cheese tub; the milk tubs, as they are emptied, are washed and cleaned in the following manner. The tubs, made of oak wood, painted red inside, are placed upon the floor of the ante-cellar, and the girls are divided into two parties, so that two tubs at a time are undergoing the same process of cleaning. The first girl puts a ladle of boiling water into each of two tubs; next, girls follow with small birch scrubbers, to remove the particles of adhering cream or milk, which is emptied into a pail for the pigs; the fourth and fifth girls, with boiling water and a hard round brush made of pigs' bristles, with which every hair's breadth is thoroughly scrubbed and polished, to remove all acidity. The sixth and seventh girls wash the outsides and bottoms of the tubs well with cold water. The eighth girl gives them the final washing in a cold bath, and places them on a heap, when they are examined by the dairy-maid, and put out in the air to dry. During the time the dairy-maid is examining the tubs, the cheese-maid washes the floor in the milk cellar upon which the tubs stand. As soon as the girls have finished the cleaning of the tubs, they carry the skimmed milk which has been heated into the cheese tub, to give the proper temperature to the whole before the dairy-maid adds the rennet and colouring. These preliminary operations being ended, the dairy girls dress, and having partaken of a piece of bread and butter, at four o'clock proceed with the men to milk the cows. The dairy-maid now commences the churning operations, which must be accomplished in not less than 50 or more than 60 minutes, by the power of either steam or horses.

While the churn is in motion, she has time to beat the butter made the previous day, and to put it into casks, all attention being paid that no interstice shall remain either between the layers of butter or the sides of the casks. The cheese-maid is now occupied in cheese-making. At half-past six, the milkers have finished milking, the milk is conveyed in pails swung upon

bars stretched across a waggon, to the dairy house, and carried into the cellar by the girls, where it is immediately strained through a hair sieve into the tubs, each containing a measured quantity; this duty is performed by the cheese-maid, who must have finished, with the assistance of the cook, cheese making, on the return of the milkers.

The girls then carry the tubs placed out to air into the cellar, where they remain twelve hours. After breakfast they wash out the milk pails and the conveyance pails, the churns, &c., and all other utensils that have been used that morning, and wash out the ante-cellar, and then they dress. At nine o'clock they do any work unconnected with the dairy until eleven o'clock, when they are called to dinner; at 12 o'clock they lie down to repose until 2 o'clock, when the routine of work is repeated as above described, and completed at 7 o'clock, when they sup, and dispose of their time until 9 o'clock, at which hour they retire to bed.

The dairy maid is by far the most important person in the establishment, as on her skill, attention, and diligence, depend, in a great measure, both the quantity and quality of the butter, and by consequence, the profit of the produce. She must not only thoroughly understand, but accurately observe the moment when the cream has attained the proper degree of acidity in the cream tub, also regard the temperature, adding either hot or cold water in the churning. The cream, when skimmed, is put into a large tub, where it generally remains 24 hours, or until it has reached the first stage of fermentation before it is churned. When the butter "is come," it is placed in a trough and washed over with water as cold as possible, to separate the milk from the butter; the water is drawn off, and the butter is beaten so much that the milk is almost entirely pressed out; salt is then sprinkled upon it, and the mass loosely turned over, to give the salt time to extract any remaining particles of milk or moisture.

After remaining 12 hours, the butter is again beaten, to squeeze out the brine, and after remaining 12 hours longer, it is again beaten and placed in the casks.

Although it is an ascertained and undeniable fact that the quality of butter depends much upon the nature of the pasture, yet, to the untiring attention and experienced skill of the Holstein dairy farmer must in a great measure be ascribed the great reputation which his butter has of late years held in the London market, to which the greater part finds its way.

The qualities of first-rate butter are considered to be, first, a fine even yellow colour, neither pale nor orange tinted; second, a close waxy texture; third, a fresh fragrant perfume and a sweet kernelly taste; and fourth, good butter will, above all, be distinguished by keeping for

a considerable time without acquiring a rancid flavour.—*R. S. Graham, Bultleigh, Nov. 12.—Gard. Chronicle.*

PESTS OF THE FARM.

THE WIRE WORM.

The wireworms usually eat into the stalk just about the root, and sometimes separate it from the root altogether; they seldom, however, remain so long engaged upon the one spot or portion of stalk. When they attack potatoes, they penetrate into their very hearts, and thus frequently wholly destroy the sets when newly planted; to obviate which it has been recommended to plant whole potatoes.

Amongst the green crops, turnips may be regarded as the greatest sufferers, and the tender young plants are, of course, most victimized in autumn. Multitudes of these ravenous grubs may then be found gnawing at the roots of the young turnips, and even biting off their extremities. They also frequently attack the stalk, bite it across, and when the stems fall, attack the leaves. This is, however, one of the least formidable of the robberies of this persevering pest, and if the wireworms were satisfied with the leaves alone, they would not be so injurious. In gardens, lettuces are the principal victims, but the annual flower-plants also suffer greatly—pinks and carnations are gnawed across their stems, and rendered lifeless. I will now offer some suggestions for the extirpation of this very rapacious insect.

It is, as I have already had occasion to observe, most necessary that we should possess some acquaintance with the natural history of such animals as we desire to destroy. Such knowledge facilitates our operations, by informing us of their haunts and habits, of their dispositions and predilections, and, consequently, not only of where we are to seek for the pests, but of how we can best set to work to accomplish their destruction. Recollect, I may remark, in passing, that the beetles, whence the wireworms are produced, are, although not necessarily mischievous themselves, to be regarded as the grand source of your annoyances. Let it be your care, therefore, to have these caught and destroyed; they will be chiefly found, during spring and summer, upon nettles, hemlock, fools' parsley, and other such herbs. Let this be one of your cares.

Still, however active you may be in destroying the beetles, you will find that you have succeeded only in diminishing the number of this pest; you cannot hope to extirpate them; but is it not some consolation, even to have succeeded in effecting a diminution of their numbers?

The eggs are chiefly deposited in pastures where the surface has been undisturbed, and in clover layers and fallows. Where, therefore, they make their appearance, you will find it a good plan to have your pasture eaten close by sheep. Rolling, in early spring, is also recommended, and is, in my opinion, very likely to prove serviceable, having been preceded by a top-dressing of lime. I recommend a top-dressing of lime, salt and soot. Such farmers as I have prevailed upon to try the experiment in this country (Ireland), have found it very efficacious. The proportions I recommend are as follows:—

Lime	...	...	...	2 parts.
Soot	...	...	...	3 parts.
Salt	...	...	...	1 part.

The salt may be purchased from salt works, or extensive dealers in that article, as spoiled salt—there being accidents which will render it unfit for market as salt, without at all militating against its value as manure, or a top-dressing. The lime should be quick-lime pounded, and the mixture should be applied to the land as speedily as possible after having been compounded: be it also remembered that this composition will be found a valuable fertilizer, as well as a foe to insects of all sorts. Woad, sweet gale, the refuse of gas-works, spirits of tar, chloride of lime, nitrate of soda, mixed with the manure, will be found very serviceable; at all events, effecting a sensible diminution in the numbers of the wireworm, and of course a diminution of their ravages in an equal ratio.

It has been tried to destroy the wireworm by flooding, but this is only a useless attempt, it being almost impossible to drown this creature, which will be found as lively as ever after total immersion for three, or even four, days; still, however, such flooding, though it will not destroy the worms, interferes with the laying of the beetles which produce them, and will consequently, in this point of view, be occasionally found useful.

The following, being an extract from a letter from an agricultural friend, was read by Mr. Palmer, M.P., at a meeting of the "Faringdon Agricultural Society," in the beginning of the spring of 1846:—"The way I use soda is, to sow it broadcast; I have never found it fail. The chemist, your friend, must have been ignorant that good soda-ash contains fifty per cent. of free alkali. The last year I had a failure of beet carrots, which I attributed at the time to the season, but upon examining the soil carefully, I found Wireworms. As it was to be wheat this year, and my last sown wheat, I mixed it with soda-ash. It is now growing faster than any wheat upon my farm, and not a blade missed. Until I

adopted the use of *soda-ash*, I suffered sometimes to the amount of SIXTY IN A FIELD! The discovery was accidental; I had sown a headland with it as a fertilizer, on the principle laid down by Sir Humphrey Davy, that all alkalis were stimulants to plants; it certainly improved the crop, but upon the whole, I considered it a failure. The following spring it was turnips, and a man hoeing asked me, "If anything had been done to the headland?"

I asked him "Why?" He said, "There was not a plant destroyed by wireworms, and the rest of the field had fifteen to a nest." I then determined to try it upon another field which was full of wireworms; I have never since seen one in it. In the following year, I had twenty-five acres of oats attacked more generally; I happened to have a cask by me, and ordered it to be sown. From that day the ravages ceased, and within a week the whole field had changed its color to a vivid green. I have since ceased to consider it as an experiment, and have always a cask by me ready, in case of any appearance of the *wire-worm*, and have not a patch as large as my hand suffering from wireworm on my farm." This is no vain boast; I have known soda tried by practical men, who were most unwilling, unless actually coerced into it, to listen to any novelty, and they have unanimously asserted the success of their experiments with soda. It is equally efficacious in repelling the attacks of the *green-fly*, which, from its ravages and the difficulty that has been experienced hitherto in getting rid of it, might, though the insects are of different species, very fairly be entitled the twin-brother of the wire-worm.

