

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distorsion le long de la marge intérieure

Blank leaves added during restoration may appear
within the text. Whenever possible, these have
been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées.

Additional comments:/
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

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

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

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

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 1.

MONTREAL, JULY, 1843.

NO. 7.

One of the principal objects for which the Lower Canada Agricultural Society were organized, was to obtain the establishment of Model Farms and Agricultural Schools. Several farms have been offered on certain conditions to the Society for this purpose, but we regret the funds at the disposal of the Society will not admit of their taking any action in this matter, even if they considered the terms upon which farms were offered to be favorable. A most essential requisite in a Model farm would be to have it favorably situated for inspection, and in a populous district. If the importance of such an establishment to the prosperity of the country was generally felt and admitted, we should soon have one as an experiment, but until this is the case, we need not expect it. We have always endeavored to convince our friends that such an establishment, well conducted, would very soon pay its own expenses, and we are satisfied this would be the case; but of course it would depend upon the establishment being under judicious management in every department. The great difficulty in carrying out this plan, is to persuade the community or a sufficient number of them, that Model Farms and Agricultural Schools are as necessary to promote the prosperity of the country, as colleges or common schools. Colleges and common schools are amply provided for from public funds, but not a shilling is given for the instruction of agriculturists in the art that provides food and clothing for our whole population. These great inconsistencies will cure themselves in time, but we may suffer in the mean time.

There is no hope for the due improvement of Agriculture, until it is estimated at its proper value, and this it never can be until it is universally admitted to be of the first importance in every country both to Government and people.

We give insertion in this number to a letter from our correspondent Rusticus on the cultivation of wheat. We have constantly recommended the cultivation of a variety of crops; indeed no good system of Agriculture can be carried on without this. We, however, are still of opinion that wheat ought to be the staple produce of Canada for exportation—provided we can produce it good in quality, and in sufficient quantity per acre to be profitable. We shall not be able to raise any other produce to the same extent we could wheat, that will be so suitable for exportation and be always sure to find a market at a remunerating price, which we consider five shillings the bushel to be. We may grow peas and beans for exportation, but both these crops are often as uncertain as wheat, and will not pay the farmers so well. The soil and climate of Canada are most favourable for wheat, and it is generally harvested so dry, and kept so safe by the farmer, that it is in a good state for exportation, when it is sold by him, although it is often otherwise before shipped by the merchant, from allowing it to get wet in its transit, and in loading in ships in our ports. The wheat-fly has undoubtedly greatly diminished our powers of producing wheat, but we may still, by proper precaution

grow a large quantity of Black Sea wheat. The price of oats and barley in the English markets, will seldom admit of our exporting either of these grains to advantage, and pay all the shipping and commission charges. Flax, hemp, cheese, butter, beef, and pork, might be exported if we produced them in sufficient quantity, but we do not, and it will be a long time before Canadian farmers will produce these articles in any great quantity and in the required perfection. They are, however, accustomed to grow wheat, and understand the management of it better than that of any other crop.

To the Editor of the AGRICULTURAL JOURNAL.

Sir,—It is with much pleasure that I observed, in the last number of your Journal, that a respectable member of the Society, and a subscriber to the Journal, has suggested the propriety of making some provision for giving instruction in the veterinary art. This appears to me to be the very best advice that could be given to the Society, and demands the highest consideration of the Executive of the Society. If the amount of farm-stock in this Province was properly known, and we assume that five per cent of the whole is lost per annum, by the united effects of accident and disease, which is a moderate enough calculation, including young and old, it would show an annual loss of a very large amount, which is not only ruinous to individuals, but is a very material loss to the Province generally; and if any means could be employed by which only one-half of such losses could be prevented, it would be the saving of much money,—far more than would be required to educate and establish a veterinary surgeon in every Township of the Province. It appears to me that this is a subject which should not be lost sight of, and, as it is one of public utility, it requires much deliberation in ascertaining the best means how such an establishment could be brought into operation. Veterinary science, and a knowledge of this art, have been considered of so vast importance in Europe, that almost every nation there has established one or more colleges or seminaries, for the diffusion of such knowledge among the people. And such establishments are

generally supported by the aid and patronage of their respective governments.

And to show that small beginnings should not be despised, the now Royal College of Veterinary Surgeons, at London, was first established under the Agricultural Society of Odiham, in Hampshire, in 1792. And I think six students were all that could be found to attend for the first session, under the direction of St. Bel, from the Royal Veterinary College of Lyons. The professor could not speak a word of English, nor the students a word of French, (a fix to begin with), but the difficulty was soon got over by the assistance of an interpreter. More recently, a School of Veterinary Medicine was founded in the Northern Metropolis of Scotland, under the aid and patronage of the Highland and Agricultural Society, which flourishes with prosperity under their care. Till upon the eighth day of March, 1844, the two establishments of London and Edinburgh were united and incorporated by Royal Charter, under the name and title of the Royal College of Veterinary Surgeons; while each establishment still continues to teach in the respective cities. With such examples of prosperity and success, from so limited and slender means of beginning as I have here referred to, I think the Provincial Agricultural Society of Lower Canada has got nothing to fear. Let them make a beginning, and there is not the least doubt but it will creep on and gather strength and encouragement by degrees, until it becomes a beneficial and useful establishment.

You threw out, Mr. Editor, a very laudable suggestion, that it might be of advantage, if a few of the very numerous class of young men who are educated as doctors would condescend to study the constitution and diseases of domestic animals. There is nothing to prevent them from doing so if they were inclined, for, in sundry instances, such men have forsaken their own profession and followed the veterinary art with distinction, and contributed much to its interest and success. This, however, happens but seldom, as many of our medical gentlemen believe that such condescension on their part would be far below their dignity, and ruin their reputation as human practitioners; forgetting that the most renowned physicians, recorded in the early history, practised upon the lower animals as well as upon their masters. And Hippocrates, the most celebrated

physician of early times, did not disdain to practise indiscriminately upon both the horse and his rider.

History mentions a time when the dissection of a human subject, for the purpose of anatomical information, would have been looked upon as an act of sacrilege, and would have cost any one his life who would have dared to do such a thing. Therefore, the lower animals were the only general source from which medical men, in those days, could learn any knowledge of the structure and functions of the animal economy; and the nomenclatures of the two professions are nearly if not identically the same. Also, the whole host of experimentalists, who have studied and investigated the laws and functions of animated nature, have, in most cases, made their operations upon domestic animals.

And when any new and uncertain medicine is brought into notice, its powers and effects are generally first tested upon some of the domestic animals, before it can be trusted in human practice. Yet, with all these facts before them, the human physician is generally too much of the gentleman to be a very successful veterinary practitioner. He will seldom condescend to do the drudgery and dirty work of the profession, but will entrust it to be done by others, who very frequently neither know nor care how it is done; such conduct will seldom fail of rendering the best medical treatment of no effect. This is an error also with many young men who have studied and passed as veterinary surgeons, but because of the dandified gentleman, they were unable to follow their profession, either with credit to themselves or benefit to their employers.

Young men who have got a liberal education, and been accustomed to manage and handle horses and other domestic animals from their earliest years, make the best veterinary surgeons, as their patients in the most of cases require to be subdued per force, before the simplest operation can be performed upon them; not so with the human patient, who is generally got over by persuasion and flattery. I may probably revert to this subject at some future day, and, in the meantime, the above remarks are humbly submitted for your consideration and publication, in such a manner as you may think proper.

And I shall remain, Sir,

Your most obedient servant,

SYLLABUS.

(For the Agricultural Journal)

THE DAIRY IN 1637

"The houres of milking, the ordering the milke, and the profits arising from the same," extracted from the 2nd Book, of the 3rd part of the "Way to get Rich," "A work generally approved, and now the fifth time much augmented, purged and made most profitable and necessary for all men."—London, 1637.

The best and most commended houres for milking, are indeed but two in the day, which is betwixt five and sixe in the morning, and sixe and seven a clocke in the evening; and although nice and curious housewives will have a third houre betwixt them, as betweene twelve and one in the afternoone, yet the better experienst doe not allow it, and say as I believe, that two good meales of milke are better ever than three bad ones. Now touching the milking of the cow, the woman must sit on the neere side of the cow, shee must gently at the first handle and stretch her dugges, and moysten them with water that they may yielde out the milke the better, and with lesse paine. She shall not settle herselfe to milk, nor fix her paille firme to the ground till she see the cow stand sure and firme, but be ready upon the motion of the cow to save her paille from overturning; when she seeth all things answerable to her desire, she shall then milk the cow boldly, and not leave stretching and straining of her teats, till not one drop of milke more will come from them, for the worst point of *Housewifery* that can be, is to leave a cow halfe milkt, for besides the losse of the milke, it is the onely way to make a cow dry and utterly unprofitable for the Dairy: the milke-maid whilst she is in milking shall doe nothing rashly or suddenly upon the cow, which may affright or amuse her, but as she came gently, so with all gentlenesse shall she depart.

Touching the well ordering of milke after it is come home to the Dairy, the maine point that belongeth thereunto is the housewives cleanlinesse in the sweet and neate keeping of the Dairy House, where not the least moate of any filth may by any means appeare, but all things either to the eye or nose so void of sowernesse or sluttishnesse, that a prince's bed-chamber must not exceed it: to this must be added the sweet and delicate keeping of her milke vessels, whether they be of wood, earth or lead, the best of which is yet disputable with the best housewives; only this opinion is generally received, that the wooden

vessel which is round and shallow is best in cold vaults, the earthen vessel principall for long keeping, and the leaden vessel for yielding of much cream; but howsoever, any, and all these must be carefully scalded once a day, and set in the open aire to sweeten, lest, getting any taint of sowerness into them, they corrupt the milke that shall be put therein.

But to proceede to my purpose: After your milke is come home, you shall, as it were, straine from it all uncleane things, thorow a neate and sweete kept syledish, and the bottome of the syle, thorow which the milke must passe, shall be covered with a very cleane washed fine lincen*, such an one as will not suffer the least moate or haire to go thorow it; you shall into every vessel, syle a pretty quantity of milke, according to the proportione of the vessel; the broader it is, and the shallower it is, the better it is, and yieldeth ever the most cream and keepeth the milke longest from sowering.

For your butter, which only proceedeth from the cream, which is the very hearte and strengthe of milke, it must be gathered very carefully, diligently, and painfully. And though cleanliness be such an ornament to a housewife, that if she want any part thereof, she loseth both that and all good names else: yet in this action it must be much more seriously employed than in any other.

To beginne then with the straining or gathering of your cream from the milke, you shall doe it in this manner: the milke which you doe milk in the morning, you shall with a fine thinne shallow dish made for the purpose, take off the cream about five of the clocke in the evening; and the milke which you did milk in the evening, you shall take off the cream about five of the clocke next morning; and the cream so taken off, you shall put into cleane, sweete and well leaded earthen pots, close covered,† and set in a coole place: and the cream so gathered you shall not keepe above two daies in the summer, and not above foure in winter, if you will have the sweetest and best butter, and that your Dairy containe five kine or more; but how many or few soever you keep, you shall not by any means preserve

your cream above three daies in summer, and not above sixe in winter. Your cream being neatly and sweetly kept, you shall churme or churme it on those usuall daies which are fittest either for your use in the house, or the markets adjoining neere unto you, according to the purpose for which you keep your Dairy.

Now for churning, take your cream and through a strong and cleane cloth straine it into the churme; and then covering the churme close, and setting it in a place fit for the action in which you are imployd (as in the summer) in the coolest place of your Dairy, and exceeding earlie in the morning or very late in the evening: and in the winter, in the warmest place of your Dairy, and in the most temperate houres, as about noone, or a little before or after, and so churme it, with swift strokes, marking the noise of the same which will be solid, heavy and intire, untill you heare it alter, and the sound is light sharp, and more spirty: and then you shall say that your butter breakes, which perceived both by this sound and the lightnesse of the churme staffe, and the sparkes and drops, which will appear yellow about the lip of the churme; then cleane with your hand both the lidde and inward sides of the churme, and having put altogether, you shall cover the churme again, and then with easie strokes round, and not to the bottome, gather the butter together into one intire lumpe and bodie, leaving no pieces thereof severall or unjoynd.

Now for as much as there bee many mischiefs and inconveniences which may happen to butter in the churning, because it is a body of much tendernesse, and neither will endure much heate nor much cold. for if it be overheated, it will look white, crumble and be bitter in taste; and if it be overcold, it will not come at all, but make you waste much labour in vaine, which faultes to helpe, if you churme your butter in the heate of summer, it shall not be amisse, if during the time of your churning, you place your churme in a paille of cold water as deep as your cream riseth and in the churning thereof goe slow, and be sure your churme be cold when you put in your cream: but if you churme in the coldest time of the winter, you shall then put in your cream before the churme bee cold: after it hath been scalded; and shall place it within the aire of the fire, and churme it with swift strokes and as fast as may be, for the much labouring thereof will keepe it

*NOTE.—A wire cloth fixed in the strainer is better.

†NOTE.—The cream should not be taken off the milk so soon, nor should it by any means be covered to exclude all air.

in a continuall warmth, and thus you shall have your butter good, sweete and according to your wish. After your butter is churned and gathered well together in your churne, you shall then open your churne and with both your hands gather it well together and take it from the buttermilke, and put it into a very cleane boule of wood, or pausion of earth sweetened for the purpose, and if you intend to spend your butter sweete and fresh, you shall have your boule or pausion filled with very cleane water, and therein with your hand you shall worke the butter, turning and tossing it to and fro, till you have by that labour beaten and washt out all the buttermilke, and brought the butter to a firme substance of itselfe, without any other moisture: which done, you shall take the butter from the water, and with the point of a knife scotch and slash the butter over and over every way, as thick as is possible, for this will cleanse and fetch out the smallest haire or moate, or rag of a strayner, and any other thing which by casuall meanes may happen to fall into it. After this you shall spread the butter in a boule thin, and take so much salt as you shall thinke convenient, which must by no meanes be much for sweet butter, and sprinkle it thereupon, then with your hands worke the butter and the salt exceedingly well together, and then make it up either into dishes, pounds or halfe pounds at your pleasure.

Touching the poudring up or potting of butter, you shall by no meanes, as in fresh butter, wash the buttermilke out with water, but onely worke it out cleare with your hands: for water will make the butter rusty; this done you shall weigh your butter and know how many pounds there is thereof: for should you weigh it after it is salted, you would be deceived in the weight; which done, you shall open the butter, and salt it well and thoroughly, beating it in with your hand till it be generally disperst through the whole butter; then take cleane earthen pots, exceedingly well leaded, lest the brine should leake through the same, and cast salt into the bottome of the same: then lay in your butter, and presse it downe hard within it, and when your pot is filled, then cover the top thereof with salt so as no butter be seene: then closing up the pot let it stand where it may be cold and safe; but if your Dairy be so little that you cannot at first fill up the pot, you shall then when you have potted up so much as you

have, cover it all over with salt, and pot the next quantity upon it till the pot be full.

Now there be housewives, whose Dairies being great, can by no meanes conveniently have their butter contained in pots, and therefore are forced to take barrells very close and well made, and after they have salted it well they fill their barrells therewith.

