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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 1. MONTREAL, SEPTEMBER, 1843. NO. 9.

IRISH MANUFACTURE—CLONBROCK TILERY GALY HARBOUR—KNOCKROGHERY—ATHLONE.—At this place, drain pipes are manufactured at a cheap rate, and we do not see why we might not have drain pipes manufactured in Canada at an equally cheap rate. They are sold at the kiln at the following rates for cash:—

Size. Inch.	Length in all. inches.	Weight in cwt.	Price ℔ 1000 wt.	Collars. wt.	Price ℔ 1000.
1 inch	12 inches	10	10s	2½ cwt.	5s.
1¼	12	14	11	3½	6
1½	12	18	12 6d	5	7 6d.
2	12	24	17 6	6	9 6
3	12	32	30	No collar.	
4	12	75	50	Do.	

The latter sized are well adapted for sewers and drains in public streets. There is another sort of drain tiles made at this place, which we believe would answer extremely well for draining. The improved scarf-jointed, square-bottomed, circular arch tile. This tile is superior to the circular tile in the following respects:—As the shoulders of the arch preserve the form and curve, while drying, it requires no rolling—it beds more firmly into the bottom of the drain. The circular opening is always kept exactly fair with the draining pipe by the scarf-joint. It has no hollow part under the joining of the pipe, as in the case of the collar tile; and it is perfectly easy to distinguish at a glance, when walking along the drain, whether or not the pipes are laid fair, which cannot be so easily ascertained under the collar system at the point of junction. It packs more solid in boats or carts from its square bottom and sides. The extra clay to make the bottom square does not weigh so heavy as the collars; and, besides being cheaper, it is far more solid and durable.

The following are the prices of those improved pipes,—their weights, and diameters:—

Inches.	Length in all.	Weight in cwt.	Price per 1000 £ s. d.
1	12	13	0 15 0
1¼	12	18	0 17 0
1½	12	24	0 18 6
2	12	32	1 5 0
3	12	56	2 0 0
4	12	84	3 10 0

For an English acre—or perhaps it would be more proper to calculate for a French arpent—it would require about 2000 tiles, to drain at eighteen feet apart. In England, teh cost of cutting a drain three feet deep, laying in tiles, and filling in the drain again, costs very little over one-penny a yard, or six-pence the rood. In an arpent there would be about 100 roods of draining, at eighteen French feet apart, requiring about 2000 pipe-tiles, or square bottomed tiles. At twenty-four feet apart, about a fourth less tiles. At thirty feet apart, two fifths less tiles, and at thirty-six feet apart, only one half the number. The size of drains three feet deep, should be twenty inches at top, and five at bottom; and out of a drain of this dimensions, there is 56¼ solid feet of cutting in a pole or rood. A drain 3½ feet deep, would have 72 solid feet of cutting—4 feet deep, 90 solid feet, 4½ feet deep, 110 solid feet, 5 feet deep, 132 solid feet of cutting. Draining at the latter depth would cost in ordinary soil for cut

ting, laying down the tiles and covering, about 1s. 4d. the rood or perch. Where small stones are to be had conveniently, they will drain as well or better than tiles of any make, though perhaps, there may not be any great saving of expense. Even when tiles are put down, covering them over with small stones is an excellent plan. We give insertion in this number to an article on draining, with the branches of the Scotch fir, which has been found to answer extremely well. In this country, where there is such abundance of trees of the fir tribe, draining might be accomplished very cheaply—filling the drains with the branches of hemlock, and other fir trees. We have no doubt, whatsoever, that this mode of draining would answer well, if carefully executed, and the branches laid in and covered, while in a perfectly green state, and cut at the proper season, when they have all the sap in them. The drains should be cut something larger than those for tiles, and the branches should be packed closely into them, and covered over with earth. It is difficult to obtain tiles in Canada, but these branches are readily obtained in almost every situation. There can be no doubt that draining should precede any attempt at improving our agriculture by manuring or better cultivation. Draining sufficiently produces more improvement in arable lands, than any other means in our power to employ. We forgot to mention that the machine made use of at the manufactory at Knockroghery, is "Scraggs' Improved Machine." Deep draining is considered much the most effectual, and would answer best in this country. Good farmers in England consider that indifferently drained clay land is ruinous to cultivate, that if drained would pay a fair rent and profit, and we believe it is the same case here. Some persons imagine if we drain our lands here as in England, they will become too dry to produce good crops; but this is a great mistake. When land retains water, the surface becomes very hard and baked by the sun, and renders it impossible for plants to thrive in it. The same land, if drained, would never become so hard, the showers of rain would pass freely through it, and the dew would also have a most beneficial influence upon the crop; showers of rain upon hard, undrained land, do not produce much benefit; it escapes in the cracks in the soil, or remains upon the surface until again dried up by a few hours' hot sun. We have abundant opportunity of seeing the effects of want of draining on crops; some of the most fertile spots in a field are often rendered useless by retaining water. Even where no water appears near the surface, the crop is poor and stunted from the roots of the plants coming in contact with too much moisture in the soil.