In gardens, that most certain of remedies, *hand-picking*, may be resorted to. Lettuces are, as I have stated, among the most frequent sufferers; let, therefore, the earth be gently scraped away from about the roots of such as are affected, the worms removed, and the earth then as gently returned. Hand-picking may also be resorted to in the case of young turnips, and in such fields as are bordered by a marsh; for it is in the immediate vicinity of the marsh that these worms will be found to congregate in the greatest numbers. In gardens, the wire-worm may also be attacked, and destroyed by means of poison and traps; the former will answer for the worm, and the latter for his parent, the beetle, or elater. For poison—slice potato stalk, or turnip, or parsnip, or carrot, or even marigold, or beet-root—take a feather, and dip it in a solution of corrosive sublimate, dissolved in alcohol, or spirits, then lightly touch the bait with the feather, and having allowed the spirit to escape by evaporation, stick the bait into the loose soil, near such

plants as had previously indicated the presence of the worm. This remedy is of course peculiarly suited to *gardens*, but it may nevertheless be adopted by the farmer with some success. Birds also consume immense quantities of these worms; as also do frogs, toads, and those beautiful little creatures resembling the lizard in form, but differing from that class of animal in being furnished with gills, like a tadpole, during the earlier stages of its existence. I allude to the Water Eft, or Newt, which, at certain seasons, leaves the water, and, emerging upon the land, makes great havoc among many of our insect pests.

This reminds me that the frog is often unjustly persecuted by gardeners, under the idea that it eats or spoils their *strawberries*. Nothing can be more erroneous. I, myself, conceiving it allowable to sacrifice one or two lives in order to save many thousands, killed and opened several frogs, and did not find any portion of strawberry in their stomachs, but invariably numbers of insects. I have spoken to many intelligent gardeners on this subject, and have found my opinions confirmed. Let frogs and toads, therefore, be encouraged in your lands—recollect that the fabled character of the toad is only a tissue of nonsense; that the animal's entire food consists of *insects*, of such creatures as you are most anxious to destroy. Call them in, therefore, to your assistance—protect them, regard them as your friends and fellow laborers, and they will aid you most extensively. The robin, blackbird, wag-tail, thrush, together with poultry, and rooks, &c., feed on these insects; but it is for you to consider whether these birds are likely, by their destruction of insects, to compensate for the damage they themselves personally do to your crops.

PLOUGHING DECLIVITIES.

The first consideration to be taken into account when land has thus to be laid out in ridges, is the direction of the inclination most likely to facilitate the drainage of moisture from the furrow, and such a one should be adopted, unless there are good reasons for preferring some others. But where this point is quite immaterial, the ridges should be traced from north to south, in order that grain on each side of them may enjoy nearly equal advantages from the influence of the sun's rays; otherwise the vegetation of those parts, inclining towards the north, will be much more backward than that on those which face the south. Were it not for this, it would be better to plough from east to west, because the soil then receives the rays of the sun more vertically, so long as it remains in the state in which it was left by the plough, and profits more by their influence.

On fields situated on mountains, hills or declivities of any kind, the ridges are usually arranged in a very injudicious manner, viz: in the same direction with the declivity of the soil. Such is, at all events, the case in places where the land is very much divided, and the property intermingled, probably because when the division was first made, nobody had been found who would take the superior or upper part for his portion, all the fertilising juices and particles of which are washed downward, or would resign his share of the lower parts, which possess so many decided advantages.

This injudicious arrangement of the ridges is attended with many inconveniences. When heavy rains fall, the vegetable is easily washed away by them and it not unfrequently happens that on the top of the declivity large hollows are to be found, from which the earth has been washed down to the bottom where it forms high embankments, when only light showers fall the water runs too rapidly from the upper part of the field which is often suffering from drought, while the lower portions have a plentiful supply of moisture; the cattle employed in ploughing are dreadfully exhausted by the up hill work those which are naturally indolent and disinclined to exertion require very severe treatment to make them get through their work, while others that are active and full of spirit become heated and tired, thus rendered liable to take disease. Nothing, therefore, but a minute parcelling out of the land can justify such an arrangement of the ridges.

The most advantageous disposition of them that can be made on an inclined surface, is to give them a horizontal, or slanting direction; the former is preferable on gentle declivities: the latter on abrupt inclinations. By this means moisture is retained longer in the trenches on heights exposed to drought, and more humidity is communicated to the superior ridges. Even on rapid declivities the water flows slowly in those furrows, the obliquity of which diminishes their inclination. When heavy rains fall they do not wash the earth from the bottom of the furrows, and if the showers come but seldom, the land does not suffer so much from dryness. It has sometimes happened that the mere act of changing the direction of the ridges has tended considerably towards the amelioration of property situated on hilly places, increased the amount of produce obtained from it and rendered the crop less casual.

The arrangement just mentioned is also calculated to lessen the labor of the draught cattle, although it cannot be denied that it increases that of the laborer. When fields situated on a declivity are ploughed by a common plough having an immovable ear which turns the slice alternately upward and downward, it is very difficult to produce a proper revision of the furrow

slice when turned from the lower side, because, in that case, it has to describe a larger segment of a circle before it arrives at that point from which its own weight will cause it to fall over. It not unfrequently happens that it falls back into the furrow. The ploughman is therefore compelled to exert all his strength to keep the plough inclined towards the right, and is frequently obliged to turn over the slice with his foot unless he is followed by some person whose express duty it is to turn over the slice with his foot, his hand, or with a fork. The best thing which can be made use of in such cases, is that elongation of the mould board described by Schwertz in his, "Agriculture of Belgium."

On rapid declivities it is almost impossible to turn the slice over from below upward. There the only thing to be done is always to turn the slice towards the bottom until the whole field is transformed into a series of terraces, each one lower than the other. This cannot be effected with a common plough having an immovable mould-board, except by managing it so that it shall always be engaged in the soil on one side and shall turn the slice over on the one that immediately preceded it, a mode of proceeding which occupies a great deal of time and fatigues the cattle very unnecessarily, causing them to pass over every inch of ground twice. It is far better to make use of a plough having a movable mould board which can be turned either to the right or to the left, as seems requisite; instruments of the description just mentioned are invariably used in all places where they are known. The Mecklenberg binoir is very useful in these circumstances; indeed in many cases it is superior to the plough, because it does not throw the earth so low as that instrument. It will easily be conceived that by degrees the plough will amass all the good soil at the foot of declivity while the top will become barren. Judicious agriculturists remedy this evil by applying all their manure to the upper part of the field, or at any rate distributing it in such a manner that that part shall always receive the greatest proportion, but this renders the carriage of the manure a much more laborious operation.

When the rapid declivities are ploughed in a slanting or inclined direction, it is of the utmost importance that such an inclination should be given to the ridges as will prevent the plough from having to encounter any sudden or abrupt declivities. Nothing but mere general rules can be laid down for guidance on this point; the first thing a farmer should do before laying out the ridges, is to traverse his land in all directions, and ask himself in different places how the slices can best be turned over. In some places he will find it necessary to plough outward, in others to plough inward, and in others again to turn the slice over on the same side.

The facility with which the work will be performed, as well as the goodness of it, will depend essentially upon the accuracy of the ploughman's eye, and his skill and experience in operations of this nature. The binoir will in general be found to be preferable to the plough on hilly fields, because in turning over the soil it enables the laborer to exercise his will and judgment with greater freedom.

It is a beautiful sight to see the order and regularity with which rapid declivities can be ploughed by skillful men who are accustomed to the use of this instrument. By means of the arrangement of which we have been speaking and by giving an oblique direction to the furrows the water may be made to drain away so gradually as not to carry any portion of earth with it nor yet deepen the furrows through which it passes.—*Thaer's Principles of Agriculture.*

THE FIELD BEET.—This pla. also called *mangold wurzel*, and sometimes *root of scarcity*, (*mangel wurzel*) is with all its varieties, either a descendant of the *beta vulgares* alone, or the result of the mixture of this plant with the *beta cucta*; I regard the difference pointed out by the botanists between these two plants as too insignificant, and as far as my observations goes, too vague to serve as the foundation of an absolute distinction. It appears to me that the crossing of the deep red colored garden beet and the white beet has given rise to all the existing varieties of this plant, some approaching to the former and others to the latter species: and that from these again new varieties are continually produced, among which we now and then meet with individuals belonging to one or other of the original species. It is therefore impossible to distinguish precisely between the various kinds of beet any more than between the several kinds of other cultivated plants, the varieties of which pass one into the other by insensible gradations.

The two kinds of beet which occupy the extremities of the series are the deep red beet, which has long been cultivated in our kitchen gardens and that which is perfectly white, between these are the large scarlet beet: the flesh colored beet which is sometimes marked with rings of that color; the variety which is red without and perfectly white within: the yellow beet, and that whose color is a mixture of yellow and white. The color of the root commonly resembles that of the leaves or rather of their edges, which are either quite green or tinged with red. Even seed taken exclusively from one plant always produces several different varieties. The unmixed red and white are however the most constant. The pale red beet is the largest and most

productive of all, and is therefore usually cultivated as food for cattle. There are two varieties of this, one whose root buries itself under ground and another which shows a disposition to rise above the surface. My own observations lead me to consider these dispositions as essential to the varieties in question, but the nature of the soil has also considerable influence upon them. I once divided with a friend a quantity of seed which had been given to me as belonging to the variety which rises above ground. My land was ploughed to the depth of ten inches, and his to a small depth only.