In your last number, I noticed two several descriptions of Dairies; above, you have an account of the way in which "the most discrete housewives of the olden time" managed their dairies. Much of their practice seems to have been good, and very little improvement has been made upon it, although two centuries have passed away. Our author, in his homely but forcible style, insists most strongly on the importance of practising "the virtue of cleanliness" in all the operations of the Dairy. There can be no doubt, that in the keeping of every thing connected with the Dairy "cleane and sweete," lies the greater part of the art of making good butter, and of keeping it in good order after it is made. Hitherto, Canada Butter has not stood high in the English Market; although, as you remark, "there is nothing to prevent the general production of good butter, were the proper means for its manufacture adopted." One great defect, which operated very materially against the character of Canadian Butter, was the want of a uniform standard of quality. It is probable, however, that should the packers of butter generally comply with the provisions of the Inspection Bill, this will be remedied. Both the makers and the packers should, during the next year or two, pay the utmost attention to the making and preparation of the butter for market, because the character which it is to obtain in the English Markets will, during that period, be decided. There is no good reason why our butter should not stand as high, and command as good a price, as Irish butter, were the same attention paid to it.

In your next, I will give you further extracts relative to the manufacture of cheese, "the next maine profit which ariseth from the dairy, of which there be several kinds, all of which have their severall orderings and compositions."

Yours, &c.,

RUSTICUS.

Montreal, 10th May, 1848.

To the Editor of the AGRICULTURAL JOURNAL.

Sir,—Though the exports of Canada have been greatly increased within the last few years, yet, it is a matter of regret that the staples are so few in number, and that this part of the Province contributes comparatively so little to swell their amount and value. This is generally and rightly attributed to the failure of the wheat crop, in consequence of the ravages of the fly. A considerable breadth of ground has this year, I understand, been sown with wheat, but principally of the Black Sea description. The flour made from this variety is not so merchantable in England, and though in favor with the bakers here, as being a very strong flour, it does not answer well for export, being very liable to cake and spoil. Such being the case, it is not advisable that large quantities should be raised, as these disadvantages operate very strongly against it. But, even were it otherwise, and under any circumstances, I question much the propriety of making wheat our sole staple. I am aware you will probably not coincide in opinion with me, but you have exhibited and expressed so much readiness to give insertion to the ideas of your correspondents, even when they do not happen to concur with you, that I am emboldened to express my dissent from the views conveyed in the following extract, from the summary for the month in your last number:

“It is very desirable to augment as much as possible our exportable produce, and wheat ought to be our chief product, provided we can grow it profitably.”

With the first part of this remark, there can be no ground for quarrel; on the contrary, it at once commands the approval of every one whose attention has been at all directed to considering the most effectual means of promoting the prosperity of the country, but I am not prepared to admit the doctrine laid down in the latter part of the sentence, at least in its full extent.

One of the greatest errors which can possibly be committed by a farming community, is, that of trusting for their means of subsistence to one particular article of growth, to the exclusion or neglect of others. The famine which swept over Ireland last season, decimating its inhabitants, and even reaching this side of the Atlantic, and leaving its mournful traces here, was a melancholy consequence of the reliance of the whole popula-

tion being placed on one article of food. So, in this portion of Canada, once so wealthy and prosperous, the undue prominence which was given to the growth of wheat was the cause of much of that distress and poverty which have been so long the lot of our farmers. So long as the land was unexhausted, and the wheat plant had strength to resist the attacks of insects, so long the farmer was prosperous, and abundance crowned his labors. But a change soon came; the productive qualities of the overburdened soil ran out; a destructive insect made its appearance, and the labor of the farmer met with no adequate return. The wheat crop proved a failure, there was no other crop to take its place, and poverty and want were the immediate results. These facts, I contend, should have the effect of inducing the farmer to pause, ere he again reverts to the old plan of making wheat the principal staple of his farm. It has of late years been a very uncertain crop, but still, as it always commands a price, it will be very difficult to discourage its culture, or procure, as one of your correspondents recommends, a temporary cessation of its being planted; yet, if it can be shown that other crops; as certain and nearly if not quite as profitable, can be grown, it becomes advisable to make the substitution.

Many other articles of farm produce might be profitably raised and exported. Of late years, the coarse grains have been in good demand; peas and oats, in particular, have been largely exported. A market for our butter is now provided, and cheese may also be made to a considerable extent. But, in addition to the articles above particularized, it has often been urged upon the attention of the public, that the most profitable articles we could raise would be hemp and flax. Our climate and soil are admirably adapted to their growth; hemp, in fact, grows so luxuriantly, that where it once gains a footing, it can hardly be kept down in our barnyards and byways. Why then should Russia be allowed to enjoy a monopoly of its growth? A beginning is all that is wanted. Were any one to lead the way, the example would soon be followed. It appears to me that the Society could not better promote the interests of the country, than by making the encouragement of hemp and flax one of its objects. Premiums should be offered, and the necessary apparatus for its preparation for

export or manufacture provided. Should the means of the Society not warrant these steps, private enterprise would soon supply the want, was there a certainty of meeting with due encouragement.

These hints are merely thrown out to direct attention to the subject, in the hope that some more competent pen will take it up, and represent it as its importance warrants. An increase both in the quantity and variety of our exports would, I conceive, be an evidence of the existence of a healthy state of agriculture; and it is in this view of the subject, that even were we assured of a perfect immunity from the ravages of the fly, I would regret to see our sources of prosperity narrowed and confined by dependence upon a crop liable to many casualties and uncertain at best.

Yours, &c.,

RUSTICUS.

Montreal, 9th June, 1848.

To the Editor of the AGRICULTURAL JOURNAL.

Sir,—If I understood you right, I observed, by your remarks in the April number of the Journal, that your first attention should be directed to the better cultivation of the soil, so as to prepare it for keeping and supporting a superior stock. Believe me, Sir, I fully coincide with this opinion, viz. that feeding and breeding must go hand and hand; and providing proper food for stock displays better taste and sounder judgment than either to improve or buy fine stock, without the means of keeping them as such. It will be only money spent in vain, accompanied by bitter disappointment.

This, however, is not the principle kept in view in Canada. For, in place of our Agricultural Societies awarding premiums for the best drained, best cleared, best manured, best fenced, and in every respect best cultivated farms, they spend their money, annually, in giving premiums for improved stock of every class, and double premiums for some descriptions of imported animals, without ever knowing whether their owners have a single day's keep sufficient for either them or their progeny.

And I remain, Sir,

Your most obedient servant,

SYLLABUS.

(From Boussingault's Rural Economy.)

On looking at this table we perceive that a medium crop of wheat takes from one acre of ground about 12lbs., and a crop of beans about 20 lbs., of phosphoric acid; a crop of beet takes 11 lbs. of the same acid, and further a very large quantity of potash and soda. It is obvious that such a process tends continually to exhaust arable land of the mineral substances useful to vegetation which it contains; and that a term must come when, without supplies of such mineral matters, the land would become unproductive from their abstraction. In bottoms of great fertility, such as those that are brought under tillage amidst the virgin forests of the New World at the present day, it may be imagined that any exhaustion of saline matters will remain unperceived for a long succession of years; for a succession of ages almost. And in South America, where the usual preliminary to cultivation is to burn the forest that stands on the ground, by which the saline and earthy constituents of millions of cubic feet of timber are added to the quantities that were already contained in the soil, I have already had occasion to speak of the ample returns which the husbandman receives for very small pains.* Under circumstances, in the neighborhood of large and populous towns, for instance, where the interest of the farmer and market-gardener is to send the largest possible quantity of produce to market, consuming the least possible quantity on the spot, the want of saline principles in the soil would very soon be felt, were it not that for every waggon-load of greens and carrots, fruit and potatoes, corn and straw, that finds its way into the city, a waggon-load of dung, containing each and every one of the principles locked up in the several crops, is returned to the land, and procures enough, and often more than enough, to replace all that has been carried away from it. The same principle holds good in regard to inorganic matters, which we have already established with reference to organic substances.

The most interesting case for consideration is that of an isolated farming establishment—a rural domain, so situated that it can obtain nothing from without, but exporting a certain proportion of its produce every year, has still to depend on itself for all it requires in the shape of manure. I have already shown, with sufficient clearness, I apprehend, how it is that lands in cultivation derive from the atmosphere the azotized principles necessary to replace the azotized products of the farm, which are continually carried away in the shape of grain, cattle, &c. I have now to show how the various saline substances, the alkalis,

*The first breaks of the early English settlers in North America are now either very indifferent soils, or they have only been restored to some portion of their original fertility by manuring; so that the supply of fertilizing elements is not inexhaustible.—
ENG. ED.

the phosphates, &c., which are also exported incessantly, are replaced. I believe that I shall be able, with the assistance of a chemical analysis, to throw light on one of the most interesting points in the nature and history of cropping, and succeed in practically illustrating the theory of rotations. In what is to follow immediately, I shall always reason on the practical data collected at Bechelbroun, and which have already served for the illustration of other particulars. My farm, I may say, by way of preliminary, is an ordinary establishment; the lands which have been brought by a system of rational treatment to a very satisfactory state of fertility, are not rich at bottom and originally, and they fall off rapidly if they have not the dose of manure at regular intervals, which is requisite to maintain them in their state of productiveness.

My first business was to determine the nature and the quantity of the mineral substances contained in my manure; and with a view to arrive at this information, I burned considerable quantities of dung at different periods of the year, mixed the ashes of the several incinerations, and from the mixture took a sample for ultimate analysis. The mean results are represented by:

Acids	Carbonic.....	2.0
	Phosphoric.....	3.0
	Sulphuric.....	1.9
Chlorine.....	0.6	
Silica, sand.....	66.4	
Lime.....	8.6	
Magnesia.....	3.6	
Oxide of iron, alumina.....	6.1	
Potash and soda.....	7.8	
		100.0

But our farm-yard dung is not the only article we are in the habit of giving to our land; it further receives a good dose of peat-ashes and gypsum. I here recall to the reader's mind that the mean composition of peat-ashes is this:

Silica.....	65.5
Alumina.....	16.2
Lime.....	6.0
Magnesia.....	0.6
Oxide of iron.....	3.7
Potash and soda.....	2.3
Sulphuric acid.....	5.4
Chlorine.....	0.3
	100.0

In the system followed at Bechelbroun, the farm-yard dung laid upon an acre contains 26 cwt. 3 qrs. of ashes. On our clover leas we spread the first year 7 cubic feet of turf-ashes; and in the beginning of spring of the second year, we lay on as much more, say 14 cubic feet, in all weighing about 2 tons. I do not take the 8 cwt. of gypsum which, in conformity with usage, the second year's clover generally receives, because I believe

this addition to be perfectly useless after the very sufficient dose of peat-ash which we employ.

The whole of the mineral substances given to the land in the course of five years per acre is as follows, viz.: Ashes contained in the manure and in the peat-ashes, 7624 lbs.; consisting of phosphoric acid 90 lbs., sulphuric acid 304 lbs., chlorine 4.5 lbs., lime 532.5 lbs., magnesia 135.1 lbs., potash and soda 339 lbs., silica and sand 4630 lbs., oxide of iron, &c., 353 lbs.

It is therefore easy to perceive, from the preceding data, that what with the manure and the ashes it receives, the land is more than supplied with all the mineral substances required by the several crops it produces in the course of the rotation. Let us cast a glance over these with reference to their mineral or inorganic constituents, as we have already done in so far as the organic matters are concerned; let us compare, in a word, the quantity and the nature of the mineral substances removed in the course of five successive years, in contrast with the quantity and the nature of the same substances supplied at the commencement of the series, and we shall find that the sums of the phosphoric acid, sulphuric acid, and chlorine, and of the alkaline and earthy bases of the crops, are always smaller than the quantities of the same substances which exist in and are supplied to the arable soil.

I shall institute the comparison with the rotation No. 1, which begins with potatoes; and further, with a continuous crop which, as the one that is most common and convenient, shall be Jerusalem artichokes. I have not thought it advisable to discuss the rotation No. 2, in which beet replaces the potato, because the ashes of these two crops are so much alike, that it may be assumed to be matter of indifference which of the two enters as the drill-crop element into the series. With reference to the Jerusalem artichoke, I shall only remind the reader that the piece of land where it grows receives a dose of manure every two years, in the proportion of 41245 lbs. per acre, which manure contains 2776 lbs. of mineral constituent. Further, in the course of each winter peat-ashes, in the ratio of 2700 lbs. per acre, are laid on the land; and that the stems are generally incinerated on the spot, and the ashes they contain returned directly to the soil.

It was at one time asserted, that in order to ensure to a crop of wheat the necessary quantity of phosphates, its cultivation was preceded by one of roots or tubers, or leguminous plants, which were supposed to contain a much less proportion of these salts. By reference, however, to the table of mineral substances, removed from the soil by different crops, the absurdity of such reasoning becomes evident. For example, beans and haricots take 20 and 13.7 lbs. of phosphoric acid from every acre of land; potatoes and beet-root from the same surface take but 11 and 12.5 lbs. of that acid, exactly what is found in a crop

of wheat. Trefoil is equally rich in phosphates with the sheaves of corn which have gone before it, and this large dose of phosphoric acid withdrawn from the soil, will nowise diminish the amount which will enter into the wheat that will by and by succeed the artificial meadow. It may be readily understood, that if the ground contains more than the quantity of mineral substances necessary for the total series of crops in a rotation, it is a matter of indifference whether the crops draw upon the soil in any particular order, and these succeed according to rules generally adopted for quite different reasons. It suits well, for instance, to begin a rotation with a drill crop sown in spring, and which consequently follows in our system the oats which closed the preceding rotation; it is a great advantage to be able to collect and cart out the manure during winter. Besides, the order is quite at the farmer's discretion, and there are places where, from particular reasons, quite another course is pursued. One part of the produce returns, as has been shown, to manure, after having served as fodder for the animals belonging to the farm. The inorganic matters are restored to the earth from which they came, deducting the fraction assimilated in the bodies of the cattle. Lastly, the whole of the wheat, and a certain amount of flesh will be exported, and with these a notable quantity of inorganic matter. Thus, in the above described rotation of five years, the minimum exportations of saline substances which must be removed from every acre of land, may be represented by 27½ lbs. of phosphoric acid, and from 36 to 45 lbs. of alkali; this is just so much lost for the manure, and as there is definitively found at the end of the rotation a quantity of manure equal and nearly similar to that disposed of at the commencement, it is essential that the loss of mineral substance be made up from without, unless it be naturally contained in the soil.

In my first researches on the rotation of crops, I stated that wherever there are exportable products, it becomes indispensable to keep a large proportion of meadow land, quoting, as an extreme case, the triennial rotation with manured summer-fallow. It is, in fact, the meadow which restores to the arable land the principles which have been carried off. This point, advanced upon analogy, is amply confirmed by the results of analysis.

I have examined, in reference to this question, the ashes of the hay of our meadows of Durrenbach, irrigated by the Saur. The analyses were made with ashes furnished by the crops of 1841 and 1842.

	I.	II.	III.	average.
Acids {	Carbonic.....	9.0	5.5	" 7.3
	Phosphoric....	5.3	5.3	5.5 5.4
	Sulphuric.....	2.4	2.9	" 2.7
Chlorine.....	2.3	2.8	" 2.6	
Lime.....	20.4	15.3	" 17.9	
Magnesia.....	6.0	8.3	" 7.2	
Potash.....	16.1	27.3	" 21.7	

Soda.....	1.2	2.3	" 1.8
Silica.....	33.7	29.2	" 31.5
Oxide of iron,&c.....	1.5	0.6	0.5 0.9
Loss.....	2.1	0.4	" 1.0
	100.0	100.0	100.0

No. 1 yielded 6.0 per cent. of ash.

No. 2 " 6.2 idem.