We give insertion to a speech of Mr. Mechi of Triptree Hall, Essex, that is entitled to attention. This gentleman has realized an ample fortune by business, and can afford both money and time to test the merits of any plan or experiment he may think desirable. It is to such men as Mr. Mechi, England is indebted for her great improvements in Agriculture, and we may also benefit from reading of his successful practice of this excellent system. This is one of the advantages of "book-farming," for if we were deprived of it, we could know nothing of Mr. Mechi's practice or the results obtained from it. Gentlemen who visited this farm lately, report:—"In a field of wheat, which was drained 14 feet apart, though drained four years since, the wheat over the drains, to the width of about four feet, looks stronger and better than on the intermediate spaces between that and the next drain. This is so decisive, that a person standing half a mile distant could, by the fine appearance of the wheat over each drain, point out any drain in the field." Such are the effects of draining, and similar effects would result from sufficient draining in this country, if the experiment was made, and the work properly executed.

FARMERS' CLUBS.

EXTRACT FROM THE SPEECH OF MR. MECHI.

With regard to draining, your land here is particularly situated. Much of it does not appear to require drainage; but I think I saw a considerable portion in which the water, though not apparent on the surface, was rather too near to the surface to be comfortable to the crops. We are sometimes apt to be deceived, and we ought always to ascertain how near the water is to the surface, by digging holes. If you dig a post-hole in land—I do not know whether it is so in this neighbourhood, but if you do so in many lands, where water is not apparent on the surface,—you will find it soon flow, especially 3, 4, or 5 feet deep. Therefore, by digging such holes, if the level of the water is found within 3 or four feet of the surface, I should decidedly recommend such land to be drained to the depth of 5 feet because it is for want of depth of soil that the wheat turns off yellow, especially after a wet season. I have observed a crop of wheat go on flourshing up to the beginning of May, and then it assumed a yellow and pallid appearance, and what is commonly called, goes off; and that results, in fact, from the roots having a desire to go deeper into the soil, and meeting with stagnant warer. It is much the same as stopping the drainage in a flower-pot, and giving it water, or keeping the pan of the flower-pot full of water. You will invariably find that the result of that is to turn the plant yellow, as I have no doubt you have observed. As to the mode of drainage, I am quite convinced that it ought to be up and down the hill, and not across it. A very amusing instance of that occurred on my farm the other day. A piece of land on the slope had been drained across the hill at only two feet deep. I had occasion to put in some posts of rails on the incline below the drains, and I found that the holes were full of water, exactly level with the drain, which, although two feet deep, being two feet higher in the rise, of course did not take the water from this post-hole. Now, if that drain, instead of being cut across the hill, had been cut down the hill, it would have met the water, and have been an equal distance from each portion of earth down the hill; or if cut four feet instead of two, the water would have found its way down to the drain; but by cutting shallow drains on a hill, and carrying them across a hill, it is clear that the water below the drain has no power to go into it, but has a long way to go to find the way into the next drain, whereas, if the drains were cut up and down the hill, every portion of soil, as it declined, would gradually find its way to the drain from both sides. I am afraid I am getting rather tedious. (No, no, and applause.) Well, there is another point. I have been feeding sheep on Mr. Huxtable's plan—what is called board wages. (Laughter.) I find that it is a very successful practice; and I do not see that you have it in operation in this immediate neighbourhood. I have had eighty sheep on boards for several months, and they thrive admirably well; and when I tell you, that, at one year old, several of them weigh 12 stones, which is 24lbs. a quarter for half-bred sheep, you will naturally agree with me that it is a profitable way of feeding them. I sold some of them the other day at £3 a piece. I find in practice, that no disease attacks sheep so situated. Occasionally one or two, from being apoplectic and fat, were immediately consigned to the butcher. There is no foot-rot, and they generally present a mos healthy and comfortable appearance. On our cold and exposed land, they certainly thrive infinitely better than some I have tried on the old system of folding. They consume less food, in proportion to the fat they put on. There is no expense for straw, and their manure falls through on some dust and burnt earth. By using about half a pound of gypsum per day, and sweeping it down between the cracks, we have an excellent crop of manure to grow the turnips for next year. It is neither too wet nor too dry, but just in that state in which, in a hot summer's day, the turnip roots will find a very comfortable meal. I think we are bound to look at all these operations, not as advocates—no man should *advocate* a principle in agriculture. We should state the facts, and the result, as a matter of profit. (Applause.) And then those who had the opportunity of seeing the fact can draw their own conclusions. I know practically, that, where there is capital, there is generally an ample desire on the part of the farmers to do everything that is profitable. I do not agree in the vulgar prejudice that agriculturists are slow to observe things conducive to their own interests. There are some few old prejudices, but I do not accuse agriculturists of being slow in adopting what is profitable. The question of thin sowing is now rather a ticklish one; and judging from what I have seen in your neighbourhood, it has not made much progress here.