On a soil of small depth the variety which grows above ground is certainly to be preferred, as on such a soil it produces a heavier crop than the other, but on a deep soil the underground variety is preferable if only from being less exposed to injury from frost in autumn. The yellow and white beets on the other hand, have the advantage of possessing greater consistence, and resisting cold rather better: but for Agricultural purposes these qualities do not compensate the greater volume obtained from the reddish varieties. But, grows on all soils which contain a moderate quantity of moisture and a large proportion of nutritive matter, but on sandy soil its size is small, unless indeed, a large quantity of rain fall during the period of its growth. On a light soil rich in humas and moist by situation it becomes watery and very thick, but hollow in the middle and difficult to preserve from rotting quickly. The soil best adapted for beet is an argillaceous soil possessing moderate tenacity. On land of this description it always succeeds, and acquires more consistence than on any other kind of soil. I therefore make it a rule in the cultivation of weeded crops to sow the greatest quantity of beet on tenacious soil, and of swedish turnips on those which are sandy.

To produce beet of a large size, the soil must be well manured, but it matters not whether the manuring has been performed expressly for the beet or for a preceding crop, provided that in the latter case, the soil still remains in good condition. Fresh manure should be mixed with the vegetable soil by two ploughings at the least.

The deeper the soil the better it is adapted for the growth of beet: to obtain a good crop of this vegetable on a soil of small depth it is better to sow or plant it on beds or ridges.

The seed may be then sown on the spot where the plant is to grow, the individual grains may be placed in separate holes, or the seed may be drilled at least twice as thickly as the plants are to remain, but this latter method is practicable only on a warm light soil which is tolerably free from weeds, for the germ has some difficulty in opening the hard skin in which it

is enclosed. It is a considerable time before the young plants display their seminal roots and by that time the field is covered with weeds of considerable height. The germination is often interrupted either because the seed is too near the surface, and cannot find a proper supply of moisture, or because it is too deep in the ground and development becomes impossible. On ordinary soils transplantation is usually the preferable plan, as it leaves time for giving the requisite preparation to the soil. But as the vegetation of the plant is disturbed by transplantation, it is important to procure the seedlings in good time, and therefore to sow as early as possible.

The method which is found to be most advantageous consists in advancing the germination a few days before sowing by moistening the seed with water from the dunghill and then setting it in rows, two or three grains at a time along a cord on which equal distances are marked. The seed is placed in little holes about an inch or an inch and a half in depth and formed with a dibbler; it is covered with mould, taken from the preceding hollow, or if the soil be very light the earth is pushed over the seed, by the foot of the sower as he advances. When this plan is pursued, germination takes place quickly, and the weeds do not get the start of the beet plants. Care must be taken to uproot the superfluous plants as soon as those which are to remain have put forth three or four leaves.

The plants require careful cultivation during their growth; it is upon this indeed that their success mainly depends. The cultivation is performed with the horse-hoe but in spite of the opinion of some agriculturists, a slight earthing up is very useful even to the variety which grows chiefly above ground. The large fleshy leaves of the plant attain their greatest size in August; many cultivators set great value on the green fodder, furnished by these leaves. According to approximate calculations, if the leaves be stripped early and frequently the produce which they afford is greater than that of the roots but it is obtained at the expense of the latter, for if the leaves be stripped early and to excess, the roots remain very poor. Cattle eat these leaves but are not very fond of them, and though large they appear to contain but a small quantity of nutriment. Whatever is gained in real value on the leaves is lost upon the roots. Moreover the gathering of the leaves is troublesome, and on the whole I think that nothing but a scarcity of other kinds of fodder can justify this operation in an economical point of view. It is only in autumn when the plants have attained their full growth and the crop is soon to be taken off that the leaves can be properly cut close to the root and given to the cattle.

The roots are easily pulled up, but the removal of the filaments, which is necessary to the preservation of the roots, is not so easy. But roots grown in an argillaceous soil have not so many of these filaments.

It is difficult to preserve the roots to an advanced period of the winter, for they are very sensible of cold, and soon destroyed by it; in warm cellars they are very liable to rot, so that they require to be placed in beds and separated by straw or sand,

Beets possess the advantage of being almost exempt from the attacks of insects.—*Ibid.*

MR. FLEMING'S PEAT COMPOST.—Many ways of working up peat (moss) have been suggested, such as adding lime, salt, and other substances, to aid fermentation. The most successful of these substances with which I am acquainted is one which has been used with much advantage on the home farm of Mr. Fleming, of Barochan. This compost consists of—

Saw dust or moss earth,	40 bushels.
Coal tar,	20 gallons.
Bone dust,	7 bushels.
Sulphate of soda,	1 cwt.
Sulphate of magnesia,	1½ "
Common salt,	1½ "
Quick lime,	20 bushels.

These materials are mixed up together and put into a heap, and allowed to heat and ferment when the compost is ready for use. Compared with farm yard manure and guano, this mixture gave on hay and turnips:

1. On hay, per imperial acre—		
	PRODUCE.	COST.
Nothing,	416 tons.	
Guano, 3 cwt.,	752 "	£1 10 0
Compost, 40 bushels,	761 "	1 0 0
2. On turnips, Jones' yellow top—		
	PRODUCE.	COST.
Farm yard manure, 28 yards,	26 tons,	
Guano, 5 cwt.,	18 "	£2 10 0
Compost, 64 bushels,	29 "	1 11 0

According to these results, this compost is superior even to guano. The experiments, however, require repetition, and the results will, no doubt, vary with the kind of soil and crop to which the compost is applied.

NOTICE.

THE GENERAL MEETING of the **LOWER CANADA AGRICULTURAL SOCIETY** will take place at their Rooms, in this city, on **FRIDAY, the 15th of MARCH**, instant, at 11 o'clock, A. M., for the purpose of electing Directors for the ensuing year.

By order,

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

Montreal, 1st March, 1850.

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, MARCH, 1850.

“Knowledge is power,” we are constantly told, and we believe it, but for agriculturists there is some instruction more necessary than what is understood by those who assert that knowledge is power. The knowledge taught in schools may be power so far as it goes, but it will not give the power that would be most useful to enable a farmer to cultivate and manage his farm in the best manner and to the greatest advantage. Useful knowledge is what agriculturists require, and this should include all the knowledge that would be necessary to make a farmer complete master of his profession, as well as fit him for acting in any capacity or situation which the Government or the country might call upon him to fill. This is the education that would be power to the farmer, and the education to which he is entitled when taxed to pay for it. What, we would beg to submit, would be the value to this country of a dozen young men coming from school, well educated, and also practically instructed in the science and art of agriculture, settling in the country upon farms, to be an example to all around them, compared with a dozen young men educated for what are termed, the “Learned Professions,” on leaving school, and settling in cities, towns or villages, as doctors, advocates, notaries or politicians? We shall not reply to this question, but leave it for the consideration of others. If knowledge gives power, the agricultural class are entitled to have that sort of knowledge that will give them power to act for the most advantage for themselves and for the whole community. The education fitting for a merchant, a doctor or an advocate, is

not all that is necessary for a farmer, or at least is not, alone, the most suitable for him. We cannot expect, under present circumstances, that our youth would be able to obtain at school all the instruction necessary to make them good farmers, because we have not at present school masters capable of imparting this instruction, nor model-farms where they could see the practical work of agriculture in operation. It is in our power, however, to introduce in all country schools suitable books on the science and practice of agriculture, for the reading of the sons of farmers, and thus lead them to think of the profession they are to be engaged in for life. The great objection to the present system is, that the whole tendency of the education of the children of the rural population is to fit them for any business rather than farming. Examine their school books, and all the stories that are to be found in these books, of persons who have gained renown, wealth or respectability, refer to every business and profession but that of agriculture. This reading induces the youthful mind to prefer that business or profession where there is a chance of gaining wealth and a higher station than he conceives it would be possible for him to arrive at on his father's farm. He never reads of any farmer becoming a renowned general, admiral or statesman, or of gaining such great wealth as merchants or manufacturers, or such high station as professional men often attain to. All these are tempting objects to strive for, and he therefore despises the profession of a farmer, that does not offer him the same chances in the race of life. Farmers, or those engaged in husbandry, seldom become book-makers, and this is one cause, that so little is found in school-books in commendation of agricultural pursuits, or having any reference to husbandry. It is a strange inconsistency that this should be the case, considering that agriculture is the first and most useful profession on earth, and actually necessary to man's existence. While this system continues, farmers have no fair chance of suc-

eeding to perfection in their business, and there is not yet any symptom of a disposition to provide a more suitable and useful education for the rural population. We can have no object in bringing this subject so often before our readers, but that we conceive it to be of such vial importance, not only to agriculturists but to the Canadian community of all classes, that we would not be doing our duty faithfully, were we to neglect to do this, until some action is taken in the matter. There is no useful purpose to be attained by allowing ourselves to be persuaded that the general agriculture of Lower Canada is in a state of progressive improvement, because there is no doubt that it is not so. There are improvements introduced in many instances undoubtedly, but not to the extent required to secure that degree of general prosperity, which the country is capable of attaining to. We cannot perform a greater service to our country than by endeavouring to understand what impediments exist to its prosperous condition, and then seeking to remove or remedy them, by every means within our power. "Knowledge is power;" but to make it power to the farmer, it must include the knowledge of his business. This matter is not, we conceive, duly considered. Youths, when they leave school, if intended for any profession, a merchant or mechanic, go at once as apprentices, to learn the business they are to follow, from parties who are competent to instruct them perfectly. Not so with the son of the farmer; on leaving school, where he has learned nothing of his profession, he does not go as an apprentice very probably to a person competent to instruct him, in the best manner, but he returns to his home to practice agriculture as his father does, perhaps, in a very imperfect manner. If it should be otherwise, and his father is competent to instruct him, very probably his teaching and reading at school have given him a distaste to the laborious work of the farmer, and he is more disposed to seek fortune by some other employment that will save

him from labour, and reward him with wealth and station, similar to what some party he has read of at school has attained to. We should not omit to mention that a very highly respectable Roman Catholic clergyman has informed us that he endeavours to give Lectures on Agriculture three times a week at his College. This is an example worthy of all commendation, and if followed up throughout the country would do immense good. We wish we had authority to name the gentleman who has commenced to do what is so much required for the advancement of agricultural improvement.