In admitting as the average yearly return of our irrigated meadows, 3666 lbs. of hay and after-grass for the acre, it appears that we obtain, from a corresponding surface of land, 2236 lbs. of ash, containing:

Acids {	Carbonic.....	16.3
	Phosphoric.....	12.1
	Sulphuric.....	6.0
Chlorine.....	5.7	
Lime.....	39.1	
Magnesia.....	16.1	
Potash and soda.....	52.0	
Silica.....	70.4	
Oxide of iron, and loss.....	4.2	
	231.9	

In reckoning, as I have done, the lowest annual exportation of mineral substance from one acre of arable land at 5.5 lbs. of phosphoric acid and 8.2 lbs. of alkali, (potash and soda,) there must, in order to make up for loss, arrive each year at the farm a quantity of hay corresponding to about 1800 lbs. for every acre of ploughed land, which would establish between the arable and meadow land, a relation somewhat less than 1 to ½.

In practice, the relation in question is sensibly less than that deduced from analysis; in some farms the meadow-land only occupies a fourth or fifth of the whole surface. When rye replaces wheat, the extent in meadow-land may be still more limited. It deserves notice, that I have supposed the arable land as destitute of proper inorganic matter, that all came from the manure, ashes and lime laid on, which is not rigorously true. There are soils containing traces of phosphates, and it is difficult to find clay or marl exempt from potash. Nevertheless, many clear-headed practical men begin to suspect that meadow has been too much sacrificed to arable land. In localities placed in similar conditions to those in which we are, removed from every source of organic manures, which, as I have shown in concert with M. Payen, are always furnished with saline principles, an attempt has been made to imitate what is done in more favored districts, where it is possible, for example, to add animal remains to the manure. The corn crops felt this new procedure; nor could it be otherwise. But now there is a reaction in the opposite sense, and I could name most thriving establishments, where one-half of the farm is in meadow. The ever-increasing demand for butcher-meat will further this movement to the great advantage of the soil. In consequence of our peculiar position at Bechel-

bronn, nearly half our land is meadow, which allows of a large exportation of the produce of the arable land. In applying the results of the preceding analyses, I find that each year, provided there is no loss, the hay ought to bring at least :

1254	lbs. of phosphoric acid,
627	“ sulphuric acid,
602	“ chlorine,
4155	“ lime,
1672	“ magnesia,
5456	“ potash and soda,
7312	“ silica.

This large amount of mineral substances is supplied by the meadows, which have no other manure than the water and mud thereby deposited, after flowing over the Vosges' freestone; they receive no manure from the farm, but are merely earthed with the sludge and mire borne down by the stream; these are real sources of saline impregnation. Meadows without running water ought not to be ranged in the same category, they only give the principles naturally contained in them; hence, they must be always manured every three or four years, and indeed, if not situate upon a naturally rich soil, are, according to my experience, very far from profitable.

The excess of mineral matters introduced into the ground over those that issue with the crops, an excess that ought always to be secured by judicious management, enriches the soil in saline and alkaline principles, which accumulate in the lapse of years, just as vegetable remains and azotized organic principles accumulate under a good system of rotation. By this, even in localities the most disadvantageously situate for the purchase of manure, temporary recurrence may be had to the introduction of such crops as flax, rape, &c., which being almost wholly exported, leave little organic residuum in the earth, and at the same time carry off a considerable quantity of mineral substance; circumstances which determine, as may be easily conceived, the maximum of exhaustion, and for that reason tend to reduce a soil becoming over-rich to what may be called the standard fertility.

In reviewing the chief points examined it will be seen, that as far as regards organic matter, the systems of culture which in borrowing most from the atmosphere, leave the most abundant residues in the land, are those that constitute the most productive rotations. In respect to inorganic matter, the rotation, to be advantageous, to have an enduring success, ought to be so managed that the crops exported should not leave the dung-hill with less than that constant quantity of mineral substance which it ought to contain. A crop which abstracts from the ground a notable proportion of one of its mineral elements, should not be repeatedly introduced in the course of a rotation, which depends on a given dose of manure, unless by the effect of time, mineral element has been accumulated in the land. A clover crop

takes up, for example, 77 lbs. of alkali per acre. If the fodder is consumed on the spot, the greater portion of the potash and soda will return to the manure after passing through the cattle, and the land eventually recover nearly the whole of the alkali. It will be quite otherwise if the fodder is taken to market; and it is to these repeated exportations of the produce of artificial meadows that the failure of trefoil, now observed in soils which have long yielded abundantly, is undoubtedly due. Accordingly, a means has been proposed of restoring to these lands their reproductive power, by applying alkaline manure. If under such circumstances carbonate of soda would act as favorably as carbonate of potash or woodashes, the soda salt, in spite of its commercial value, might prove serviceable, and deserves a trial.

The lime manures naturally promote the growth of plants of which calcareous salts form a constituent; but here a capital distinction must be made. A soil may contain from 15 to 20 in the 100 of lime, and still be unable to dispense with calcareous manure; because the lime is in some other state than as it exists in chalk, as in the rubbish of pyroxene, mica, serpentine, and the like. A soil of this kind, although replete with lime, might still require gypsum for artificial meadow, and chalk for wheat and oats. It is from the carbonate that plants of rapid growth derive the lime essential to them, as was established by the researches of Rigaud de Lille, researches which have been censured by agricultural writers to whom they were unintelligible. I advocate the opinion of Rigaud, because in the Andes of Riobamba I have seen lucerne growing in augitic rubbish, very rich in calcareous matter, and yet greatly benefited by liming.

The operation of gypsum is to introduce calcareous matter into plants. This I have endeavored to demonstrate from the analysis of the ash on the one hand, and on the other, from the consideration that finely divided carbonate of lime, as it exists in wood-ashes, acts with equal efficacy upon artificial meadows. By what means gypsum, if it does not enter the vegetable as a sulphate, parts with its sulphuric acid, is at present conjectural. It appears highly probable that calcareous matter is chiefly beneficial from the particular action it exercises on the fixed ammoniacal salts of the manure, transforming these successively, slowly, and as they may be wanted, into carbonate of ammonia. In the most favorable condition, the earth is only moist, not soaked with water, but permeable to the air. New researches will perhaps illustrate the utility of ammoniacal vapors thus developed in a confined atmosphere, where the roots are in operation. At least, it would be difficult to assign any other office to chalk in the marling or liming of land intended for corn, when we know how little lime corn absorbs. If, indeed, gypsum promotes the vegetation of trefoil, lucerne, sainfoin, &c., by furnishing the useful calcareous element, it could not

fail to exercise an equally favorable agency upon wheat and oats, did they require it. The experiments adduced prove it not to be so, and their results are in some measure corroborated by analysis. Thus, if we compare the different quantities of lime withdrawn from the soil by trefoil and corn, we find them as follows :

The clover crop takes from 1 acre of ground nearly 70 lbs. of lime.

Wheat	"	"	"	16	"
Oat	"	"	"	6.4	"

With this comparison before us, it seems evident that if the marling and liming of corn lands had no other object than the introduction of the minute portion of lime which is encountered in the crops, it would be difficult to justify the enormous expenditure of calcareous carbonate which is proved by daily experience to be advantageous.

It may be inferred from the foregoing, that in the most frequent case, namely, that of arable lands not sufficiently rich to do without manure, there can be no continuous cultivation without annexation of meadow, in a word, one part of the farm must yield crops without consuming manure, so as to replace the alkaline and earthy salts that are constantly withdrawn by successive harvests from another part. Lands enriched by rivers alone permit of a total and continued export of their produce without exhaustion. Such are the fields fertilized by the inundations of the Nile; and it is difficult to form an idea of the prodigious quantities of phosphoric acid, magnesia, and potash, which in a succession of ages have passed out of Egypt with her incessant exports of corn.

Irrigation is, without doubt, the most economical and efficient means of increasing the fertility of the soil, out of the abundant forage which it produces, and the resulting manure. Plants take up and concentrate in their organs the mineral and organic elements contained in the water, sometimes in proportions so minute as to escape analysis; just as they absorb and condense, in modified forms, the aeriform principles which constitute but some 10,000th parts in the composition of the atmosphere. It is thus that vegetables collect and organize the elements which are dissolved in water, and disseminated through the earth and the air, as a preparative to their being assimilated by animals.

PHILOSOPHY FOR THE WORKING CLASSES.—The *Liverpool Mercury* very justly remarks, "Those who desire the stoppage of trade cannot do better than riot; those who desire increased taxation, impoverishing their employers, and thereby lessening work, will riot; those who desire severe government, restrictive laws, and legal bloodshedding, will riot. But those who desire peace, and employment, and wages, and cheap food, will assist the middle classes in enforcing public economy and equal taxation, so that the limbs of industry may be free, and the fruits of industry may be enjoyed by all classes entitled to them."

GREEN MANURE INSTEAD OF DUNG.

TO THE EDITOR.

SIR,—Without disputing the facts laid down by some of our leading agriculturists, that a well-farmed estate ought to maintain itself in fertility, by keeping cattle enough to supply the land with manure, it may be not less worth consideration whether land, in this densely-peopled country, may not be better employed in feeding men, than beasts; and how far butcher meat, rather than grain and other vegetables, should form the subject of importation from less populous regions.

If the soil can keep itself in heart as well by green manure as by dung, it can certainly produce much more human food, directly, in the vegetable state, than ultimately as butcher meat, resulting from its consumption by cattle.

Thus, according to Professor Lowe (2nd edition, p. 632), one ton of turnips produces 14 lbs. of beef; and though, in our warmer climate, the average may be nearer 16 lbs., yet if, including mutton, we take it as high as 20 lbs.—that is, 11b. of meat per cwt.—still, as this cwt. of turnips contains 11 lbs. of solid food, the flesh is only 1-11th of the solid matter of the turnips, and this flesh itself is nearly $\frac{3}{4}$ water. Or, if we average the proteine compounds in turnips at 2 per cent, and in flesh at 25 (which is a little above the mean), the 2 lbs. of the proteine in 100 lbs. of turnips will give less than $\frac{1}{4}$ of the same in flesh meat. These averages are from Johnstone, who is not satisfied with them; and others have appeared since, still more in favour of the vegetable. But not to encumber your columns with needless comparisons and repetitions, we may take Mr. Lowe's results, as carefully attained, on the large scale, and even less in favour of our argument than Johnstone's. According to Mr. Lowe's (*Royal Agricultural Journal*, vol. 8, p. 225), 5-6ths of the nitrogenous proteine, or fleshening matter, in the food of cattle, goes to the dung, only about 1-6th remaining in the flesh of the animal; and of the carbonaceous, or fattening portion, this difference is still greater; consequently the produce of one acre, consumed *directly* as vegetable food, will feed full as many people as that of six acres converted into beef and mutton—a consideration of some weight in a country where the soil does not produce enough for the population.

But we must have animal food. Certainly; and why not import that wherein we have the produce of six acres concentrated into one, instead of corn and other vegetable matters now imported? Not as live cattle, which must be limited, and is costly; but the meat packed and *lightly* salted, so as not to draw out the juices and harden the fibre; but only in proportion to the length of voyage, allowing it time to mature or become tender for the market, retaining its juices and flavour. This is surely within the reach of chemistry. Still a large proportion of

butchers' meat will be always home-fed : the question is, how large ?

KEEPING THE LAND IN HEART, WITHOUT DUNG.

But next, how without cattle dung, is an estate to be kept in heart? This may not prove so great a difficulty as is supposed. Dung supplies the land with organic matter to feed the plant by the roots; the inorganic vegetable salts, and ammonia, to stimulate vegetation. The inorganic manures are easily obtained, cheap, and of light carriage. Ammonical and other nitrogenous manures, though not so abundant as the inorganic, are not difficult to obtain. Great quantities of ammonia are thrown away at the gas works; nitrate of soda and guano are not very costly; and woollen rags, hair, and other animal waste, may often be had. The bulky and weighty organic matters may be grown on the ground, and ploughed down, between crops, as green manure; drawing the organic elements from the air. And night soil, much stronger than cattle dung, as well in ammonia as in organic matter, will increase in proportion as the produce of the soil is eaten by men instead of beasts; as in China, where the population is dense, very few cattle are kept, and night soil is the staple manure.

There is a distinction to be borne in mind between animal and vegetable manures, that the former ferment alkaline (ammoniacal), the latter acid, and therefore require more lime than dunged land. But the lime thus employed is good for the land, and for the quality as well as quantity of the produce; with plenty of vegetable manure, to saturate its alkalinity, there is less danger of over liming. And by keeping the lime composited with earth, some months before using, it will be in a state of more intimate union with the soil, and consequently more congenial and wholesome, in its action upon the plant, than when applied fresh and alone. Land, exhausted by over cropping is not immediately restored to fertility by the addition of the materials withdrawn; but requires more or less time for them to become gradually diffused and incorporated. In composting, this is done beforehand; and manures thus applied are ready to act at once.

The vegetable salts may be supplied to the land in wood ashes; which might be largely and cheaply imported from Canada to great advantage, if free from duty; but potash, the one most in demand, may be obtained in inexhaustible quantity from our mountains of granite. The phosphates will doubtless continue to be supplied and increase by the importation of bones.

That well-manured land will do without lying down in grass, is manifested in the abundant produce of market gardens; some yielding from three to five successive crops in the year.

ROTATION OF CROPS.

The rotation of crops should present no more difficulty, in purely vegetable culture, than where

cattle are kept; although here all would be grown for the market. One-half of such an estate might be in corn and pulse, *i.e.*, wheat, barley, rye, oats, peas, and beans—here is sufficient variety for soil and climate. The root crops might comprise potatoes, turnips, carrots, parsnips; the green crops, cabbage, and other market vegetables, and even tares and clover for town stables and dairy houses. Of the green manures there is no want of variety; spurry, rape, mustard, buckwheat, lupin, to come in between crops; tansy, mugwort, comfrey, and many other herbs of heavier produce but of slower growth, to be grown perennially on the worst parts of the estate, to cut and carry to those which are under market tillage.

The green manures enrich the soil by drawing the organic elements from the air, and their inorganic, by their deep roots from the subsoil; and their amount would doubtless be greatly increased by supplying them with the cheap and portable inorganic constituents; and the condition and produce of the land proportionately improved. They should also be destructive or obnoxious to grubs and other vermin.

On this system of culture everything would go to market; there would be a quick return of money, and no outlay in cattle; consequently less capital would do, but more labour. It would differ from market gardening, in growing necessaries rather than luxuries; in the use of the plough, and the cheapest means of production, in competition with ordinary field culture, rather than forcing, out of season, for high prices; and in the self-supply of organic manure. And if not suited to large farms in the present state of public habits and opinion, and still less to the unreasonable follower of antiquity, may it not yet save from impending ruin such of the numerous class of small farmers whose skill and energy to make the most of all means within their reach are fettered by want of capital, whilst giving the public the advantage of five-fold market produce from the land thus cultivated? J. PHIDEAUX.

—*Mark Lane Ex. and Ag. Journal.*

"DEODORISED MANURES."

TO THE EDITOR OF THE MARK-LANE EXPRESS.

SIR,—I trust you will permit me, through the medium of your widely-circulating columns, to correct an erroneous impression upon a subject of vast importance to the interests of agriculture.

Your recent notices of my "Patent Deodorising Fluid," and my letter to Lord Morpeth on "Sanatory Reform and Agricultural Improvement," have caused several of your agricultural readers to address me; and one or two of them inform me that endeavours are made to persuade them that deodorised night-soil, and other deodorised manures, must prove injurious to vegetation, in consequence of the iron contained in the deodorising fluid.

I find that the parties making these endeavours

are persons interested in causing preference to be given to manures offered by themselves; but, without pausing to institute comparisons between offensive and inodorous manures—between manures, on the one hand, which are pernicious to animal health and wasteful of the elements of vegetation, and manures, on the other hand, from which the sources of injury to human life are removed, whilst the volatile essences of fertility are preserved, I will proceed to refute their misrepresentation by which the latter are sought to be disparaged.