But still a change is coming over the Norfolk mind, in that respect, slowly and gradually. One of Lord Leicester's best farmers told me, the other day, that he had 150 acres of wheat growing from 5 pecks per acre, on light soil, and that it was very much thicker than it ought to be. He wished that he only had put in half the quantity of seed, considering the season; although his neighbours were putting in 4 bushels, he feels quite sure, that he should never put in more than 5 pecks, that is dibbled, but most likely 4, according to the state of the land. My own experience has invariably been in favor of 4 pecks of seed. I make it a rule, every year, and in almost every field, to leave a portion of my land drilled with 2 bushels, as well as one bushel, in order that I may, every year, arrive at certain results. Those results, as I said before, have been invariable in favour of thin sowing; the difference, last year, being equal to the rent of the land. I should be very happy to hear from those gentlemen present, who have tried the different quantities, the result of their experiments, and I do hope, and I do think, that you are all in justice bound to alter your drills on one acre or half-an-acre in each field, and when we meet again, to collate your evidence, and tell me which you have found the most advantageous. I recollect that, in Suffolk, a very able and careful old farmer, after what I said at a Suffolk meeting, altered his drill on an acre of land in the middle of a 15-acre field. He told me, two months ago, that on that acre drilled with a bushel, he had 7 bushels more corn than he had on the rest of the field which had been drilled with 2 bushels; so that, in fact, thin sowing in that instance, without any difference in the soil, gave him an advantage of a quarter of wheat per acre. I shall be happy to give any gentlemen his name. He is a man well known. In another field he tried the same operation, a month later, which was in November. There he had no increase from thin sowing; but he saved the bushel of seed, which is an object, being worth 7s.; and he also weighed the straw from the same field, and found what I have found, that thin sowing, as it is called, produces more weight of straw per acre than thick sowing. Now, gentlemen, your wheats are looking brilliant at present, and quite thick enough. I hope that we may not find, that, in a month, or the beginning of June, excessive luxuriance causes that crop to fail. We have known such a thing; but I am sure you must feel, as I do, that it would be attended with enormous loss. Were we to have a continuance of wet growing weather, and those wheats get heavy in the month of June, the loss to you, as farmers, and to the community, must be very considerable. At all events, I hope you will not think that I am asking too much, that each of you should try the experiment, and form your own conclusions. I shall be extremely gratified, and I think you are bound to do it. In the practice of farming, the great difficulty is to get a profit out of the land. We know that there are so many contingencies that farming is comparatively a slow business. The great losses arising from diseases in stock, from diseases in horses, and other casualties, render farming at all times rather a precarious affair. It becomes, then, of great importance, that the details of the expenditure should be very closely watched. So far as my own experience goes, I have found considerable advantage in certain operations from the use of an implement which I do not see, I am sorry to say, in your neighbourhood. I speak of Garrett's horse-hoe. Now, hoeing is an operation which requires to be done very quickly, at a particular time, and, if possible, very cheaply. I assure you, that during the last five weeks, with a pair of horses and one man, in a week of seven days, I perfectly horse-hoed 24 acres of wheat, at the happy moment when there was a little dry weather to destroy or cripple such weeds as there were between the rows. Now that operation was effected at a cost of 14d per acre: and I have no hesitation in saying, that even supposing that I could have got hands to do it in the time, which I could not, that to do it as effectually with a hand-hoe, would have cost at least 12s per acre, to have done it as deeply and perfectly. Therefore, I consider that that implement is a most important one for agriculture. It is not the weeds in the immediate rows of the wheat that do so much injury; because the wheat has the power to take care of itself generally in the rows; but it is the weeds in the intervals that do the damage. The mere cultivation of that space between the rows I consider exceedingly advantageous, and I should be better pleased to see a little more hoeing amongst your wheat, instead of seeing them so thick, because if you put less seed in, you will have to hoe more than you do at present. I shall be very happy to shew any of you, at all times, all the opperations going on, on my poor farm. We have no secrets there. We are open at all times to public in-