AGRICULTURAL REPORT FOR FEBRUARY.

The commencement of the month was excessively cold—the temperature falling to 22° below zero, and continuing at a low temperature for several days. Snow fell several times during the month, increasing considerably the quantity already on the ground. The temperature at Quebec was still lower than at Montreal, (28° below zero,) and the snow covers the ground to a greater depth, but this is not to be regretted, as it will be all the better for the land, and protect it from the extreme cold. Animals of all descriptions that are exposed to very great cold, will, undoubtedly, require more food to support them in good condition than they would in moderate weather, and this farmers should attend to, and not allow their cattle to fall off in their condition. If they have sufficient of good hay, nothing can be better, but if fed on straw, a small quantity of oats given to them daily would be a great means of maintaining their strength and condition. This grain is supposed to produce a great degree of warmth to the animals which take it as food, and is very fattening in its nature. If the oats is ground whole, and given in a warm mash, it would answer better than in raw grain; but in any way, it will answer a good purpose. In cutting straw or hay into chaff for neat cattle or sheep, we have been told that it has a tendency

to confine the bowels. We have no experience of this mode of feeding, but in England, cut straw is never given except with turnips, or with boiled linseed sprinkled over it; this always prevents any irregularity of the bowels. In feeding horses with cut hay or straw, it is not so apt to produce any irregularity in the bowels, but even with them it will be prudent to give them roots or mashes occasionally. It is of very great consequence that all descriptions of stock should be regular in the bowels constantly, as it is most dangerous when they are not so, and even should it not prove fatal, the animals suffer greatly in condition while effecting their cure. Careful attention to stock will generally prevent disease, and this will save much trouble and loss. Warm stables, good and sufficient food, and plenty of pure water, are the most essential requisites for stock during winter, as good pasturage, shelter, and abundance of pure water are in summer. Where all these are provided, not neglecting to give them salt and a little nitre occasionally, there will not be much loss of stock; indeed, we believe the proportion of loss would be much under that in the British Isles. We know that losses of cattle occasionally occur here, in summer, produced, we believe, generally, by grazing them in very dry and hot weather, on pastures where the grass is in a dry parched state, where there may not be good pure water for them to drink, and a great want of shelter from a hot sun. The dry parched grass taken into the stomach of animals is said to be incapable of digestion, and hence it produces derangement of the stomach and bowels, and causes death by inflammation of the bowels, if not very soon relieved. All these causes of loss are in the power of farmers to check, if not to prevent, by changing the cattle to pastures more moist and suitable, in very dry and warm weather, and providing good water, and shelter from the heat of the sun. We have had experience in these matters, and know that these causes have produced these results, in preventing and producing dis-

ease. It is on dry, sandy, or limestone soil that the grass becomes so very much parched and injurious to the animals. It has quite a different effect from regularly saved hay or straw when taken into the stomach. All these matters deserve attention, and, we believe, if attended to carefully, very few farmers will have to complain of much loss in their cattle by death, except from starvation.

Root Crops—Are considered, in the British Isles, the basis of good farming; but from the great difference between their climate and that of Canada, we never can cultivate root crops here in the same proportion, *profitably*. The difficulty of storage in winter, so as to keep them in good condition, will always prevent us from growing a large quantity of root crops for stock. Partics, of course, who have good storage may grow roots in proportion to their means of keeping them safe, but we would not recommend those who have not this accommodation to go to great expense in cultivating roots to rot for want of suitable storage for them in winter. The storage requires to be large, and such as that the temperature can be maintained very little above 32°. If the temperature is much above this, the roots are very likely to heat and spoil, and if below, they will be injured by freezing. In whatever temperature they are kept, turnips, carrots, or any roots that have a large proportion of water in their composition, will injure by their own weight, if kept in too large quantities together, and this was one cause that made potatoes so much preferable to any other roots for winter keeping, as they were not subject to heat or injure in cellars, if stored in good condition. The liability of potatoes to disease latterly will prevent their cultivation for feeding cattle. Carrots and parsnips are, perhaps, the next best vegetables to keep in winter, if not stored in too large quantities together, and in too warm a cellar. They will also keep very well in the soil they are grown in, if dry, until the spring, when they come in for use at a very convenient

time for stock. Swedish turnips and mangel-wirtzel may be classed next in value for winter-keep, provided the storage is suitable, as we before observed, and not put together in large quantities. Any man who has had experience in those matters will be aware how necessary all these precautions are to save roots in winter from destruction. It is most annoying, and a great loss, to see roots become useless, except for the dung heap, after all the expense and trouble of raising and storing them. Roots may be preserved without much trouble till about the 1st of January, and they might be fed to stock up to that time, and thus save other food for the more advanced period of the winter. Ground oats, barley, and Indian corn, might then be fed to them in the very cold weather, and any of these would be much better food for cattle in cold weather than raw vegetables. Crushed linseed occasionally given, mixed with these other articles, would have the effect of keeping the cattle in good health, and they should also be applied regularly with a small quantity of salt, but not so much as to produce any looseness of the bowels, as it would be injurious to stall-feeding cattle, and indeed to any animals. Ground oats, barley, or Indian corn, will, we believe, be found as cheap and suitable food for the coldest portion of the winter, as any food we can provide for cattle. It will not require so much labour as roots, and the manure of cattle fed on grain or linseed is much better for the soil than that produced from vegetables. It may be objected to this plan, that the lands cannot be kept clean, and in a proper state of fertility, without root crops in proportion to those of grain. We, however, beg to differ from those who may object, and suggest that we may keep our land clean by summer fallow, by sowing peas, beans, vetches, Indian corn, and clover. We do not pretend that this system is superior to the English plan of turnips and other root crops, but we conceive it to be the most suitable for our climate and other circumstances. As we before observed, those

who can grow root crops, preserve them uninjured, and feed their stock with them to advantage, should, by all means, continue to do so. It is only to prevent loss and disappointment to those who are not so favorably circumstanced, that we conceive it necessary to offer these suggestions, and point out modes of improving their lands, although they might not be able to do so by the English system of root crops in proportion to those of grain. There is, however, no farmer who should not have root crops in proportion to his means of keeping them from waste or destruction until fed to his stock. It acts as a great discouragement to improvements when new systems are recommended, because they have been adopted successfully in other countries, without considering whether they are suitable for us or not; and persons who introduce them on this recommendation, and are disappointed, are discouraged themselves, and check the advance of improvement that would be both necessary and advantageous. Great caution is, therefore, necessary in any new plan proposed to farmers, and it is only those who have a thorough practical knowledge of agriculture who can safely take the responsibility of suggesting such changes. Farmers are frequently condemned, very unjustly, for not promptly adopting every imaginary improvement that may be suggested to them, when, perhaps, these so-called improvements might not be possible, and even if they were, might not be advantageous. There is such a wide range for improvement, however, that we may introduce a great many without danger or any uncertainty as to their results, provided they are carried out properly. These subjects may not be considered the most appropriate for an Agricultural Report, but at this season of the year we have nothing to say of the state of the crops, and it may be as well to submit matters for the consideration of farmers, at this idle time, that will have a great influence upon the crops and their value this year.

Improvement of Old Meadows.—Very fre-

quently it is inconvenient to plough up old meadows for the purpose of improving the quality and quantity of the grass upon them, and farmers are desirous to be able to accomplish this object without ploughing them. There is a possibility of doing this in many instances, particularly where there is not much moss amongst the grass; but where the moss is considerable, it is scarcely possible to improve the herbage for producing good meadow, without a regular course of tillage. Draining, and the application of a heavy dressing of lime, would have a good effect; and by repeating this dressing it would probably banish the moss altogether, but it would not restore it to good meadow without sowing fresh grass-seed upon it. We have endeavoured to improve old meadows by top-dressing with compost or other manure, harrowing the land well, sowing timothy and clover seed upon it, and then hush-harrowing or rolling it. We have found this method to answer a very good purpose, and the herbage to be greatly improved by it for meadow. This should be done as early as possible in the spring, when the snow disappears, to give the grass-seeds a fair chance of coming up before the drought and heat of summer commence. Lands that have been top-dressed the previous fall would be in the best state of preparation for sowing the grass-seeds in the early spring, after being well harrowed. In case the land is not top-dressed until spring, it is difficult to do the work sufficiently early at that season, without cutting up the surface by the horses and cart-wheels. By attention to opportunities in the mornings and evenings, while the surface would happen to be frozen, a farmer might be able to top-dress a considerable quantity of land without injury and in good time. This work would be more readily accomplished provided the manure was taken from the farm yard to the field in the winter, and placed in heaps in the most convenient situations. Meadows once properly laid down, and well stocked with the plants of timothy and clover,

might be kept in good condition for several years, by a light top-dressing of compost or other manure, every second or third year. We have ever been persuaded, from observation and our own experience, that top-dressing meadows was one of the most profitable modes of applying manure to the soil. It greatly augments the quantity of provender for stock, without the expense and uncertainty of grain or root crops, and the land is kept in good condition for breaking up at any time the farmer may see it his advantage to do so. Meadows sufficiently drained of superfluous moisture, and kept sufficiently manured, are not apt to become foul with weeds or inferior grass plants. In all good systems of husbandry, good meadows and good pastures are considered much the most valuable portions of the farm. Indeed all improvements are made with a view of laying down lands in good condition for meadow and pasture, but we regret it is not always so in Canada.