I believe it is generally known that the fluid I use for the purpose of destroying the sulphuretted hydrogen, and other deleterious gases, and preventing the escape of ammonia and other volatile elements of fertility found in nightsoil, &c., consists of a salt of iron; but it is not equally well known, except among chemists and scientific men, that iron forms an exception to all other metallic salts—that it is, indeed, the only metallic salt friendly to man. Such, however, is the indisputable fact. Iron is found in wheat, and in trees and plants generally; and iron flows in our veins; it is found, too, in the most approved animal manures—in the dung of sheep, goats, and cattle. Iron, therefore, being found in the food of plants, in the plants themselves, and in the blood of those by whom such plants are eaten, it is obviously opposed to all evidence to contend that iron is injurious to vegetation. But even if the fact had been otherwise—if iron were pernicious to vegetation, none but ignorant or interested parties would contend that any injury could arise from manures deodorised by it, inasmuch as the iron contained in the deodorising fluid becomes decomposed by the sulphuretted hydrogen it overcomes, and the most minute chemical tests fail to discover any trace of it in the matter upon which it has discharged its office.

I have the honour to be, Sir,

Your most obedient servant,

CHARLES F. ELLERMAN.

80 and 81, St. Martin's Lane, April, 1848

CULTIVATION OF POTATOES FROM CUTTINGS.

EXTRACT OF A LETTER SENT BY MR. PEARCE TO A FRIEND.

In the spring of 1846, when the alarm of disease in potatoes was very rife, I referred to some old agricultural tracts, with the hope of gathering a few hints that might tend to alleviate the forthcoming distress of scarcity in this most valuable root. Finding in one of them a remark that led to the idea that a crop of potatoes might be produced from cuttings, I was struck with the singularity of the suggestion, and I determined to make an experiment agreeably thereto; and though it was then the middle of May, I considered that even the cuttings from the rows then growing might, if soon dibbled in, be successful. I therefore had ground dug up sufficient to plant fifty yards running in rows alongside of the then-growing rows, which were now from 12 to 14 or 15 inches high, and tolerably bushy and strong. From these growing rows I caused to be cut off, about the 10th of June, the strongest of their leaders or branches, so as to be about 8 or 10 inches in length; and they were immediately dibbled in singly, as cabbage-plants are, the dibble pressing some of the earth lightly against the plants, which were then well watered. They drooped for two or three days, as cabbage-plants do; but being well watered morn and eve, they began to look up the fourth or fifth day, and then showed, on examination, that they had begun to strike out very fine fibrous roots, and appeared very promising. Then followed earthing up; and in August they began to be vigorous rows of most healthy plants. The roots were found to be forming small tubers, and those new rows were nearly as high as the old ones. The result, to my great satisfaction, was that in the middle of October, 1846, both the old and new rows were dug up; and, save that the old ones had more large tainted potatoes than the new ones, there was little or no difference in size; and in respect to weight, the old rows produced very little more than the new ones.

I trust I shall not be thought sanguine in recommending this improvement, when I remark that, first, the poor man by adopting this plan will save one-half his stock of potatoes now usually planted by him in March; secondly, that the community will have distributed one-half of the potatoes usually planted in March throughout the kingdom, which may be applied for food; and thirdly, that the poor industrious cottager has the opportunity of growing crops of winter and early vegetables for full two spring months on half the land he has hitherto taken for his potato-crop in March.

AN EFFECTUAL PREVENTATIVE FOR HYDROPHOBIA.—In the event of a bite from an animal in a rabid state or otherwise, sponge and wash the part as soon as possible with clear water; then take good leaf tobacco, and make a bandage of it on the place bitten or lacerated; change the bandage three or four times a day for a week; his will effectually absorb and extract any poison that may have lodged itself in the part bitten. If leaf tobacco cannot be obtained, take strong manufactured cut tobacco, and use it in the same manner. In America, the Indians in their travels through forests and prairie lands always carry the leaf tobacco with them, and when they are bitten by serpents or other venomous reptiles, they use the leaf tobacco in the way described; and it is an invaluable antidote against hydrophobia and their fatal effects.—*Gloucester Journal*.

STABLE ECONOMY.

"Sir,—A few days since I had the pleasure of going through the stables of Mr. Dickinson the job-master in Curzon-street. I was much struck by the care with which everything was arranged in the way most likely to be conducive to the comfort and health of the horses; and thinking that a few memoranda might not be unacceptable at your adjourned discussion on the ventilation and warming of stables and cow-houses, I now trouble you with this note, of which you can make whatever use you think best.

"The stables were built by Mr. Dickinson. They are not on the ground, but on what in a house would be called the first-floor. Below are coach-houses, harness-rooms, a chamber where the air used in ventilating the stables warmed when necessary, and other buildings. Above are the stables. They open upon a broad covered gallery that overlooks the yard, and terminate in a gravelled incline leading down into it.

"On entering the stables you are met by no unpleasant smell; almost the only perceptible difference between the atmosphere within and without is that the former is rather warmer at this time of the year. It is to the arrangements which ensure this cleanliness and warmth that I wish to draw your attention.

"The stables are paved as nearly on the level as may be—allowing just sufficient fall to carry off the urine from the top to the foot of the stalls, which as usual is the lowest part of the floor, and from whence it slightly rises again to the wall. The urine is not allowed to trickle slowly down the pavement as it commonly does, to an open channel at the horse's heels, but from the top to the bottom of each stall run one, two, or more narrow grooves or gutters (I think of iron,) their upper edges being flush with the pavement. These quickly receive the urine and carry it to a larger channel running across the foot of all the stalls, and this again conveys it to a tank where these drainings are collected from all the stables to be used as required for agricultural purposes. Some of the grooves are covered with a flat piece of iron the breadth and thickness of common hooping—which lies lightly over them—kept in its place merely by some slight catch—allowing the urine readily to enter the groove, and merely excluding the small pieces of straw which are apt to get in and choke it. The grooves are in the form of the

letter V, angular at the bottom. I looked under the straw in two or three of the stalls and scarcely perceived any moisture. This rapid withdrawal of urine from the surface prevents evaporation, and mainly conduces to the sweetness of the stables; but what still more promotes this essential object in a constant circulation of fresh air throughout, provided for by a well-arranged plan of ventilation.

"Below the stables is a chamber, in which air passing over hot-water pipes is raised to any required temperature. From this chamber it is carried along the whole range of stables through a flue that runs nearly on a level with the floor and communicates with each at the end opposite the door. From this flue also others diverge at right angles, and carry the warm air along the wall at the head of the stalls. In each manger is a grated opening, which admits fresh air from the last flue almost at the horse's nostrils. To make room for this ample provision of pure air, and if necessary warm air, an escape is supplied to that which has been already used—which has passed through the lungs. Over each stable door is a lattice, like a Venetian blind, opening into a large flue carried along the top and the whole length of the gallery into which all the stables open; this flue again is connected with the chimney of the fire by which the pipes are heated. The hot air in the chimney passing upwards causes a constant draught, removing the foul air from the flue, and so directly from the stables, where the vacancy is immediately supplied by pure air from the flue above mentioned.

"By these means, Mr. Dickinson, told me, he had no difficulty in keeping a pure atmosphere, and an equable, wholesome temperature throughout his stables at every season of the year. The air supplied to them may of course be warmed or not at pleasure.

"In every other part of the stable economy similar attention is shown to health, comfort, and cleanliness—but without that affectation of over neatness—that excessive nicety which is often made a parade of—but which answers no really useful purpose, and adds materially to the stable expenses, Mr. Dickinson has evidently endeavoured to supply everything he thought really useful in the best and most complete manner, whatever might be the cost of it—but, at the same time, to carry out his plans as economically as it was possible, without impairing their efficiency. He is of opinion, and I doubt not justly so, that the money thus

spent has been well spent—that in the greater health of his horses—in the saving of labour, and in other ways, he is eventually a gainer in the pocket. Among those other ways I must not forget to mention the application of the urine drained from the stables. It is used as manure to grass land, mixed with water in different proportions according to the nature of the herbage. Whenever grass is mown, the manure cart immediately goes over the land administering fresh nourishment to the plants—the good effects are very perceptible, for by these means Mr. Dickinson said he had last year been able to mow one piece of ground over no less than ten times—and that he seldom did so less than seven.

“Without any reference to the health of the horses, this single fact (and I believe I state it exactly as it was told to me) would prove that a considerable sum may be profitably employed in carefully draining stables, and collecting those drainings which are now so generally wasted, but which, if properly husbanded and applied, are capable of adding so much to the produce of a farm.

“So perfect a system of ventilation, as I have attempted to describe, cannot, perhaps, be applied either easily or advisably; yet parts of it may not unfrequently be admissible—and, at all events, its great object, namely, the constant circulation of fresh air through the stable at a moderate and equable temperature, cannot be too constantly before the mind of every one anxious to have his horses healthy and in good working condition.

“I may just notice another contrivance, which, though perhaps not very material, has proved both beneficial and economical both here and in other places where I have seen it tried, and it is readily applicable anywhere. There are no hay-racks, but each manger is divided, and one part sunk lower than the other, and with a grated bottom, is used instead. Food is thus presented more naturally to the horses—their eyes and noses are not incommoded with dust and hay-seeds—and the hay is less wasted.

INFLUENZA AMONG HORSES.—Col. MacDouall informed the Council that a most simple and effectual mode of treatment for the influenza amongst horses (exhibiting itself by a severe cold, with inflammatory affection of the

nostrils and lungs) had been adopted, with unvarying success, by the Veterinary Surgeon to the 2nd Light Guards, the details of which Colonel MacDouall hoped, at a future meeting, to be able to lay before the Council; in the mean time, he might state that the plan consisted in keeping the bowels of the horses gently open, by administering one-fourth of the usual dose of medicine on four successive days, and, at the same time, in making such arrangements (by means of hay soaked in hot water, or otherwise) as would cause the horses continually to breathe the steam of hot water. The effect of this inhalation of aqueous vapour was, to keep the mucous membrane of the breathing organs in a state of continual discharge, by which the air-passage were kept free from accumulation, and the inflammatory symptoms rapidly removed. Not a single horse affected with this disorder had been lost in the regiment since the old system of bleeding, blistering, &c., had been discontinued; and the plan Colonel MacDouall then referred to had been adopted. and recovery was generally effected in a few days. Mr. Hudson, of Castleacre, having about seventy horses on his farms, had constant opportunity of observing the nature and progress of this distemper, and his experience fully corroborated the statement of Colonel MacDouall. Mr. Hudson had found the most successful treatment to consist in allowing rest to the horses, in giving them cordial balls, and in placing hot bran-mashes in their mangers; and, in order to promote perfect recovery in the horses laid up with the complaint, it had been his practice to allow them to remain for a fortnight or three weeks quiet, and without work.

NEW MANURE.—Edward Barker, Esq., of Budleigh Salterton, has invented and patented a new manure, which promises to be of great importance in agriculture. We have seen the specifications, but they are too long to republish, and are too technical to be generally understood. It will suffice to say that the manure has been analyzed and reported upon by William Herapath, Esq., the eminent chemist of Bristol, who states that one pound of it is equal to 10½ lbs. of farm-yard dung, judging from its nitrogen alone. He adds that it will be a highly stimulating and generally fertilising manure, applicable to all descriptions of crops. Messrs. Byers and Applin, of Devonport, have purchased the patent right.—*Western Times.*

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, JULY, 1848.

The Lower Canada Agricultural Society have been able to accomplish some of the objects for which they were organized. They have published an Agricultural Journal in both the English and French languages, which are circulated to the extent of between three and four thousand copies, and they have now opened an office in Montreal, and commenced an Agricultural Library, which is already furnished with several excellent books and periodicals, and open to all who are or may become members of the Society. We believe this Society is the first which has adopted this mode of promoting agricultural improvement in Canada, unaided by any grant of public money; and if agriculture is of any importance in the estimation of the Canadian community, they undoubtedly have claims to public support. The Society must stand acquitted of all motives of self-interest in organizing the Association, except so far as they may expect to participate in the general good that such a Society, properly conducted, would be calculated to produce to the country. It has been long and anxiously desired by the true friends of agricultural improvement and prosperity, to see such a commencement made as the Society have now been able to effect. It is true, that it is only a commencement, but it is evidence that the first and principal interest in Canada, has, at last, apartments open, where agriculturists may meet, discuss, and adopt, such measures as they may deem best calculated to provide for, and promote the general improvement and prosperity of agriculture. Those who might be disposed to look with indifference or contempt upon the small beginning that has been made to effect

an object of such vast importance to the Canadian people, should rather give their support, to ensure the full amount of good to the country which the Society might produce. This Society is organized upon the same principle as the great Agricultural Societies in England, Ireland and Scotland, which, it is universally admitted, have produced the most extraordinary improvements in British Agriculture. Our Society only requires the same support and interest in its prosperous working, that is afforded to the British Societies. It is unquestionable that the Society is capable of producing a vast amount of benefit in this Province, and if it should fail to do this, it will be in consequence of the want of adequate support. Who is so much interested in the general prosperity of the country, as to study, and endeavour to understand, what is necessary to make it so, or what might most conduce to its being so? Whoever is thus disposed, cannot fail to discover that the general prosperity of the country mainly depends upon its own resources, and that these resources are the productions of its soil, made abundant and excellent by judicious cultivation, and the necessary application of capital and labour. Experience proves that it is vain to expect general prosperity from any other source. This is not a time when we shall find any country disposed, even were it able, to give us anything we may require, without paying for it, and our means of payment can only be derived from our own productions. All expectations from any other source will be sure to end in disappointment. Our produce, annually created, will be the only provision in our power to meet our annual expenditure. Shall these self-evident facts interest the true friends of Canadian prosperity, to aid and support the Lower Canada Agricultural Society, in its disinterested and laudable efforts to produce this prosperity? Something more than silent approval, and assent to these propositions at our own firesides, will be required to enable the Society to work prosperously for the country. It is in vain that a

commencement is made, an agricultural periodical published and circulated, an office opened, a library furnished with agricultural works for members—if it is only to involve a few of the members in all the expenses that must necessarily be incurred for this. If the objects of the Society are not of such general interest as to make it desirable they should be fully accomplished, they should not occupy the time and attention of a few individuals, and it would be unnecessary for them to make this sacrifice. Under any circumstances, it will be essential to the useful action of the Society, that a general interest should be manifested in its favour by every individual who is sincerely desirous of seeing the objects it professes to have in view accomplished. We submit these observations to induce reflection on this subject—a subject which we are bold to say, is of greater importance to the Canadian population than any other whatsoever, though we fear it will be difficult to persuade many to be of the same opinion—if we are to judge by past experience. The greatest discouragement to any attempt made to produce general good by one or many, is, when support is withheld—because it is an evidence that the attempt is not considered worthy support—or expected to produce any benefit. The organization of the Society, and the rules and regulations by which they are governed, have obtained the seal of approval of the Government and Legislature by an Act of Incorporation. They have also obtained the approval of many gentlemen of rank and influence who have become Life and Annual Members of the Society. But with all these advantages, a general and hearty co-operation is necessary to secure the useful action of the Society—and if this is not afforded, their usefulness will be greatly circumscribed. If we have failed to represent this subject in its proper light, it is not from want of inclination to place it faithfully before the public. We are most anxious that the Society should work well and advantageously for the public good, and we have candidly stated the means that are necessary

to ensure their doing so—and we hope our appeal will be responded to.

AGRICULTURAL REPORT FOR JUNE.