As regards meadows, we can have them as productive here as in any other country, and as to the quality of the hay made from timothy, there is not any to equal it, that we have ever seen. At the market of Montreal, the greater part of the hay exposed for sale, is superior for every purpose, to any we have seen on this continent, or in any other country. When we know this to be the fact, we cannot consistently find fault with our soil or climate, because a good quality of hay, produced in abundance, is a certain indication of a good soil and climate for agriculture. When there is good hay, there may be good pasture, and when both are good and abundant, what is to prevent us from having a numerous stock of good cattle and sheep? and when we have those, why should we not have good crops? It is quite possible to raise good crops of roots and grain, on poor soil, by manure and cultivation—but it is not so easy to bring these soils to become good pastures and meadow. Good pastures and meadows are great advantages in all countries, and

where they can be had, there cannot exist any serious obstacle to the introduction of a good system of husbandry, so far as regards climate and soil. All experienced farmers will come to this conclusion, and attribute the backward state of agriculture to the proper cause, and not to any defect in our climate or soil. Flax and hemp are other articles that might be profitably grown here for their seed and fibre, if there were mills to dress the fibre for exportation, or for home uses. We have for twenty years past endeavoured to recommend the cultivation of these plants, and, as a means of encouragement, that, by the Government, or by private enterprise, mills should be erected for preparing the fibre, but all to no purpose, and we fear it will be to no purpose now to bring the subject again before the public. The cost of erecting a mill, where there would be water power, would not, perhaps, much exceed one hundred pounds currency. A mill might be worked by horse power, similar to a thrashing mill, that we have no doubt would answer, and not cost more than a thrashing mill. Farmers will not cultivate these plants until they are certain to be able to dispose of the crop when grown and dried upon the field. If they were assured of this, we should soon have flax and hemp in abundance. We stated some time ago that in France, Holland, and Belgium, flax is purchased dried upon the field, at about £2 10s. to £3 sterling, the ton weight, after the seed is taken off by the farmer. We have been told that in the State of New York the flax is purchased on the same plan, when dried in the field, at about ten dollars the ton weight, the seed being taken off by the grower, and we understand the purchasers of this flax make a good profit of it. As to its being a profitable crop to the farmer, disposed of on these terms, there can be no doubt, and he has the seed besides for sale or feeding his cattle. What we would ask, is to prevent us in Canada having mills, and cultivating flax and hemp as they do in the neighbouring States? The soil and climate here

are more suitable for these plants than in any part of the Union. We have never yet seen an acre of land properly cultivated in Canada for producing good flax, but let us only cultivate for this crop as they do in Ireland, Holland and Belgium, and we shall grow as good crops as they do. Land requires *deep* tillage, and to be well pulverised and manured for flax or hemp. These are plants that will keep the land clean, and if properly cultivated, will answer all the purposes of root crops, because the land must be clean for them, as both are deep rooted plants, and both pulled out of the ground when harvesting. It is found that flax grown on soil properly cultivated, will push its roots into the soil half the length of the stem above the ground, and the stem is often more than three feet in length. We have introduced these subjects in this Report, as by that means many parties who do not receive the Journal may see what we submit, in newspapers that usually copy our Report. The subjects we refer to are certainly of importance to agriculture, although we may be in error in the view we take of them. Our arable lands require to be better cultivated, manured, and cleaned. If this cannot be generally and *profitably* accomplished by green or root crops, we must take other means to do so, and we beg to suggest the other means that are in our power, always with as much of root crops as we can manage profitably. Farmers will have time to think of our suggestions, and prepare to act upon them, or on better of their own. Changes are necessary in our system, in order to keep our land clean, and in a state of fertile production. There are many farms kept in a good state, but nine tenths of the lands of Lower Canada are not so kept, and it is certain that until they are better cultivated, and managed more judiciously, they cannot be very profitable to their owners, or add much to the wealth or prosperity of the country. Since our last Report there has been no change of consequence in the market prices of agricultural produce, and we

do not see any probability of much change in prices during the winter. Now is the time to provide any seed required for sowing in spring, wheat in particular. Where any of the wheat formerly sown in Canada could be procured it would be well to try some next spring, if it could be sown early. New samples of the Black Sea wheat ought also to be procured if possible, as there is no doubt this variety of wheat sown here for the few last years, is now subject to become rusted. We have observed that the straw of this wheat is now quite different from what it was the first two or three years it was sown here. The straw was then hard and wiry, and had a brownish tinge, but the last two years, we cannot perceive that there is any difference between it and that of any other variety of wheat. This matter is of great consequence to farmers and to the country, and should be attended to.

23rd February, 1850.

We are rejoiced to see that there is now a prospect of obtaining correct statistical returns of the state of agriculture in Canada. It is many years since we first brought this subject before the public, but in Lower Canada it was never acted upon hitherto, so as to produce the necessary information. If the returns are correctly made, we may be able to ascertain the true state of agriculture, the general system that prevails, and the results obtained from this system. We shall then see what improvements it is necessary to introduce for amelioration where required, and the best means for their introduction. The statistics of agriculture are more necessary by many degrees than those of trade and commerce, as agriculture is the basis of trade and commerce, without which neither can have any existence. Agriculture will, one time or other, be estimated at its proper value, however unwilling parties may be to admit this fact. Correct statistical returns of the agriculture of the country, will be of great value, and show what are the means we

possess for the support of trade and commerce. Our wood, the spontaneous produce of our forests, is valued highly by many as an article of export, but the expense of preparing, and transporting wood to shipping ports, is so very great that there is not much actual profit realized to the country, and perhaps the same amount of labour bestowed on the improvement of agriculture, would be more profitably employed. We admit, however, that we are not sufficiently acquainted with the cost of producing a load of timber, and bringing it to Quebec, to be able to judge as to what proportion the price it sells for there, bears to the cost previously. We have constantly heard of the uncertainty of the timber trade, and how frequently the labourers employed are not paid in full. If it is a fact that such losses are incurred, the trade cannot be advantageous. A ton of squared timber at Quebec, worth only from 3d. to 4½d. the foot, cannot leave any great profit to those employed in bringing it there; indeed we do not know how it can be brought there for the price. The shipping coming to Quebec must of course be a great advantage, but as to the profit of timber, we cannot so well understand it, if it really costs more before it arrives at Quebec than it sells for when there. There may be many causes producing these results, and the chief cause, perhaps, is, the glutting of the market with a larger supply than is required, and also with a large portion of timber of inferior quality. It should not be forgotten that the cost of transporting timber from Quebec to England is about double the amount of its selling price at Quebec, (when only from 3d. to 4½d. the foot,) and therefore inferior timber cannot sell for much, as it costs as much to take it to Europe as the best quality. It would improve the Timber trade if only that of a quality suitable for exporting was brought to Quebec, and of that quality only what is required annually. This is a subject that may be thought to have nothing to do with agriculture. It has, however, much to do with

he general production of Canada, and we very strongly suspect that any trade, to be profitable, must realize something more than the expenditure.

The Directors of the Lower Canada Agricultural Society, passed a Resolution at their last Quarterly Meeting, to hold a Cattle Show and Great Fair at Quebec next September—and we shall be glad to receive any information or suggestions referring to this Show that might be useful to the Society in forming their plans. It will be desirable that the time fixed upon should not be the same as for the Cattle Show of the Provincial Agricultural Association of Upper Canada, or of the Great Fair and Cattle Show of the State of New York. The month of September would, we believe, be the most convenient time, but perhaps early in the month, the land might not be in good order for a ploughing match, and this might be a considerable draw-back, as good ploughing should be one of the first objects of encouragement with Agricultural Societies. The benefit of annual agricultural exhibitions mainly depends upon there being large collections of stock, agricultural products, and implements, domestic manufactures, and in fact all that would have a tendency to encourage improvement and industry. If there is a collection worth seeing parties will visit the Show and be willing to contribute towards the expenses incurred, as they did at Syracuse last year, and we believe at Kingston. If there is not a large exhibition of animals and other things, Shows are useless. Where there is something to be seen, an interest is created, and encouragement is afforded to improvement and industry. We hope all who are interested in the prosperity of Lower Canada will assist, and do all in their power to make the Show worthy of so fine a country. We invite the County Agricultural Societies in particular to afford their aid to the Lower Canada Agricultural Society, to make it a useful and interesting Show.

We beg to offer the thanks of the Lower Canada Agricultural Society to the Publishers of Agricultural Periodicals in the British Isles, who have kindly sent their valuable publications in exchange for this Journal. We are perfectly aware that the only exchange in our power to offer, is very inferior to the valuable papers forwarded to us, but we hope our fellow subjects in the Parent States will continue their kind aid to assist their friends in this distant part of the British Empire, to promote the improvement of their Agriculture, as the surest means of securing their prosperity in the country of their adoption. To the Secretary of the Highland and Agricultural Society of Scotland, John Hall Maxwell, Esq., and to Edward Buller, Esq., Secretary to the Royal Irish Agricultural Improvement Society, we also beg to return thanks for their valuable presents of the "Transactions" of their respective Societies. These Publications are of great value to the Lower Canada Agricultural Society. We are sorry that we cannot offer our acknowledgments to the Royal English Agricultural Society, as they declined to send us their published Transactions in exchange for this Journal, although we applied to the Secretary and to several members of the Council, requesting them to do us this favour.

We have seen in our late exchange papers a statement of a gentleman that he had thorough drained land at a cost of eight shillings the acre. Willow tops or thorns are said to be the best materials, and these are put into drains, cut eighteen or twenty inches in depth, with the plough, we suppose. These drains so constructed, are said to continue good eight or ten years, and can then be repaired or renewed at the former cost. We have not seen a full description of the mode of making these drains, but we shall obtain it. They are said to succeed very well in clay soils, that previously, used to set like bricks, after a few days of dry weather, when the soil had been soaked with moisture. The plan is well worthy a trial here,

when it can be so cheaply executed. The drains, we suppose, are cut as for tiles of small size, and the small tops or branches put into them, and covered, permit the water to percolate through them, better than it might do, if straight poles were made use of. If this plan of draining will answer, every farmer may drain his land. The simple hint that such drains have been constructed may induce farmers here to consider of the matter, and even improve the plan. All that is wanting in thorough draining is to make such drains as will allow the water to escape through them. We may imagine that small tops of thorns or other branches placed in a drain would allow of the passage of water, provided the branches were such as not to lie too closely together. We again repeat, the plan is entitled to a fair trial; in clay soil the effect of frost may be an objection, but at this depth, the drains would be free from frost nearly as soon as the soil would be dry enough to work. Experiment will, however, settle the matter—and it will not be expensive. What we would most apprehend is that, at this depth, the action of the frost might cause some of the clay of the sides of the drains to fall in and mix with the branches in the drains, and thus prevent the free discharge of water through them; this we believe will be the greatest objection.

We have seen a very good article in the "Gardeners and Farmers Journal," on the subject of feeding cattle in yards and sheds, and as it disapproves of the plan, we perfectly agree with it. We decidedly think, that in general, the usual plan of feeding animals upon their pastures, is the best, the most healthy, and most economical mode, and we are convinced that lands will be more improved for any purpose, by pasturing animals upon them, than they would be, by keeping these animals confined in summer, feeding them with the produce obtained from the land it would take to pasture them, and returning the manure made by them in sum-

mer, while consuming this produce, as top-dressing upon the land. If this would be the case, all the labour and trouble attending the cattle would be saved. Animals will do better kept in the natural way in summer, providing them with sufficient food, water, and shelter, than by the artificial mode of confining them, and feeding them in yards or under cover. A working man having only one cow and a small quantity of land, might do better by feeding the cow under cover, and parties having only small farms, all in good cultivation, might also find it convenient and advantageous to confine their cattle in summer; but in ordinary farming, the natural and usual mode of pasturing cattle we think much preferable, and the least expensive. It may be objected that the drought and heat of our summers dry up the manure that falls from cattle on pastures, but, however this may be, the improvement of soil pastured by cattle and sheep is unquestionable, even in this hot country. When lands are of good quality in the old countries, and growing a good variety of grasses, there is the greatest objection to break them up. We had land in our possession in Ireland, which was understood to have been kept in meadow and pasture, without being ploughed, for a term of 150 years, and for 50 years of this term, while in the hands of our family, it produced excellent meadow one year, and was pastured the next during the whole time, sheep being generally the stock fed and fattened upon it. A farm under good management, with the due proportion of stock upon it, increasing the manure in every way possible, by compost, &c., preserving the manure from waste, and applying it judiciously, may be kept in very good condition, unless a large portion of the straw or hay is sold off the farm. The grain sold off, if considerable, may in many cases, require to be compensated for to the soil by more manure than can be produced upon the farm, but by summer fallowing, any hurtful exhaustion to the land might be prevented, if there was no means of obtaining any manure

off the farm. Parties may imagine agriculture to be a very simple affair, perfectly easy to any capacity or training, but this is a great mistake, as in reality no business requires more judgment, more experience, and more careful attention, to practice with any chance of credit or success, than that of the husbandman.

The Royal English Agricultural Society and the Highland and Agricultural Society of Scotland, give large Premiums for the best Essays on various subjects connected with Agriculture, and by this means obtain valuable and practical information, which is published and circulated extensively, to the great advantage of farmers. There are many circumstances favourable to the useful action of the great Agricultural Societies of the British Isles. The wealthy landed proprietors are deeply interested in the objects for which these Societies are organized, and consequently are willing to contribute liberally towards their support. It is not so in this country, the landed proprietors are not so greatly, or so *directly*, interested in promoting Agricultural improvements, therefore they do not feel called upon, generally, to contribute largely towards the support of Agricultural Societies. The Provincial Agricultural Societies of Canada cannot consequently have sufficient funds at their disposal to do all that would be necessary and expedient to encourage the improvement of our Agriculture, without aid from the Provincial Revenue, and we humbly conceive that such appropriation, to a reasonable extent, would be one of the most advantageous for the Province at large, that could be made. If they were so circumstanced as to be able to offer various premiums for practical Essays on the best modes of cultivating various crops, the best dairy management, the most suitable and profitable breeds of stock, and the best modes of feeding and breeding horses, neat cattle, sheep, and swine, and then publishing this information, and circulating it throughout every section of

the country to the remotest corner of it, it could not fail to produce immense benefit, that would amply refund to the Revenue any advance granted to the aid of the Societies. This is the mode by which Agricultural improvement can be most certainly promoted, and encouraged, and by model farms, and if such improvements are desirable and would be advantageous, it can only be effected by these means. The dissemination of useful and practical information, through the County Agricultural Societies and at all the country schools, would unquestionably create an interest and desire for improvement, that has not existed hitherto, amongst the rural population. Every County Agricultural Society should be obliged to take a certain number of the Journals published under the control and superintendence of the Provincial Societies, for distribution as prizes or otherwise, and they could be afforded to them at a very low price, when the numbers required would be large. By these means, the best and most practical information and instruction relating to the practice of husbandry, would be widely circulated, not for the instruction of those who are already good farmers, but those who are not so fortunate as to understand their business to perfection. Such are the grounds upon which alone we conceive that Legislative aid can be asked or expected by Agricultural Societies, namely, to instruct and encourage a better system of husbandry, where it is most required.

We have been informed that 15 cents, nearly equal to 9d., would be paid here for good salt butter put up in suitable casks. The butter should be of uniform colour, saltness, and quality, not, as it is frequently here, more than half a dozen different colors and qualities, and put into the cask as if *thrown* in, and not packed closely together. Butter put up in this careless and slovenly manner is not worth much more than half what the same butter would be, properly managed. Is not this

alone a great loss to the farmer, where there is no excuse for such neglect. The tubs or casks that butter is generally put into are so made that they not only admit the air, but dust and other substances that give the butter anything but a neat and clean appearance. We have for many years endeavoured to persuade farmers to adopt a better system of making and packing butter, but it appears to have no effect, and this article is constantly brought to market greatly deteriorated in quality, and scarcely ever fit for exportation to England or the neighbouring States, where there would be a good sale for good butter. The profits on milch cows is hence decreased one third or one fourth without any necessity, as we know that as good butter might be made here as in any part of the world, by careful and judicious management.

Timothy Seed. There is a considerable demand this year for timothy seed, and this seed the farmers should not neglect to raise in abundance, as there is constantly a good demand for it, and likely to increase for exportation. Farmers might raise and save this seed without much loss to the crop. The grand point is, to save it clean and unmixed with any other seed. It is a great loss when sowing what you expect to be clean timothy, to be sowing instead a large portion of seeds of weeds or worthless grasses. There is not in any country, more beautiful and clean timothy grown than in Canada, so that pure seed may be saved, if farmers who have it good and unmixed with other grasses or weeds, would save the seed. We recommend this matter to farmers' attention.

Complete copies of the Agricultural Journal, for the years 1848 and 1849, both in English and French, may be had by application at the Rooms of the Society, 25 Notre Dame Street—some are half bound. Also for the years 1844, 1845 and 1846. Evans' Treatise on Agriculture, both in English and French, may be had at the same place.

DRAINING.—We have been told by a gentleman who has made use of small poles for draining, that they answer well in Canada. His drains are made as for tiles, narrow at the bottom, and he then places eight or ten small poles, the size of hop-poles along the bottom of the drain, filling it up, perhaps, to the depth of twelve inches. He then places some small branches or other substances over the poles, and fills in the earth. The poles are laid in a slanting direction, so as to prevent the ends of them terminating at one place and they thus form a continuous line of poles resting upon each other, and all the joinings broken by this means. Where there is a facility of obtaining small poles, which we conceive to be the best for the purpose, we have not any doubt that they would answer well in drains. When small ones cannot be had, those of larger and longer size might be made use of, when, we suppose, five would be sufficient. In all cases, the poles should have some covering to keep the clay from getting amongst them—and it is also necessary not to have all the ends of the poles coming together at one place, but to break the joinings, by slanting the poles, putting down only one pole at one place, and the next at a distance equal to the fifth part of the length of the poles, (if five be the number made use of,) and so continuing until the drain is finished. In making covered drains of whatever material, the greatest care and attention is necessary.