The general character of the month, as well as the season, up to the 18th of June, has been dry, with occasional showers, and light rains, which, from report, appear to have been partial, some parts of the country having had very little rain. The grain crops, however, so far as we have had an opportunity of seeing, have a very healthy and promising appearance. There are some complaints of the ravages of the wire-worm, thinning the plants in many fields, and we believe this to be the case, but we shall be able to get over this deficiency, if the season continues favorable. We have always found a dry warm season the best for cultivated crops, particularly of grain. The meadows made very little progress for the first three weeks of June, and as this month has a great influence on the hay crop, we do not expect the crop to be an average this year in the neighbourhood of Montreal. A wet month of June is sure to produce a heavy crop of hay, and when the month is dry—the contrary. A full hay crop is very desirable in Canada, and we trust, if we do not obtain a full crop this year, we shall have sufficient for our wants, as we suppose farmers have cultivated more of root crops that will greatly lessen the consumption of hay. By all the reports we have received, a large quantity of wheat has been sown this year. We cannot yet say what the crop may be, as the sowing was not finished before the 15th of June. Farmers were cautious not to sow wheat before the 20th of May this year, and we believe very little was sown previous to that time. The most certain proof desired in the old countries of an improved system of farming being introduced upon a farm is when it is brought to produce excellent wheat where previously it was not grown or considered capable of growing it. It is well known here, that many soils of a light inferior quality

have been improved so as to yield good wheat, that were previously considered not worth cultivating for it. We believe, however, that on very light and inferior soils, other crops will be more profitable to cultivate than wheat, as there are abundance of excellent wheat lands in the country, and of the best quality. Barley looks healthy, but is thin of plant in many places. We have never seen oats look better, where sown early, and it has been sown earlier than usual this spring. Peas have a good appearance, though the few cold days we have had in the first two weeks of June, changed the colour of peas and Indian corn, but the heat and moisture which succeeded the cold and harsh winds have completely recovered them, and they never looked better at this time of the year. We do not recollect a more windy season than this has been, but we do not see any ill effects it has produced, except to check vegetation a little, which has now recovered, by rain and warm sun. The orchards have suffered considerably by caterpillars, and the fruit trees of the garden have been ravaged by a different variety of these vermin. Considerable expense must be incurred in preventing such vermin from destroying the trees. The oaks, and some other forest trees, are also being stripped of their leaves. We hope farmers have exerted themselves to have their crops weeded where necessary. It must be a great drawback to the value of a crop, when weeds are allowed to occupy the soil with the crop cultivated. It is a great defect in Canadian farming, that so many weeds are suffered to grow with the crops. The rains in the latter part of June, were of great benefit to the crops, and we hope they were general, and did not fall in too great quantity in any place. The hay crop was improved by the rain, but will still be a deficient one. The pastures are now excellent, where not greatly overstocked. The butter market is well supplied, and prices fair for buyer and seller. The meat markets also are well supplied and prices not exorbitant. We have heard reports of great injury being done to the crops north

of the River St. Lawrence by grasshoppers. We hope it may not be so bad as reported. It would be a great disappointment to the poor farmers to have their crops destroyed by those vermin, and if as numerous as reported, there would not appear to be any remedy against them. The result of the ensuing harvest is looked forward to with great anxiety by the public at large. An abundant harvest would do much for the country, to relieve it from embarrassment, and place our trade and commerce in a healthy state. What a vast difference to a country having an abundant harvest, instead of a scanty one. No matter though the prices may not be so high in the former as in the latter case, still there is a much greater quantity created and brought into existence for the use of man, from an abundant harvest than from a deficient one. Every friend to the human race will rejoice to hear of an abundant harvest, there is so much more to be distributed amongst the human family, than from a poor and scanty one. Good crops and cattle, can alone place our trade and commerce, and every other interest in the province, in a healthy and prosperous condition. To expect these advantages from any other source is as great a mistake as we can entertain. There is nothing discouraging in the present prospect of the crops that we are aware of. There are many casualties to which they may be liable before they are gathered, but we should not anticipate any of these casualties as likely to occur, as perhaps they never may. We have many reasons for perfect reliance upon the Giver of all Good who has prospered the crops so far, that they will continue prosperous to the end, and fill our barns and storehouses with abundance. When man performs his part well, the soil and the seasons seldom disappoint his reasonable expectations.—

Cote St. Paul, 29th June, 1848.

All such plants as vegetate in any soil where it is not desirable they should exist are termed weeds, because they must injure the crops which are cultivated there, by usurping their

place, and depriving them of a portion, and often a large portion, of that aliment which was destined for them, and hence exhausting the soil, as the roots of most weeds are much stronger, and extend more in the soil than the roots of useful plants. Wild mustard is particularly prevalent in this country, as in most other countries, and it is almost impossible to extirpate it. It comes up so abundantly in grain crops in Canada, that in pulling it out, as much harm is often done to the crop as there would be by letting it remain. Thistles, though very plenty, are not so injurious as some other weeds, as they may be weeded out, and by seeding down in grass they do not often remain after being cut at the proper season for one or two years. They can readily be banished from land under grass by cutting at the proper season.

THE OX-EYE DAISY is a most useless and troublesome weed, that has increased astonishingly in the neighbourhood of Montreal, within the last few years. We do not know a worse weed or one so difficult to get rid of. Having once appeared in a field, it soon spreads and takes exclusive possession, unless weeded out. Indeed we believe there is no remedy against it except by tilling and cropping the land; and when again laid down it soon appears. A very heavy crop of clover might, perhaps, check it, though we have our doubts of it. We have seen newly laid down land full of it—we would suppose from seed carried in some way to the field. Two or three years ago there was not one to be seen upon the farm we occupy, but this year there is not a field that has not some. There does not appear any remedy for this troublesome weed but careful tillage.

About this time is the most suitable for cutting thistles, and other weeds, growing on pastures, roads, and waste places, and if there was more attention paid to this most necessary duty, we would have much less weeds. Public works that have much waste land, are sure

to grow abundance of weeds, and if not cut down before they mature their seed, they will scatter them far and wide over the country, as we know they have done. The turnpike roads should also, as an example to others, have all the weeds upon them cut down in proper time. If the seed is perfectly formed before cut down, unless they are burned, the seed will ripen and scatter about as much as if perfectly ripe before cut. It is therefore necessary that weeds should be cut down when the seed is forming, or perhaps previously would be better. These matters, trifling as they appear, have more influence on improvement than is imagined.

The Lower Canada Agricultural Society owe their acknowledgments to the Catholic Clergy of Eastern Canada, for the support and aid they have afforded them, and for the valuable correspondence of many of them, on subjects connected with Agricultural improvement. The Society set a high value on communications from these reverend gentlemen, knowing that they are well acquainted with the state of husbandry throughout the country, and the best means for its amelioration, and that the information given may be relied upon, and the suggestions offered, acted upon without hesitation. We would respectfully invite such communications, and any suggestions which may be offered to promote the objects of the Society, shall obtain the most particular attention.

It will give the Society great confidence to know that the Catholic Clergy concur in their views, and co-operate with them in their endeavours to promote the improvement and prosperity of Canadian Agriculture.

MILCH Cows, after calving, frequently have the udders hard, and do not give the milk freely. When that is the case, frequent and clean milking, with constant rubbing the udder with the hand and luke-warm-water, will remove the flag or hardness in the cow's udder. Should it still remain, rub with an ointment composed of elder leaves boiled in lard. All farmers

should have some of this ointment by them, for use when required.

We have often recommended ashes as manure, and we regret to see farmers constantly selling ashes to manufacturers of soap and potash, instead of applying it to manure their own farms. In any way it can be applied, or to whatever crop, it is the most powerful manure that can be made use of. As a top-dressing to grain or grass, we are persuaded it will produce a greater improvement than an equal quantity of guano or gypsum. We have seen a report of an experiment made with guano and ashes. The first crop appeared better where the guano was applied, than that manured with ashes, but the second and third crops, where the latter had been applied, proved to be much the best crops. The expense of the guano and ashes were the same; 3 cwt. of guano was applied to the acre, and the same amount as was paid for the guano was applied to the purchase of ashes for an acre.

No better manure, we believe, can be applied for turnips, than clay or wood ashes. The land should first be ploughed, harrowed and properly prepared, and then the ashes spread, and harrowed in with the seed; or, if drilled, the drills may be formed after the ashes are spread. Farm-yard manure when applied to cultivated crops will generally produce more favorable results if ploughed in and mixed thoroughly with the soil than placed in drills under the seed. In this country where the seasons are generally dry and hot, this mode will be found to succeed best in almost every case.

Members of the Lower Canada Agricultural Society, or Subscribers to the Journal who have not yet paid their subscriptions, are requested to call at the office of the Society at Montreal, and pay the same as soon as possible, as the expense of employing collectors is very

considerable. Those residing at a distance are requested to pay the agents appointed in their vicinity, where there are such; and where the Society have no agents, the subscriptions may be sent by post to the Secretary, pre-paying the letters. The Society are under heavy expenses for the Journals, &c., and have no funds at their disposal but the subscriptions, a fourth of which have not yet been paid. Every exertion is made that the Journals should be useful to the subscribers, and if they are found so, we trust the trifling amount of five shillings will be paid without any delay.

TO REMOVE WARBLERS OR GRUBS OFF CATTLE.—Dissolve as much salt in warm water as the water will take up, and wash frequently with it, or with spirits of turpentine.

TO PREVENT THE RAVAGES OF INSECTS IN A FIELD OF PEAS.—Water with a solution of aloes, or American pearl ash.

SHORT HORN CATTLE.

It may be recollected that Mr. E. P. Prentice, of Albany, reserved from his public sale of Short-Horns, held three years ago, four of his best cows. These cows and their offspring, in all twelve, comprising the entire stock of Mr. Prentice, have lately been purchased by Mr. Geo. Vail, of Troy.

Mr. Vail's herd, with this addition, numbers about forty-five head, old and young, consisting of cows, heifers, bulls, and a few spring calves, and embodies, through his own importations, the strain of blood of the celebrated herd of Thomas Bates, of England, and through those recently purchased from Mr. Prentice, that of Mr. Whitaker, also of England.

This herd, as at present constituted, cannot fail to elicit the admiration of those who examine them, for symmetry of form, and superior handling and dairy equalities. For a proof of the latter quality, we refer to the "Transactions of the U. S. State Agricultural Society for 1844," page 215, where it will be seen that the Society's first premium was awarded to Mr. Vail for the largest quantity of butter made from six cows in thirty days. It then appears that six of his cows fed on grass pasture *only*, produced 262lbs. of butter in

thirty days, and that the average yield of milk per day was 22½ quarts for each cow.

As we are authorized to state that Mr. Vail will sell at private sale a portion of his present stock, consisting of cows, heifers, bulls and spring calves, an opportunity is thus afforded those who wish to improve their herds by communicating to them the best strains of blood of the most celebrated herds of Short Horns in England; and affording too to those who may purchase, an opportunity of exhibiting choice stock at the State and County Fairs to be held in the ensuing fall. By reference to the premiums awarded by the U. S. State Agricultural Society for several late consecutive years, the esteem in which his stock is held may be seen.—*Communicated.*

DIBBLE FOR TURNIPS AND MANGEL.—A round block of wood, like the nave of a cart wheel, and mounted between two handles like a wheel-barrow. In this block, dibble points, two inches in diameter, two inches long, and convex at the point, are inserted at eighteen inches apart.

When the drills have the manure in them, and are ready to receive the seed, a man should pass down the drill with a garden rake, removing the under surface, if there are any clods or turf, but in well-pulverized soil, this will not be required. Another man then follows with the dibble, which he wheels along the top of the drill, forming clean, smooth, and equal holes. A person then follows with guano (if that is the manure applied) and drops a little guano into each hole with an iron spoon, and with the spoon, draws a little mould over the guano. If guano is not used, the dibble points might be only an inch long. There are then three or four seeds put into each hole, and a person then follows with a hoe, drawing mould into the holes to cover the seed. The work is finished by a man drawing a light hand-roller, covering two drills at once.

By this plan much seed is saved; the only thinning required, is, to draw out the weaker plants when above ground, leaving the strongest, one in each hole. The hand now can be easily applied, to clean the ground of annual weeds. The distance between the holes, as well as the depth, can be regulated in the dibble, according to circumstances.—*Farmers' Gazette.*

TO PRESERVE WATER IN SEA CASKS AND CISTERNS.—Water may be preserved quite pure, either in long voyages, or in cisterns, by the addition of about 3lbs. of black oxide of manganese powdered; stir it well together, and the water will lose any bad taste it may have acquired, and will keep for an indefinite length of time.—*Christian Almanack, 1848.*

TIMOTHY GRASS.

This plant forms the "third" in our list of the grasses ranged in the order of utility. It is the "phleum pratense," or the "meadow cat's-tail" of botany an arundo, or a graunentypinum, growing in moist places. "Fleau de prés" (French), and called "cat's-tail grass," from the resemblance of the spike to the tail of the cat.

General character:—Calyx glumæ, one flowered, with two valves nearly equal, spreading at the top, pointed or awned, compressed, oblong, parallel, corolla two valved, shorter than the calyx, awnless, concealed within the calyx, the larger valve embracing the smaller; nectary of two scales, ovate, concave; filaments capillary, longer than the calyx forked at each end, oblong, linear, prominent; germen roundish, superior; stigmas feathery; styles capillary, reflex; seed solitary, elliptic, oblong, loose, clothed with the corolla, but separating from it; stem leafy; inflorescence, spiked or very densely paniced; flowers numerous crowded.

Essential generic character:—Flowers dispersed; calyx two-valved, containing two or three flowers, with a solitary floret, equal, awned, truncated, enclosing the awnless two-valved corolla; seed, clothed with the unchanged corolla, but loose and not united.

The English Flora enumerates six species of this grass, and of these only "one" claims the notice of the farmer, which is called "meadow cat's-tail;" and very often, "Timothy grass," from the name of the gentleman who introduced it by recommendation and example.

Specific character:—Spike cylindrical, very long; calyx abrupt, fringed and awned; culms erect, from one foot to three feet in height, according to the richness of the soil; the blunted spike resembles the fox-tail, but is harder, and different in colour and in the forked calyx; leaves lanceolate, pointed rough on the upper surface; sheath striated, smooth; flowers, crowded on partial subdivided stalks; root perennial, creeping, sometimes tuberous and bulbous. The whole plant varies much in many places from local influences, and along with some other grasses it often has a leafy spike by the seeds, germinating in wet weather without falling.