The necessity and profit of changing seed is well known to many farmers. We knew a gentleman in Ireland, who was an excellent farmer, and raised very good crops, but he made it a constant rule to import his seed wheat from England annually, of the best quality he could obtain. This seed cost him, including all expenses, we suppose, nearly double what his own would have sold for on the spot, but he still thought it was profitable to make the change. The seedsman of the Lower

Canada Agricultural Society, Mr. George Shepherd, has an opportunity of showing samples of seed at his store, and any farmers having seed to dispose of should send samples to him, with an accurate description of the variety of grain, the soil grown upon, the quantity produced per acre, and the time of sowing and harvesting. This would give farmers an opportunity of making a change of seed, at a trifling cost. Changing from one variety of soil to another has an excellent effect. Above all things, un-mixed varieties of seed should be obtained if possible, and it is expected that any farmer sending samples to the seedsman, will be particular in describing it as it is, and whether it is a mixed variety or not, as every farmer must know this while the grain is in the straw. Mr. Shepherd is well supplied with every description of seeds necessary for the farmer, and sells them on moderate terms.

We have received a communication from a highly respected correspondent, who has kindly complied with our earnest solicitation for assistance to make this Journal more useful. The communication being in French, we fear we shall not be able to give it insertion in this number of the Journal, but it shall appear in the French number for March. It affords us much satisfaction, to find that our correspondent coincides with us in opinion as to the necessity of an agricultural education for the sons of farmers. We hope this subject will not be allowed to rest in this position, but that it will receive all due consideration from the Government and Legislature. Our respected correspondent will confer a great favour upon us, and do much good to the cause we advocate, by continuing to write to us. We are the more anxious for this, because we know that he feels deeply interested in promoting the improvement and prosperity of Canadian Agriculture. We have also received two communications from a farmer correspondent, for which, we beg to thank him.

We would earnestly request all parties who receive this Journal to pay their subscriptions as soon as possible, to the Agents, where there are Agents appointed, or to forward them to us at the office of the Society. The publication of the Journal is a considerable expense, and the annual subscription the very trifling amount of one dollar. To employ collectors to travel over the whole country, would be a serious draw-back to the amount of subscriptions. The Agents we would beg to collect the subscriptions and forward them with as little delay as possible. Those who have enrolled their names as members of the Society, or who may now do so, we beg to remind of paying their annual subscription of five shillings.

We were very sorry for the omission in the Journal for February, of the notice we had prepared of the District Agricultural Show which was to have taken place at Henryville on the 15th February. We had written the article, but it was not inserted. We had it translated, however, and it was published in the French Agricultural Journal on the 10th of February. There was not any request made of us to notice the Show in the Journal; we only received a printed handbill through the Post-Office. There are some of the observations which we had prepared that may not yet be out of place to publish, as they refer to the mode of distributing premiums for samples of grain, and may be as applicable to any future Show as they were to that held at Henryville. They are the following:—

We observe in the Premiums offered at the District Cattle Show, to be held at Henryville on the 15th February, that six are for wheat, each parcel to consist of five minots, making in all 30 minots, and the premiums amounting to 33 dollars. For peas, barley, and oats, there are four premiums offered for each, amounting to 26 dollars for each. For Indian corn in the ear, there are six premiums offered, and each lot to consist of two minots, *in the ear*. The total amount of the latter premiums is the same as for wheat, 33 dollars, being at the same rate,

five dollars and a half for each lot of two minots, in the ear. We conceive there is an objection to this mode of distributing premiums. In the case of wheat, the premiums offered were fully equal to the value of the whole of the wheat exhibited. There could be no objection to this if the wheat had remained the property of the Society, to be sold or distributed as seed. For the oats, peas, and barley, the premiums given are, for the first, more than six times its whole value, and for the latter two, more than three times their actual value. The Indian corn, of which 12 minots were to be exhibited in the ear, was awarded 33 dollars, which we suppose was ten or twelve times its value, and all these articles remain the property of the exhibitors. The most judicious mode of awarding premiums on grain, is for the crops growing in the fields, but by the District Society this perhaps could not be done. But if premiums are given on samples, the samples should belong to the Society. We have no objection that sufficient amounts should be awarded to satisfy the exhibitors, but the samples should not belong to them, that perhaps were picked for obtaining a premium. The country at large should have the advantage of this picking, if they consent to pay for it.

The Representative Assembly for the State of New York have proposed the following "Resolutions" on the subject of a separate Department of the Government for the special superintendence of Agriculture:—

Resolved, (if the Senate concur,) That the people of the State of New York regard Agriculture as the leading pursuit of the American people, and therefore eminently deserving the attention and care of the Federal Government.

Resolved, (if the Senate concur,) That the people of this State earnestly desire the establishment in the Home Department of a Bureau of Agriculture, for collecting and diffusing useful knowledge on agricultural subjects, and for such other purposes as may advance the interests, increase the wealth, and promote the general prosperity of the farming population of the United States.

Resolved, (if the Senate concur,) that our Senators and Representatives in Congress be respectfully requested to use their best efforts to procure the establishment and successful operation of such a Bureau.

The people of the State of New York, through their Representatives, appear to estimate agriculture at something like the importance it is entitled to. We wish sincerely that the people of Canada would follow their example in this matter, and in all that energetic people do, to promote the improvement and prosperity of agriculture. Our visit to the great Fair at Syracuse last September, demonstrated to us in the most unmistakable manner, what a great interest the whole population of the State of New York, and in fact of all the Northern States, feel in the prosperity of agriculture, and in every thing that may promote its improvement. It is not, as with us; that all parties *admit in word* the importance of our Agriculture, but they do not generally appear disposed to take any further action in the matter. We certainly have exceptions, but we regret that the general disposition to promote the improvement and prosperous condition of the principal interest in Lower Canada is wanting, so far as we are capable of judging more particularly as compared with our neighbours of the United States. Who can satisfactorily account for this, for we cannot? The energy, industry, perseverance and "go-a-head" principle of the citizens of the United States are constantly talked of with us, and they are worthy of all praise and commendation for these qualities. But why do we not follow their example, and strive to excel them in all these good qualities, if we can? It would undoubtedly be an honorable competition, and there is nothing under heaven to prevent us engaging in this honorable contest, that we are aware of—except the will to do so. While we are quite disposed fully to admit all the good qualities of our elder brothers south of line 45°, and indeed to feel their good qualities creditable to us; as relatives, we will not for a moment admit that we are inferior to them in any respect, that would prevent us competing with them in the honorable and patriotic contest of improvement of our country and our

condition, and with a very fair chance of being successful, if we only commence the contest at once, before our friends are too far a-head of us. We should be sorry to suppose that our lot being cast on the north side of line 45° should render us inferior to our friends on the south side of that line, and we hope there is not an inhabitant of Canada who would admit it to be the case, and if there are any who do admit it, they cannot estimate their country very highly. We should be very unfit to act in the capacity of Editor of this Journal, if we had not the most favorable opinion of this country, and of its capabilities for an improved system of husbandry, and with profit to the agriculturist. Our opinion, of course, may have no influence with others on this subject; but we shall be always ready to defend this opinion, and show the grounds upon which we have formed it. There may be obstacles that act as discouragements to agriculture, but we maintain these can be overcome by our own exertions properly organized, and united. This is an agricultural country, and the population, in the proportion of seven-eighths perhaps, are farmers or engaged in husbandry. What should prevent them under such circumstances, from doing all that would be necessary for the interests of agriculture? Any plan of improvement that agriculturists unite in supporting, they cannot fail to be able to introduce, because it is in their power to do so. They have, therefore, no reasonable cause of complaint, when they can remedy any evil they have to complain of, and introduce any improvements that are desirable for the general good. The "Associations of Agricultural Credit" we again recommend for consideration, and shall do so continually until it can be satisfactorily proved that they would not be beneficial, but injurious to the country. Building Societies have been incorporated for the purpose of enabling parties to build houses. Parties who have borrowed money to build can better explain their advantages than we can. But of this we are certain,

that capital employed for the improvement, and to increase the productions of agriculture would be much more beneficially employed for the general advantage of Canada, than in building houses, or extending cities. The plan of "Associations of Agricultural Credit" is not to be rejected on slight grounds, without examining the system thoroughly, as it is reported to be in successful operation in other countries. If the system could be introduced here, for the advantage of agriculture, we cannot see why they should be denied this advantage. The experiment could first be made on a small scale, to see how it would answer. Conducted upon the same principle as in Europe, it could not fail to produce an improved system of agriculture, as no farmer could obtain any accommodation from it, if he did not cultivate his lands properly. We trust, for the sake of agriculture, and those who are dependent upon it, that this subject will receive the most serious consideration, and that it will not be rejected, to favour other interests, without sufficient cause.

We have much satisfaction in reporting, that several County Agricultural Societies have ordered a number of the Agricultural Journals, in both English and French, for distribution in their respective Counties. The following are the Societies:—The Quebec, Gaspé, Nos. 1 and 2 Drummondville, Sherbrooke, Richelieu, No. 1 Rouville, Berthier, Nicolet, Dalhousie District. One of the gentlemen of the County of Richelieu Agricultural Society informed us that each party who received a number of the Journal, was obliged to make its contents known to his neighbours, and keep the Journals safe to the end of their term as Directors of the Society, and then deliver them up to the next Directors, to be kept together for the use of the Society. If all the County Societies were to act thus, the Journal would be well supported, and we believe it will be admitted that much useful information would be circulated throughout the

country by this means. It is only now that the benefit of publishing an Agricultural Journal is becoming known, and we confidently hope that all the advantages that were expected to be produced by those who first organized the Lower Canada Agricultural Society, will be fully realized to the country in due time. It is not to be expected that the general improvement of Canadian Agriculture could be accomplished in a year, or in many years, but a commencement has been made with the most favourable prospect of ultimate success, if persevered in with united energy. Of course the Society requires to be supported by the farmers, and by public opinion, and while their object is the improvement of Agriculture, they may reasonably expect this support. As to Agricultural Societies, who receive public money to encourage the improvement of Agriculture, we cannot see how they could employ, suppose £5 annually, better, than by taking 20 numbers of the Agricultural Journal for distribution, as premiums or otherwise, in their respective Counties. As we have repeatedly observed, if the Journal is not so useful as it might be, those who can improve it, may communicate their ideas to us, and we shall be happy to give them insertion, for the benefit of farmers. The Journal is the proper medium for communicating useful and practical information to the agricultural population. It must be very badly managed indeed, if it does not contain, in a year, information that would be of much more than five shillings value to any farmer, however competent he may be. We have the very best publications on Agriculture, that can be had on this continent, or in Europe, to select from, and with our own practical knowledge as a farmer, and the communications of our friends, it would be strange if we were not able to make the Journal worthy of encouragement. This Journal is exclusively devoted to agriculture and its interests. Can it be possible that it should lack support in this agricultural country.

THE FRENCH FARMERS.—I was in the midst of the land of grapes, travelling for miles and miles, and day after day, through vineyards loaded with their products, and seeing hundreds and hundreds of men, and women, and children, gathering the most abundant harvest which has been known for years. I have never seen, so far as they have come under my observation, a more civil, clean, well-dressed, happy set of people than the French peasantry, with scarcely an exception; and they contrast more strongly, in this respect, with the English and Scotch. I seldom went among a field of laborers in England or Scotland, especially if they were women, without some coarse joke, or indecent terms; and seldom without being solicited "to drink your honor's health;" and never, especially in Scotland, without finding them sallow, haggard, bare-footed, ragged and dirty. In France it is the reverse; they are well clad with caps as white as snow, or neat handkerchiefs tied around their heads; the men with neat blouses or frocks, and good hats. I have scarcely ever seen a bare-footed or a bare-legged woman in France; let them be doing what they will, they are always tidy; the address of even the poorest (I do not at all exaggerate) is as polite as that of the best people you find in a city; and so far from ever soliciting money, they have repulsed it in repeated instances, when, for some little service, I have offered some compensation. Count de Courcy told me again and again, that even the most humble of them would consider it as an offence to have it offered to them. I do not believe there ever was a happier peasantry than the French; drunkenness is entirely unknown among them; and they are pre-eminent for their industry and economy. I went into one field, with a large farmer, where there were nearly a hundred, principally women and children, gathering grapes, and I did not see one among them, whom I should not have been perfectly willing to meet at the table, or in any other situation. I visited several plain substantial farmers, and several of the old nobility. They do not live in the same splendour as the English; they have not so many houses and carriages and servants; but they live elegantly. Their houses are most comfortable, and their tables are covered with more luxuries than I almost ever before saw brought together in the same abundance.—*H. Colman.*

POTATOES AND SALT.—Last spring I took a bushel of yellow potatoes from among the diseased ones, which had still a few good ends left. I put them into water saturated with salt. A pound was used; a larger quantity of water might have been saturated with the same quantity of salt. These tubers were set near other potatoes, not diseased. When taken up I had three bushels of good potatoes, and half a bushel

of diseased. This is a satisfactory result; inasmuch as the good potatoes set in the vicinity were half diseased. In two previous years I have had the same result; and I therefore think myself entitled to assert that the potatoe disease may be stopped by soaking the sets in brine. A pound of salt to two bushels is enough; the salt must be dissolved before the potatoes are put in, and the soaking must last for half an hour.—*Newman.*

RECIPE FOR LINSEED COMPOUND.—Perhaps the following, given me by an intelligent native of Norfolk, (the original county of box and linseed feeding,) may not be uninteresting or useless to some of your readers at the present season:—

Put 150 lbs of water into an iron cauldron, and let it boil, then add 15 lbs. of crushed linseed, the same to boil until the froth begins to rise, stirring it well; then add 50 lbs. o. crushed barley; boil it until it becomes of a consistency like brick earth, when it is fit for the mould, not forgetting to stir it the whole time. Should more than one copperful be wanted, let the fire be backed up with wet coals, closely beaten down until the compound is taken out; during this let the furnace door remain open. When the compound is put into the mould, have a small piece of board like a bricklayer's hawk, and pat it down to level it; then replenish the copper, break up the fire, close the furnace door, and the water will boil very soon: in the meantime, the man to turn the compound and lay it on shelves, similar to bricks on a hake.

A different method must be observed in boiling compound, consisting of crushed beans, peas, barley, and linseed, viz.: put 150 lbs. of water, add 15 lbs. of linseed, and boil them as before; then add 17 lbs. of beans, and 17 lbs. of peas; boil them 20 minutes, stirring them continually during the time; then add 17 lbs. of crushed barley—the whole to boil until they become of the consistency before mentioned.

DIRECTIONS FOR MAKING MOULDS.—Take a piece of deal six feet long by nine inches wide, with sides and ends four inches deep, made rather slooping, with twelve partitions in it, the lower edge next to the bottom being twice the thickness of the upper one. Three of these are sufficient for the quantity above mentioned.—The compound will keep good for three weeks.

ON MAKING BUTTER.—The best land for grazing is old pasture, as free from weeds as possible, with abundance of good water. The cows should never be fast driven, heated, nor tormented in any way. They should be housed at night, fed on green food, and the pasture changed when practicable. When going to milk, take saltpetre in the pail, one-eighth of an ounce to every eight quarts of milk.

The dairy should be kept very clean and airy and as near the temperature of 50° F. as possi-

ble, with very little light, and completely shaded from the sun, in summer, by trees, or otherwise. Strain the milk into coolers sweet and dry, (never mix warm and cold milk,) keep it from two to four days, then put the whole of the milk and cream into a clean churn, which is not used for any other purpose but the one intended. Boiling water is to be added to raise the temperature of 70°. Care should be taken not to continue churning beyond what is absolutely necessary.

After churning, put the butter into two bowls or pans of pickle, made from pure water and fine rock salt, dried in a stove or by the fire, as common salt, obtained from springs or ocean, gives the butter a bad flavour. It should then be well washed, and the pickle changed frequently, until all the milk is extracted, working with the hand the two parcels alternately, until the grain becomes quite close and firm, when it is to be cured with the finest dried rock salt and sugar, in the proportion of one ounce of refined sugar to a pound of salt to be worked into the butter with the hand, until the pickle is driven out. The butter should be finished the day it is churned, and then packed as closely as possible into a cask, if it is not intended for immediate use, which should be well seasoned, for some days previous, with strong pickle, frequently changed. The cask should be strong and air-tight, and if not filled at one churning, the butter should be covered with pickle until the next; but no cask should contain more than one week's churning. If the butter should, at any time, appear pale in colour after the churning has commenced, a little grated carrot juice may be added, which will not injure either the butter or milk.

AUCTION SALE OF FRUIT TREES, &c.

THE undersigned is authorised by the Proprietor of ROSEBANK NURSERY to state, that, as early after the opening of the navigation in spring as possible, there will be a Sale by Auction, in this City, (similar to that which took place this fall) of Apple Trees, a fine assortment of suitable named sorts.

Pear,	do	do	do
Plum,	do	do	do.
Cherry,	do	do	do.

TOGETHER WITH

Raspberry Bushes, Strawberry Plants of fine named sorts, Roses, and various Ornamental Trees and Shrubs.

The healthy condition of these Trees and Plants, and the accuracy of their names, may be depended upon, and the sale will take place in good time for subsequent spring planting, which is the safest, at any rate, in all northern climates.

JOHN DOUGALL,
Montreal Witness Office,
Agent for Rosebank Nursery.

Montreal, November 30, 1849.

CANADIAN GLASS MANUFACTORY,

NEAR SNYDER'S LANDING, VAUDREUIL,
Erected and carried on by Messrs. Baden
& 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 Stainers—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. LACHAPPELLE, Sault au Recollet.
WM. EVANS, Sec. L. C. Ag. Society.
JAMES SOMBERVILLE, Lachine.
EDWARD QUINN, Long Point.
T. E. CAMPBELL, Major, Civil Secretary.
HUGH BRODIE, Cote St. Pierre.
P. F. MASSON, Vaudreuil.

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.
Dr. Grosbois, M. D.....Chambly.
Dr. J. H. R. Desjardins.....Green Island.
Dr. Conoquy.....St. Cesaire.
Dr. De la Bruère.....St. Hyacinthe.
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All communications connected with this Journal, to be addressed, post paid, to the Secretary of the Society—WILLIAM EVANS, Montreal.

Annual Subscription for the Journal, five shillings.

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