This plant constitutes the best grass on the continent of North America; and in Sweden it is much cultivated, and reckoned very productive, and more agreeable to cattle than any other grass. In our country it has rather undeservedly sunk in estimation, as being harsh, late, and yielding little aftermath, and from possessing no quality in which it is supposed not to be excelled by the fox-tail grass. This last observation must have proceeded from a very limited experience; for, for general purposes, and in a variety of soils and climates, it very far exceeds the fox-tail, and also in yielding readily an abundance of sound healthy seed, while many of the seeds of fox-tail

are abortive, and the plant is very shy of growth, and confined to the best cultivation. At the time of flowering, "Timothy grass" produced, on one acre, 40,837 lbs.—when ripe it yielded the same weight, but the quantity of nutritive matter was more than doubled—the lattermath yielded 9,528 lbs., and the same quantity of nutritive matter as at the time of flowering. 1,920 grains of leaves gave 80 grains of nutritive matter; and 100 grains of nutritive matter gave 74 of mucilage or starch, 10 of saccharine matter or sugar, and 16 of bitter extractive or saline matter. The ripe crop exceeds the flowering in value as 14 to 5, which circumstance gives great value to the plant for the purpose of hay. When these statements of comparative produce and value are admitted as an authority, it will be seen that cat's-tail-grass exceeds the fox-tail in every respect, except in the produce of the lattermath—an advantage that is much over-balanced by the greater produce and the ready growth of the Timothy grass. It thrives much on peaty lands, and in humid climates, and on all damp soils, and on those that possess a degree of loamy softness in their composition; and is unfit for hot sands, gravels, chalks, and hard sterile clays. With that exception, my experience on a great variety of soils, and for a long period of time, places this grass next to ray-grass for general utility. It grows readily and abundantly, and yields much seed of good quality. On very good lauds it has a tendency to produce a height of stems in the place of number, and the leaves are soon blanched and yellowed by rain in the making into hay; but the other grasses have a similar tendency, and they are all of them inferior to "ray-grass" in producing a crop of the greatest number of stems, of a moderate and equal height. The time of flowering is little if any later than the cock's-foot, fescue, or ray-grass; and for one crop of hay, or for two and three year's pasture, and for permanent purposes, the meadow cat's-tail must form a very considerable part of the seeds that are sown. A comparative trial of plants, on a scale of superior cultivation and refined management, can afford no criterion of general value. One plant will produce an abundance in such circumstances, but will fail when subjected to ordinary cultivation; and another, which shewed only a fair produce in the experiment, will maintain it more nearly in ordinary management, and take the place of others. For it does not follow that a superiority in one state of trial will attend the plant in other circumstances, which are probably more unfavourable to itself, and more agreeable to others.

The common "ray-grass," and the "meadow fescue," are superior to all other grasses in readiness of growth on the greatest variety of soils, in yielding a produce of the greatest general value in the points of bulk and of nutritive quality, and in affording the largest quantity of sound healthy seed, easily gathered and managed. Timothy-grass is equal to them in all respects save one—

the certainty of growth on gravels, sands, chalks, and clays. On damp soils and on cool loams it is equal to the above-mentioned grasses, and is superior to them in more points than one. But as an exception must be made in the case above stated, and which is of some value in the view of general utility, Timothy-grass must occupy the third place in the graduated list of useful graminaceous plants.

When used for one year in hay, and for two or three years in pasture, 6lbs per acre may be sown of the "meadow cat's-tail," and for strictly permanent purposes 2lbs. may be used.

AGRICULTURAL SCHOOL FOR THE COUNTIES OF BERKS, BUCKS, AND OXON.—A numerous and highly influential meeting of the leading gentry of the diocese of Oxford was held last week at the Bishop's residence, Cuddesden Palace. The Lord Bishop of Oxford, Viscount Barrington, M. P.; J. W. Henley, Esq., M. P.; J. H. Langston, Esq., M. P.; P. Pusey, Esq., M. P.; R. Palmer, Esq., M. P.; C. G. Dupré, Esq., M. P.; J. Walter, Esq., M. P.; Messrs. C. Carrington, junr., C. Mount, C. Eyre, H. Hamersley, W. H. Stone, and C. Tower, Esqrs.: the Venerable Archdeacon of the Diocese, the Revs. C. K. Keene, H. W. Majendie, W. R. Freemantle, J. E. A. Leigh, E. Hobhouse, &c., were present; when it was resolved to establish a school in connection with the Oxford Diocesan Board, for the purpose of offering a sound English education to the sons of farmers and others. The number of boys to be limited to 150, who are to be admitted upon an annual payment of £25. The right of nomination to be vested for life in the contributors to its funds. A Committee of noblemen and gentlemen, under the Presidency of the Bishop of the Diocese, has been framed for the purpose of collecting donations, and carrying into effect the objects of the meeting. Upwards of £1,100 has already been subscribed.

HARLESTON FARMERS' CLUB.—At a meeting of the above club, held at the Swan Inn, on the 17th instant, the subject for discussion was—"To what extent may artificial manure be advantageously used for root crops?"—Resolution: "It is the opinion of this club that on heavy land, of which this district chiefly consists, the quantity of farmyard manure usually applied to the root crop may be advantageously reduced, and a portion of artificial manure substituted for the same; and the evidence laid before the club on this question induces it to believe that the best artificial manure is superphosphate of lime, made in about the following proportion: 3 bushels of half-inch bones, 63 lb. of sulphuric acid, and double its volume of water, mixed with 8 bushels of burnt earth; the cost of which is about 16s. 6d. per acre.—FRANCIS DIX, Secretary, Dickleburgh, 5th month (May), 18th, 1848.

"LABOUR! What a debt of gratitude, of gratitude unpaid, and, I fear, too often unthought of, does the hand-writing on the wall mark up against us at the very mention of the word! Labour! What has it not effected, what has it not constantly effecting for us! Labour ploughs and digs and tills and cultivates the ground, and sows and reaps and gathers into barns, and grinds the corn. Labour builds the ship, and sails across the ocean, and penetrates the most distant climes, and encounters dangers and faces difficulties, and racks sea and land, to provide the food which we consume, and the clothes which we wear, and the jewelled ornaments which fashion calls for as an offering on its shrine. Labour erects the house, cuts the railway and the canal, bores the tunnel, rears the viaduct and the bridge, levels the mountain, pierces the rock. It weaves and spins, toils and works, plies the loom, strikes the anvil, thunders at the forge, wields the hammer, sinks the mine, raises the coal, and accomplishes everything, from the monster cable of the noblest of our wooden walls to the most delicate of silken threads in a lady's workbox, and from the loftiest pile of architecture to the scarcely perceptible eye of the smallest needle for which it is intended. In short, as the elephant with the same trunk tears down the stoutest tree in the forest and picks up a pin from the ground, so does labour procure for us the greatest and the least, the most important and minute, of the necessities of life, ministers to our luxuries, increases our comforts, and, with its ever inventive and untiring ingenuity, constantly widens the sources of our enjoyments and amusements."

On behalf of the possessors of this article unavailable in England but invaluable in the colonies, we would urge the formation of an Emigration League, for the purpose of aiding those who are willing to take their labour to a profitable market. The demand for labour is thus described in an article which appeared a short time since in the *Morning Chronicle* :—

"From a distant quarter of our empire we hear another cry of distress, but it is not for want of food, it is for want of labour. There, too, trade is at a stand-still, and all classes are suffering more or less from the dearth of that every thing which is causing so much distress here by its superabundance. In Australia they are boiling down cattle and sheep for the sake of the tallow, because they cannot get a sufficient number of men to tend their increasing flocks and herds. Large patches of cleared lands are allowed to lie fallow for want of labour; and we even hear of crops rotting on the ground, as there are none to reap them. Lately, an order was passed by the Council in Sydney to petition the Home Government to send out thirty thousand people immediately, and guaranteeing the payment of their passage from the colonial revenue; but this, they said, is only a drop in the bucket to our wants, and we should hail with delight the arrival of one hundred thou-

sand people this year, and would engage to find them immediate employment, with good wages and abundance of food. Shepherds and farm labourers were getting, by the last accounts, £30 a year and a free house, with a weekly ration of 10 lbs. of beef, 12 lbs. of flour, 2 lbs. of sugar, $\frac{1}{2}$ lb. of tea, $\frac{1}{2}$ lb. of tobacco, and 2 oz. of soap, for each man; while artisans were receiving from 6s. to 10s. per day wages in the towns where beef and mutton were selling at 1d. per lb., and other edibles almost equally cheap. In South Australia, also, there is the same outcry for shepherds, agricultural labourers, miners, mechanics, and the same high wages and cheap food are waiting those who can avail themselves of such blessings. Here, then, is a wonderful anomaly. In one part of Her Majesty's dominions there is a lack of labourers and an overflowing supply of food, while in another quarter the labour market is overdone, and the people have not enough to eat. Cannot these inequalities be made to balance each other? Cannot we send some of the starving poor of England and Ireland to eat up the surplus beef and bread of Australia? Surely nothing can be more simple, nothing more easy; here is a ready-made relief for the evil which must be attended to; there is no necessity for delays, no waiting for alterations of the law to admit of its being put into action; there are comfortable situations waiting those who go out, and employers eager to engage them; the question is, who is to bear the burden of the passage?"

In appealing to the manufacturers who were the promoters, and to a great extent the supporters of the Free-trade League, to carry out this scheme, we would remind them that the class of operatives now suffering from want of employment have been in some measure called into existence by themselves, and hence have a certain extent of additional claim upon their bounty. That the operatives have an anxious desire to emigrate is most conclusively proved by the fact that societies have been established amongst themselves to raise funds for the purpose of sending out emigrants; some mode, by drawing lots or otherwise, being adopted to determine who shall have the priority or first chances.

ABERDEEN TURNIPS can be sown from the middle of May till the middle of June, in drills 28 inches asunder, and thinned out to 12 inches plant from plant; being a softer and larger growing turnip naturally than the Svède, if allowed to grow too large and rank, it becomes spongy and hollow in the heart, and will not keep so well; it becomes necessary then to curtail it in its growth, as by that means it becomes more hard and solid. The distances above, experience shows, will attain that end, and the sooner they are thinned after coming into rough leaf the better.

AGRICULTURAL IMPROVEMENTS.

The Culhorn Grass Parks were let last week. The result of the set is a great encouragement to proprietors to improve their lands, and to all farmers to follow the example shown by Lord Stair, of *ploughing deep, cleaning thoroughly, manuring liberally, and sowing out with good seeds.* If good management is profitable to a proprietor, it must be doubly so to a tenant, who can perform all the operations with more economy, and with a more minute superintendence. That the improvement of the lands of Culhorn farm has been profitable to the proprietor is certain, for we have observed that he has had throughout superior crops of all kinds; and when the lands now came to be let in pasture, they yield a rental more than double of what they were let at in 1840, when Lord Stair entered on the Culhorn estate. We are enabled to give the former and present rents; and considering that a considerable part of the lands did not require the expense of draining, and were improved only by deep ploughing, cleaning, and manuring, the "contrast" of the former and present rents is very striking:—

	Former rent.	New rent.
Glenhappel field, 4th year's grass	£60	£155
Craignochs, 2nd year's grass, about	40	90
Gemekeeper's Park, 3rd year's grass	35	78
Clover field, 1st year's grass ..	28 10s.	66

We attended the set, and were much pleased to see the fine grasses upon the fields, after being two or three years in pasture, proving themselves the true perennial, by coming away as thick, and looking as green, as if they had been sown out last year. There is a great general improvement in Wigtonshire, of late years, in the selection of grass seeds, for we recollect when tenants were content to sow out their fields with any cheap rubbish they could get, from gentlemen's stables or from inns, and many did not sow grass seeds at all. But still there is an unwise economy in purchasing grass seeds; and sometimes, for the sake of 6d. a bushel, a tenant will sow an inferior article; and to save 5s. or 10s. on seed for a field, will incur £5 or £10 a year of future loss in inferior crops of hay and pastures. Lord Stair has taken great pains to suggest and recommend to his tenants in various ways the best modes of agriculture, but he has also taken the most effectual way of teaching them by example; and we are not sure but a walk through the Culhorn fields just now, will read a lesson as practically convincing as the best lecture of Professor Johnston or Dr. Murray, or even as the shrewd practical disquisitions which his lordship delighted so much to encourage in the Stranraer Farmers' Club.—*Free Press.*

DALE'S HYBRID may be sown a little later than the Aberdeens, and the same culture, distance, &c., apply to them.

SUBSOILING, MANURES, &c.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It appears from the remarks of Mr. Cherry made to the Royal Agricultural Society of England, and reported in your last week's paper, that he and probably many other farmers are not aware that subsoiling can be, and is, carried on without the horses treading either the loosened subsoil or the newly ploughed soil.

The manner in which it is practised here (Suffolk) for roots on light land is—the land is ploughed in three-rod lands, and, as usual, the subsoil plough follows the common plough. The subsoil plough (Reid's) is drawn by three horses, yoked to a steelyard whippetree. This whippetree is four and a half feet long, and has a fixed hook at one yard from the end, to attach it to the plough, with a moveable hook at each end for the plough horses. Holes, two inches apart, are drilled in both ends of the whippetree, ten holes in the longest end and five in the shortest. These are to allow the moveable hooks to be shifted to suit the draught of the horses; a bolt passes through the holes, and fixes the hook. The horse walking in the furrow is attached to the shortest end of the whippetree, and a pair, as in the common plough, to the longest end.

In order to prevent the trampling of the horses on the subsoiled land, the horses in the common plough walk on the *unploughed* land, instead of one walking in the furrow where the subsoil plough has just been. The line of draught is adjusted by altering the head or bridle of the plough. In shutting up the furrows, the horses are made to go at length in both ploughs instead of abreast as usual. All poaching the land is thus prevented.

Manures, &c.—The subject of manures and deodorizing substances having much attention drawn to them at present, I am surprised that the plan followed in many farm houses, which supplies a manure nearly, if not quite, equal to the superphosphate of lime, has not yet been mentioned.

Thus, erect a brick-walled bin about six feet deep, and let the house sweepings and ashes from the fires be mixed with the house slops, as urine, soap-suds, &c. This forms a mass not much unlike superphosphate, and containing the same useful constituents, viz., the phosphates in the urine, and the sulphuric acid in the ash. Besides the ash absorbing everything, it (from the sulphuric acid it contains) acts as a deodorizer in destroying nearly all the disagreeable effluvia. Where there is but little ash from the house, powdered gypsum (being a sulphate of lime), peat and clay ashes, and peat and wood charcoal, might also be used with advantage.

In some cottages the ashes are thrown down the water-closets. This, when sufficient ash is used, makes a stiff and comparatively inodorous mass

of excellent manure; but a very small quantity of ash just sprinkled over the mass has an excellent effect as a deodorizer.

Mr. Ayres has advised that town and other manures should be dried to a powder by fire heat, and has discovered that the smell caused in drying is destroyed by passing the steam through fire. This plan would only be useful in towns, and where the manure would require to be condensed to save carriage. It might be done in a small brick building "polmaised"—that is, where a heated current of air passes from the exterior through the fire (in pipes open at both ends or by other means) over a layer of manure, and then saturated with moisture, is drawn by an underground drain to supply all or more of the draught of this same fire. The gases and steam would not, I conceive, destroy the fire, as there would be a large proportion of air mixed with them, but would from their nature (sulphuretted hydrogen, &c.,) help to sustain it. W.

April 28th, 1848.

CO-OPERATIVE LABOUR AMONGST SMALL PROPRIETORS IN SWITZERLAND.

The proprietors are too small, in general, to keep more than five or six cows all the winter—few can keep half that number; yet the small proprietors continue to send cheese to market as large as our Cheshire dairy farmers, with their dairy stock of 40 or 50 cows, and farms rented at £200 to £300 per year. Gruyere and Parnesan cheeses are quite as large as Cheshire cheeses; and, as the price shows, are incomparably better in quality. They are made by small farmers, each of whom has not, on an average, the milk of half-a-dozen cows to make cheese of. Each parish in Switzerland hires a man, generally from the district of Gruyere, to take care of the herd, and make the cheese; and, if the man comes from Gruyere, all he makes is called Gruyere cheese; although made far enough from Gruyere. One cheeseman, one pressman or assistant, and one cow-herd are considered necessary for every forty cows. The owners of the cows get credit, each of them, in a book daily for the quantity of milk given by each cow. The cheeseman and his assistant milk the cows, put the milk together and make cheese of it, and at the end of the season each owner receives the weight of cheese proportionate to the quantity of milk his cows have delivered. By this co-operative plan, instead of a small-sized unmarketable cheese only, which each could produce out of his three or four cows' milk, he has the same weight in large marketable cheese, superior in quality, because made by people who attended to no other business. The cheeseman and his assistant are paid so much per head for the cows, in money or in cheese, or sometimes they hire the cows, and pay the owners in money or in cheese.—*Abridged from Laing's Notes of a Traveller.*

WOOL.

The increased consumption of foreign wool, and the progress made by the Colonies, will be seen from the following statement:—In 1816 the amount of foreign wool imported was 7,487,313 lbs., and from British possessions 6,422,484 lbs.; in 1843 the foreign was 23,110,741 lbs., and from the British possessions 21,132,352 lbs., an amount annually increasing.

Mr. Southey says—"To feed our large and growing exportations of woollens, as before exhibited, and at the same time to meet the present demand, very large supplies of wool are wanted, and these we should either grow within the United Kingdom, or obtain them from our Colonies, in preference to foreign countries, when it shall be found practicable. It is estimated that within the British Isles there are at the present time no less than forty millions of sheep, at an average of 4 lbs. per head, annually yielding 160,000,000 lbs. of wool, all which, in addition to 65,000,000 lbs., and in one year 75,000,000 lbs. of imported, our looms absorb: while many thousands amongst the working classes participate directly in the advantages arising from the employment which they thence derive." This statement will suffice to shew the great importance—nay, we would say the necessity—of encouraging, by all legitimate means, the growth of wool. Mr. Southey refers to the following observations of Professor Johnston in his valuable work on Agricultural Chemistry, and which being of direct and immediate interest to the practical farmer, we subjoin.

Professor Johnston says—"The growing of wool affords another beautiful illustration, both of the kind of food which animals require for particular purposes, and of the effect which a peculiar husbandry must strongly produce upon the soil. Wool and hair are distinguished from the fleshy parts of the animal by the large proportion of sulphur which they contain. Perfectly clean and dry wool contains about 5 per cent. of sulphur, or every 100 lbs. contain 5 lbs. The quantity as well as the quality of the wool yielded by a single sheep varies much with the breed, the climate, the cultivation, the food, and consequently with the soil on which the food is grown. The Hereford sheep, which are kept lean, and give the finest wool, yield only 1½ lbs., but a Merino often gives a fleece weighing 10 lbs. and 11 lbs., and sometimes as much as 12 lbs. The number of sheep in Great Britain and Ireland amounts to 30,000,000, and these yield 111,000,000 of pounds, or about 4 lbs. to the fleece. This quantity of wool contains about 5,000,000 pounds of sulphur, which is, of course, all extracted from the soil. If we suppose this sulphur to exist in and to be extracted from the soil in the form of gypsum, then the plants which the sheep feed upon must take out from the soil, to produce the wool alone, 30,000,000 of pounds, or 13,000 tons of gypsum. Now, though the proportion of this gypsum lost by any

one sheep-farm in a year is comparatively small, yet it is reasonable to believe that, by the long growth of wool on hilly land, to which nothing is ever added, either by art or from natural sources, those grasses must gradually cease to grow, in which sulphur most largely abounds, and which therefore favour the growth of wool. In other words, the produce of wool is likely to diminish, by lapse of time, when sulphur has for centuries been yearly carried off the land; and again, the produce is likely to be increased in amount when such land is dressed with gypsum, or other manure in which sulphur naturally exists." These observations may perhaps at first sight be deemed of too scientific a character to be practically useful; when, however, we reflect that daily experience proves the necessity of replacing those materials which plants *take out* of the soil, the scientific remarks of the Professor upon this subject will not be found inconsistent with the practical experience of others: the cases appear to us to be analogous. Mr. Southey has some valuable remarks under the head, "How to select Stock for Crossing." The main feature of the work is

devoted to a history of the rise, progress, present state and future prospects of our colonies generally, as regards the growth of wool. Every man who desires to possess an accurate knowledge of the character of the sheep and its wool, as found in the various quarters of the globe, should carefully peruse this work. All who wish to obtain information as to the capabilities of production which our colonies possess, should consult its pages. We recommend it with confidence to our readers, as a work from an examination of which they will get up with benefit and satisfaction.

COMPARATIVE VALUE OF THE SEVERAL BREEDS OF ENGLISH SHEEP.

We give the following interesting experiment, made by order of the then Marquis of Bath, (upwards of 50 years' practical experience) who, for that length of time, has proved the general correctness of the deductions to be drawn from it. It is extremely interesting, as showing even at that date, agricultural energy was rousing itself.

AN ACCOUNT of the progressive improvement in weight and value of a stock of sheep, of different kinds, kept together and folded for three years, by the Marquis of Bath, at Longleat, Wiltshire, in order to ascertain their respective merits for Wiltshire Husbandry, and afterwards fattened and killed together.

Sorts of Sheep, all being lambs of 1791, and put to the flock in July, 1792.	Average weight, July, 1792, when put to the flock.		Average Value, July, 1792, after being shorn.		Three years' wool, 1793-94-95.		Weight per sheep July, 1795, being folded 3 years.	Increase in weight per sheep.	Weight and Value of mutton when fattened and killed, Dec. 1895.			Improvement on the original value, including 3 year's wool.
	lbs.	s. d.	lbs. oz.	s. d.	Weight.	Value.			lbs.	£	s. d.	
LEICESTER.....	105	19 3½	14 11½	11 0	125	20	79½	£ 1 19 9	1 11 0½			
COTSWOLD.....	95	17 9½	15 12	11 9½	108½	13½	76	1 18 0	1 12 0			
WILTSHIRE.....	109	22 3½	10 0½	10 0½	141	22	83½	2 1 9	1 9 5½			
DORSETSHIRE.....	98½	18 6	8 9½	8 11	140	41½	82½	2 1 3	1 11 8			
MENDIP.....	95½	17 11½	10 6½	11 2½	136½	40½	82	2 1 0	1 14 3½			
SOUTHDOWN.....	92½	15 5½	7 15	10 4½	129½	46½	84½	2 2 3	1 17 2			

In this experiment regard must be had not only to the comparative improvement of each kind of sheep, but to the comparative quantity of food consumed by each, it being a well-ascertained fact that during the time they are kept in a working (or folding) state their food is nearly in proportion to their weight; so that not only 8 Southdown sheep have improved equal to 10 Dorsets, but the food that maintained 10 Dorsets would have maintained 15 Southdowns.

The object of this experiment was to determine what kind of sheep would best bear hard keeping and constant folding.

The above were kept on a tract of land of a very poor healthy nature, not worth three shillings per acre, and from thence driven to fold every night (chiefly on arable land) from one to two miles distant from their food. The result seems to prove that the smaller kinds of sheep are the hardiest. The small increase in weight of the Leicestershire and the Cotswold, during the time

they were folded, seems to shew that long-wooled sheep are not fit for that purpose. And as the three kinds of horned sheep (the Dorsets, Wilts, and Mendip) have increased in value nearly in an inverse ratio, with their original size, it seems that increasing the size of the animal has made them less hardy. This experiment also proves decidedly that the Southdown sheep are full as profitable to the grazier as to the farmer.

PROPER TIME TO TOP-DRESS WHEAT—BEST VARIETY OF SWEDISH TURNIPS.—"S.K.," Raphoc, asks our advice "as to the proper time for top-dressing wheat with guano, and the kind of weather that would suit best? Also, what variety of Swedish turnips you would advise being sown to insure a good crop?"—"This is the best time to top-dress wheat with guano, and before rain. Fettercain's is believed to be the best variety of Swedish turnip, but we think Laing's, or Skirving's, is just as good; the old purple-topped Swede we have always found excellent.

ASHES AS MANURE FOR ABERDEEN TURNIPS.—“A Subscriber,” Dunfanaghy, says—“You will oblige me by saying whether ashes alone will give Aberdeen turnips on bog. I have ashes in great abundance, but I think too much might be used, particularly as the ash is a deep red, and, I think, impregnated with iron and sulphur. There is no trace of lime in the ashes, and I think a mixture of one part in ten or twenty might be useful, as I believe sulphuric acid and lime make a valuable compound. You may expect a fine crop of Aberdeens on ashes alone—the red ashes are best; the addition of 20 barrels of lime to the acre will be of infinite service, but it should be well harrowed, or otherwise intimately mixed with the bog, before sowing the seed.—*Farmer's Gazette.*”

BEST MODE OF SOWING PARSNIPS AND MANGELS—“A Subscriber,” Ferbane, writes—“I do not quite understand the mode which you consider best to sow parsnips in. In your judicious comments on Mr. Armitage Moore's letter, in your last GAZETTE, you say that “your experience goes to prove that raised drills give the heaviest crops.” Are such drills made across ridges, and at what distance; or are they made without ridges, and in the ordinary way? I am going to sow mangels, and will thank you to let me know what you consider the best way of doing so? Do you advise ridges of five feet wide to be first made, and drills across, or do you advise them to be sown in drills 28 inches asunder, in the ordinary way, like turnips? My land is dug, of a fair average quality. When sowing mangels, parsnips, &c., in ridges, is the manure laid on as for potatoes in the lazy-bed way, or it is put into the little drills made across them?”—You must perceive that both Mr. Moore and Mr. Beamish speak of ridges or beds, and that they advocate placing the drills *across* the ridges: this we highly approve of, as it gives a greater facility to the operator, to do all the necessary sowings, thinnings, weedings, harrowings, &c., without once setting foot on the bed, which cannot be the case if the drills are run *longitudinally*; it has been our practice for years, founded on the above facts. But both these gentlemen recommend sowing the seeds in a rut or drill on the flat: Mr. B. opens those drills by the spade, Mr. M. makes them by pressure with the implement described by him. We advocate making the drills raised of the same form as turnip or potato drills are made by the plough, thus—



When the land is not thoroughly dry, beds will be best, and the drills formed at such distances asunder as will be suitable to the description of crop you grow—parsnips and carrots from 18 inches to 2 feet, and the plants thinned out from 6 to 8 inches plant from plant; and for turnips the drills to be from 28 to 30 inches asunder: if your land be firm and dry there is no need of making beds at all but from the drills in the usual way. As you are going to sow mangels (we recommend

you losing no time, as it is getting late for that crop) make your drills in the ordinary way, if your land be sound; if not thoroughly drained, make them across the beds, at from 28 to 30 inches asunder; dibble in the seeds immediately. When the plants are up remove all but one; when grown so as to encroach on the feeding ground of each other thin out every other plant, when they will stand at 15 inches asunder. If your land be rich, deep, and sheltered, we would advise dibbling in the seed at nine inches asunder, when, by removing every other plant, you will have than at a proper distance. As to the manure, that for parsnips should be dug or ploughed in early in winter, or, if given in the spring, it should be well decomposed. You are not to spread the manure *all over* the beds, as you usually do for potatoes in the lazy-bed way, but open the drill *across* the beds, deposit the manure in it, and immediately cover up, which will also be found the best method to grow potatoes in lazy-beds. We hope we have been sufficiently explicit, and are always anxious to set our brother labourers right when in our power.

BEST MODE OF APPLYING SOOT TO LAND.—“A Subscriber,” Limerick, asks “how soot should be applied to land in the most beneficial way? I believe it is of a stimulating nature, and should be used cautiously.”—For grain crops, soot sown previous to rain, at the rate of about 20 bushels per Irish acre, will be found of considerable value. Mixed with salt in the proportion of one-fourth its bulk, much improves its value as a top-dressing for grain and root crops; it is not approved of for pasture lands, particularly for milch cows, and its effects are scarcely visible after the first year.

QUANTITY OF BONES DISSOLVED IN SULPHURIC ACID REQUIRED TO MANURE AN IRISH ACRE—GUANO AS MANURE FOR TURNIPS.—“A Friend,” Dundalk, writes—“I intend to manure three acres this year with bones, for Aberdeen turnips; will you please let me know how many bushels will be sufficient for one acre (Irish), dissolved with sulphuric acid, and the quantity of acid required? As I am very scarce in farm-yard manure, I intend to put about 2 cwt. of Peruvian guano per acre, on top of the dung in the drills, would you approve of that as being my best course? I would use guano for all in preference to bones, if you would advise me to do so. My land is after growing an oat crop out of lea: it is rich loam, and in fair condition.”—Five bushels of bone-dust per Irish acre, dissolved with one-half their weight of sulphuric acid, will be sufficient. Your plan of drilling in 2 cwt. of Peruvian guano over your farm-yard manure is excellent; it is what all good agriculturists practice, since they have been acquainted with the use of guano. It gives an early braird, and puts the young turnip plant quickly out of reach of the fly. Bones is a more lasting manure than guano; we, therefore, would not advise you to use guano in preference to bones, but in con-

junction with bones it will have the same effects as with the farm-yard manure, and in this way we would recommend it. It will be necessary that you pound and break the guano fine, and pass it through a fine screen, in order to distribute it evenly; cover up immediately, and sow the seeds next day.

REMEDY AGAINST VERMIN IN HORSES.—"A Subscriber," Johnstown, "wishes to be informed of the surest remedy against vermin in horses."—To destroy vermin in horses wash with strong tobacco water, or rub with train-oil.

SOWING AND MANAGEMENT OF HEMP.—"F. H. C.," Cloghmakilty, writes—"I have a piece of ground prepared for hemp as I would for flax, but do not know the quantity of seed requisite for one-fourth of an English acre; neither do I know the sowing or after-management of it. Perhaps you would oblige me, as also your numerous readers, with some knowledge of the sowing, steeping, and dressing of hemp."—About three pecks of hemp seed will suffice for a quarter of a statute acre, sown broadcast, and the sooner the better, as it is getting late, the land should be rich, clean, and of fine tilth. It bears male and female flowers on distinct or separate plants; the male plants ripen sooner by a fortnight than the female, which may be known by their tops turning yellow, and should be pulled first. Its after-management is much the same as that of flax.

We would recommend your top-dressing your moor-land with the compost of lime, gravel and clay, and letting it stand over in grass for two or three years. By breaking it up then and putting it through a proper unexhausting system of tillage you can lay it down with every probability of success, but *not after a second crop of oats*. Soda ash is the best thing we know of for destroying the wireworm, sown in the proportion of four bushels per acre. Rolling is also an excellent practice. We never knew lime to kill them, having found them as active in limed soils as any other. We can see no objection to your picking the stones off your land if they abound too much, and unless there may be any fear of the porosity of the soil being injured, which cannot happen unless your land is a very stiff clay, we would continue to pick them off if they abound to such a degree, or are of a size to impede the perfect pulverization of the soil; if not, we think it is incurring unnecessary expense removing them, but probably they may pay for their removal as draining materials.—*Farmer's Gazette*.

PROPOSED NEW APPLICATIONS OF AMMONIA.—While I had it in contemplation to produce muriates of ammonia in such large quantities, I set on foot inquiries to determine to what new uses this salt could be applied. I ascertained that, if sold at a cheap rate—that is, under £20 per ton—it would supply a great desideratum for

washing sheep and wool, taking the oil out of woollen clothes, cleansing all greasy articles—as furs, skins, and hides—applied in this way. The muriate of ammonia to be mixed with a sufficient proportion of lime, and confined in a close vessel, having a pipe leading into water. A little heat applied will drive pure ammonia into the water—and thus a liquor of ammonia of any requisite strength, could be readily produced for all of the above purposes. At the tin I now refer to, guano had not been imported into this country. As the active agent in artificial manures, the consumption of muriate of ammonia may be said to be unlimited. My idea of using this salt as a fertiliser of land is, to allow some cheap, abundant green crop to remain upon the land at the end of autumn; to be then ploughed in with lime; and at the first dry weather in spring to sprinkle muriate of ammonia over it. The land would then be charged with all the elements of the purest stable or farm-yard manure.—*Mining Journal*.

THE DAIRY should now be in full and profitable operation, great care is requisite in the management of dairy stock, amongst which is clean milking, which is a certain preventive to sore udders; teats are often lost in this way, by which many valuable animals become useless to the dairy. Cows that have once slipped their calves should be got rid of, being subject to the occurrence again. The utmost cleanliness should be attended to in every thing connected with the dairy. Constant scouring and rinsing the dairy utensils is absolutely necessary, but we have found nothing so effective in extracting the stale, curdy, or oily particles out of the pores of the timber, as having a boiler large enough to hold the tubs, keelers, &c., and give them a good boil.—*Farmer's Gazette*.

DOMESTIC FLORA OF CHINA, No. 4—Cemeteries—I have before commended these articles. From the present one, the "outside barbarians" might learn something from the *inside* ones. Reading this account of the Chinese manner of disposing of their dead, brings up anything but pleasing reflections upon the burial places of this country; and almost makes me wish that I had been born to die in a country where my last resting place would have been in a grove of flowers, upon the bank of a gently murmuring rill, or on the sunny side of some repose-inviting hill. "The flowers which the Chinese plant on or among their tombs, are simple and beautiful in their kind." What a contrast between those of our country, covered with mayweed, mullein, hoarhound, burdock, and smart weed. And often located upon some waste piece of unenclosed neglected land.

"Ye living men, come view the ground
Where you must shortly lie,"
and say which are the greatest *barbarians*, ourselves or the Chinese?

TO FARMERS.

Why is it, that the effort and enterprize of the commercial and mechanical part of our population is crowned with so much success, while, with a few exceptions, compared with the great mass, the efforts of our farmers but just enable them to live? Is it not for want of the proper direction of their energies to the object sought? We hear daily of merchant princes, of manufacturers who accumulate immense wealth, of bankers who control large amounts of our circulating medium, and these several classes, with our professional men, are those who govern the affairs and direct the legislation of our country.

Why is it, that sixty-five thousand professional, and one hundred and twenty thousand commercial men, and eight hundred thousand manufacturers and mechanics, making in the aggregate less than one million, exert so much more influence than the four millions of our agricultural population? And why are we told that the farmers constitute so small a proportion of our several legislatures, when their interests are so much greater than that of all other Classes united?

The numerical and physical power in this country is largely in favor of agriculturists, and were their efforts properly directed, there is no reason why the influence they exercise should not be in proportion to this power. The number of farmers to be found in our legislatures at the present time may possibly be greater than formerly. Yet it is to be feared, that they are not always the best men who could have been selected; but that in some instances they are those who by their ambition rather than their merits, have gained these places of distinction, and who, if we may form an opinion by the result of their legislation, are controlled by others, and in many cases, like some who fill our country and town offices, are men who seek after office, rather than those who are sought after. But my object is not to write a political lecture, but to inquire into the reason why so great a disparity exists in the intellectual powers of the different classes of our population? Is it not for want of a system of education adapted to their various occupations? It may be said that the children of almost our entire population enjoy in our common schools equal opportunities for education with each other. Is there not wanting, however, in all of them an appropriateness to some of these occupations, and more particularly to these who seek an agricul-

tural employment? True, in our schools they are taught that "two and two make four," and that seven per cent added to the principal once in ninety days accumulates rapidly. But is not this suited to the merchant and banker rather than the farmer? Does not this instruction give the commercial man a starting point, which lead him to make laws to promote his own interests, permitting him to purchase State Stocks paying six per cent, and on this basis giving him the privilege of issuing a representative of money upon which he may receive seven per cent once in ninety days on the same property, while the farmer, should he be so prospered as to accumulate a little money to loan, is prohibited by our laws from taking over seven per cent. Should not the farmer's boy be taught that where "one blade of grass now grows two may be made to grow," and should not he be instructed how and in what way this may be accomplished? Thus giving him a starting point, which would be as certain in its ultimate favorable results as in the case just supposed. When will our farmers awake to see the importance of so educating their children to the business of farming, that a farmer's son shall be as well informed in what relates to his occupation, as the commercial and professional man now is in what concerns his? Has not the time arrived when in all our common and higher schools of education and colleges, the science of agriculture should be taught so that they may enjoy equal opportunities for education adapted to their employment, with the most favored class of our community, and that the education acquired in these schools should not be so exclusively confined to what concerns the professional man alone? Let this subject be constantly kept before the farmer through the agency of agricultural papers and other agricultural publications, and we may look with confidence to the time as not far distant, when the farmer, with others, may receive the benefits of education, and legislation, of our common country; when his rights and privileges shall be equally protected, and when education shall make him intellectually strong as well as numerically and physical so.

ONEIDA.

—*American Cultivator.*

GUANO, ITS EFFECT COMPARED WITH ASHES. —Stephen H. Smith, states to a committee of the Rhode Island Society for the Encouragement of Domestic Industry, that on one acre of sandy loam, which without manure would have pro-

duced twenty bushels of corn, he sowed broadcast, on the furrow, after deep plowing, 500 pounds of best guano well pulverized, and mixed with four times its bulk of dry loam. After harrowing, it was planted with corn. The product was 50 bushels. In 1845, he seeded down half an acre of ground, a sandy loam, with eight quarts of millet, ten pounds of clover one peck of herds grass and one peck of red-top seed. This lot was dressed with 350 pounds of guano, worth \$9, applied as above described. On an adjoining half acre he put the same kind of seeds and in like quantity. Instead of guano he applied 64 bushels of unleached ashes, worth \$8. The crop of millet was perceptibly best where the guano was used, and about ten days earliest. The crop of grass in 1846 was one-fourth the largest where the ashes were used. In 1847 the clover had nearly disappeared where the guano was applied, but remained well stocked where the ashes were put. The first and second crops this year were decidedly in favor of the ashes.—*Ib.*

“THE SPIRIT OF AGRICULTURE.”—Prof. E. P. Barrows, of the Western Reserve (Ohio) College, in a lecture delivered before the Trumbull County Agricultural Society, speaks in the following eloquent language of the happy results which may follow from the present awakened attention to agriculture:

“We have,” he observes, “cheering proofs that the spirit of agriculture is awake. Let this spirit be cultivated, for it has the primitive seal of Heaven upon it. It is the spirit of peace and plenty, and good order, and good morals. It adorns the earth with luxuriant meadows, and goodly orchards, and golden harvests, and pastures covered with flocks and herds. It clusters around itself all the auxiliary arts and occupations, commerce, and trades and manufactures—all nourish it and are nourished by it. It fills the farmer’s granaries, and makes his fireside happy and cheerful. While others beat their plough-shares into swords, and engage in the work of desolating the earth, destroying her inhabitants, and filling her with crime and misery, let us have wisdom enough to adhere to the employment of our primeval ancestor—a far nobler employment than that for which his degenerate sons exhibit such a melancholy fondness. In the vast field of agricultural investigation and improvement—a field but hitherto partially explored—let it be our ambition to win laurels not steeped in tears and blood,

but gathered in peace and quietness, and bleating flocks, and lowing herds, and waving harvest-fields, and smiling, light-hearted, industrious citizens.”—*Ib.*

POTATO DISEASE.—Of late, we have not thought it an object to occupy much time or space in reference to the potato disease; but having seen in the *Gardener’s Chronicle*, an account of a very complete series of experiments tried last year in the garden of the London Horticultural Society, we are disposed to give our readers a brief abstract.

In the experiments alluded to, the soil and seed were treated in various ways, and the proportion of diseased tubers ascertained on digging the crop. The substances employed were lime, charcoal, salt, chloride of lime, potash, fat, sulphuric acid, coal-tar, chalk, sulphate of soda, nitrate of soda, sulphur, and sulphate of magnesia. In some cases these substances were mixed with the earth near the potatoes, and in other cases the sets or tubers were sprinkled with the substances before planting. The various articles were applied not only separately, but mixed in almost every way, and the rows thus treated, carefully compared with each other as to yield and condition and also with parallel rows which received nothing. Full tables (for which we have not room) are given, showing the results in each particular case. No conclusion could be deduced from either of the trials, or from the whole taken together, in favor of the usefulness of any application or treatment. The *Chronicle* remarks, so capricious was the enemy in its attacks, “that a result obtained in one place was directly reversed by a result in another place only a yard or two—there being no appreciable difference in soil or situation or circumstance. For example, the percentage of diseased potatoes found where nothing had been used in the soil, was as high as 32.50 and as low as 5.74. And although in the cases of some applications no disease whatever was found when the crop was taken up—nevertheless, in many instances the very same applications were found connected with above 50 per cent. of disease.”

In connexion with the above, experiments were tried with seedling potatoes, and also with wild ones from South America. The seedlings were from seed obtained from various parts of Germany, from Poland, and from some districts of England. Some of the plants were started

in hot-beds and afterwards transplanted to open ground, and others were grown entirely without protection. The tables show that all these suffered as badly as other varieties. The account says—"seedlings, concerning which so much obviously unfounded expectation was entertained, proved no more exempt from the disease than old and long cultivated varieties."

The wild potato fared no better. We are told—"A perfectly wild form of the root, fresh from its native mountains, exhibited the characteristic blotches in a worse degree than any other sort in the garden."—*Ib.*

The practice of ploughing-in green crops was employed by the Romans to fertilize their lands; and in Italy it is still prevalent. The crops ploughed in are usually leguminous plants such as tares, buckwheat, peas, lupines with rape and mustard. In this country, when a large amount of green vegetable matter is ploughed into the land, it seldom undergoes a proper fermentation, without which it will not act as a manure, though it may have a mechanical effect in keeping the soil loose. As air, heat, and moisture are essentially necessary for fermentation in vegetable substances, it will follow that green crops will be productive of most benefit when ploughed in during warm moist weather, and consequently the practice will answer better in a warm climate like that of Italy, than it will in England. The time at which vegetables are best turned into the soil is when first coming into bloom, as there then will be the greatest bulk with the least injury to the soil by the growth of the plant.

Among the new systems of the present day, we have that of Mr. H. Davis, of Spring Farm, Croydon, to whom credit is due for bringing into notice his method of growing two crops at once, namely, beans and turnips: he thus secures a crop of turnips for feeding off in September and October. The land is then ploughed for wheat. Mr. Davis's system is far from being a modern one, though its want of novelty does not in any way detract from its merits, for by adopting his system of management and course of cropping, we shall find that very little addition can be made to the produce of arable land with the present knowledge of the science of agriculture. As to the advantage of thin sowing, so highly spoken of by Mr. Davis, we must leave others to consider, as it is in no way connected with the present subject.

Of the other systems of double cropping, we

may mention the common practice frequently seen in cottagers' gardens, of growing beans and potatoes on the same plot of ground, which might perhaps be extended to field culture. An early crop of potatoes may be grown, and then succeeded by another crop. When the first crop is not taken up till they arrive at maturity, a good second crop may be secured in the following manner. The distance at which the crop is planted is the usual one of two feet. As soon as the earthing up the crop is completed, another crop of potatoes may be planted in the intervals. These will then have ample time to grow: and when the first crop of early and short haulmed potatoes are taken up, the second crop may have the moulds ploughed or stirred between the rows.

Our treatise—if it is worthy of such a name—is now brought to a close. It has not, I am sorry to say, thrown any new light on this very important subject; for it has rather been the view of the writer to point out the practical operations by which a green crop may be beneficially introduced between crops commonly cultivated, than it has to prove that an addition can be made to the existing produce of arable land. However, sufficient has been said to show that independent of the increased produce of beef and mutton, that green crops introduced in the intervals that occur between crops commonly cultivated will have a beneficial effect on the fertility of the soil by the application of the manure produced by their consumption.—*Farmers' Magazine.*

HOEING PARSNIPS.—"Much has been said lately on the culture of the parsnip, respecting which you recently gave some valuable particulars. I have put some in this year for the first time, and shall feel obliged if you can tell me if any particular mode is to be followed in hoeing.—**ONE WILLING TO LEARN.**"—The following are the directions given by Col. Le Couteur, of Jersey, on this point, and the after cultivation of the crop:—

"When the plants are an inch high they are to be weeded,—this was formerly contracted for at the high price of £2 5s. per acre,—to be repeated thrice by hand in the season, and to leave them without a weed; but this extravagant mode has given place to hoeing, which can be done at less than half the cost, and is probably more beneficial, as it stirs the land deeper. In Guernsey a still more expensive mode is adopted, that of weeding with a

hand-hoe, having a straight blade of iron, 8 inches long, 4 or 5 inches wide at its edge, narrowing upwards to a short handle a foot long, with an elbow to it nearly at right angles; the blade is pressed into the earth, and the crooked handle affords a leverage, which enables the person to stir it effectually, and destroy every weed. This is mentioned incidentally as it is too slow a mode for the rapid principle which has now obtained in all things; however, it may be a question whether a greater crop was ever raised by other means than one produced in the ordinary way. The plants from the first are to be thinned out to 6 inches apart, and according to the soil, should be again thinned out to 9 inches or more at the second hoeing. In September, when the fine aftermath begins to appear, some of this crop may be taken up for milch cows, as from a dozen to 25 lbs. of them, given at milking time, will have a surprising effect on the cream, and produce fine yellow butter, which will keep admirably if properly salted and prepared, preserving an excellent and superior flavour."—*Maidstone Gazette*.

MANGEL-WURZEL may still be sown, although it is getting late; abundance of farm-yard manure will be required, more particularly now, for the successful growth of this valuable root. *Culture*.—We have seen this root sown in longitudinal rows in beds, flat-wise. We prefer sowing them in raised drills, *across the beds*, as it gives a greater facility to the sowing, thinning, weeding, and hoeing; besides, even if the drills were raised in a longitudinal direction, the hoeing, &c., would be sure to bring down the sides of the drills into the furrows, and, of necessity, the operator must stand between the rows; whereas the drills, being across the beds, every thing can be done from the furrow at each side. The general distance to form the drills asunder, is about twenty-eight inches, and thin the plants to 15 inches, plant from plant; it is recommended to dibble in the seeds at one half the distance they are permanently to remain at, but this will be found to apply more generally to the smaller class of farmers, or those having but a narrow breadth; for we find when this is attempted on a large scale, the extra plants are sometimes neglected being taken out in proper time from press of business, and, consequently, the whole crop suffers. We would much rather, in this case, dibble-in the seeds at the proper distance they are to stand—two or three seeds

in each hole, 1½ inches deep. Four pounds of seed will sow an Irish acre, and we would, at this advanced period, advise steeping the seed for forty-eight hours before sowing, and dry them with wood ashes, or fine, dry earth. The varieties, are, the long red, yellow, and red globe. The globe varieties are more particularly adapted for shallow soils.

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, May 30, 1848.

Agents for the Agricultural Journal.

Mr. J. B. Bourque.....	St. Damas.
Dr. Conoquy.....	St. Cesaire.
Dr. De la Bruère.....	St. Hyacinthe.
Mr. Cadeaux.....	St. Simon.
Mr. T. Dwyer.....	St. Pauls, Abbotsford.
Mr. Gendreau, J.P.....	St. Pie.
Mr. Blanchet.....	La Presentation.
Paul Bertrand, Esq., N.P.....	St. Matthias.
Charles Schaffer, Esq., N.P.....	Chambly.
M. Cordillier, Esq.....	St. Hilaire.
Thos. Cary, Esq., (Mercury)....	Quebec.
Dr. Smallwood.....	St. Martin, Isle Jesus.
Robt. Ritchie, Esq.....	Bytown.
Major Barron.....	Lachute.
The Editor of the Star.....	Woodstock, C. W.
L. Guillet, Esq.,	Three Rivers.
D. Dubé.....	Isle Verte.

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

Annual Subscriptions for the Journal, five shillings.

MONTREAL :

PRINTED BY LOVELL & GIBSON,
SAINT NICHOLAS STREET.