spection, and, if necessary, to public censure. I do it on public grounds. I am always happy to receive a castigation for anything that I do not farmer-like and consistently; and probably, I deserve it more than any other man, because I lay myself open to public observation. Therefore all that I do in agriculture, is done carefully from the theory and practice of other practical and able men, and there is very little merit due to me in the matter; but I do think we are all bound to look round and see what others are doing, as is done in trade. If we see one man more successful than ourselves, then it is our duty to inquire into the cause of that success, and adopt his measures. I have a very strong opinion on the importance of deep drainage, and deep cultivation in general. You perhaps, are less affected by it than any other neighbourhood I know; but it is lamentable to see, in travelling over this rich kingdom, the thousands and hundreds of thousands of acres that are rendered comparatively sterile for want of the removal of the stagnant water. And my opinions are so strong on that point that, if I were offered 100 acres of very tenacious land, to be farmed without paying rent, and to keep it undrained, I would decline to accept the offer. I consider the difference between drainage on very heavy tenacious clay and non-drainage, is the difference in a succession of wet seasons, between a profit and ruin.

Overgrown Barley; Salt Superphosphate of Lime.—One of the chief uses of salt may, perhaps, be put to the test (if not too late) by the present condition of the barley, which can hardly fail of overgrowing under the unseasonable continuance of rain, and salt appears specifically to restrain overgrowth and stiffen the straw and leaf. Acids have somewhat the same tendency, perhaps by neutralizing the ammonia in the soil; and phosphates certainly promote seeding. Probably, therefore, the addition of superphosphate of lime to the salt may remedy in some degree the damage of the season, say, 2 cwt. salt and 1 cwt. superphosphate per acre, mixed with dry earth (not ashes), and strewed upon alternate ridges to show their effect by comparison. But farmers must take care what they buy as superphosphate, a sample having been recently brought me that was quite insipid, and consequently no superphosphate at all.—J. Prideaux.

REMARKS ON THE AGRICULTURAL JOURNAL.

JULY NUMBER.

Model Farms.—It is certainly much to be desired that Model Farms were established throughout the country. There are hundreds of parishes in Lower Canada where they might be established with great profit; there is unfortunately wanting among us a spirit of true patriotism. A patriotism which will make itself known by its works; and there is also wanting a love for Agriculture and its objects. Take for instance, the parish in which I am now writing these lines. The village formerly exported large quantities of wheat and all other varieties of grain; *now*, the export is too small to be noticed; the return is very low, and the farmers generally are poor. The merchants in the village feel the hard times, they speak of the days of yore as days of prosperity; many of them are large landholders, but though more intelligent than the peasantry, they farm no better, and consider him to be the best farmer who has now the largest quantity of wheat, and who has the greatest number of acres of land. What lamentable ignorance! Suppose now, that three or four of these merchants would join in the management of a Farm, procure approved instruments of agriculture, get an intelligent manager whose object ought to be to produce the greatest yield with the *greatest* profit; would not such a farm have the greatest influence upon the farmers throughout the neighbourhood. In a model farm in a country parish, I would have no expensive experiments tried, but merely such as are within the reach of the great body of the French Canadian farmers. More anon.

Wheat.—I do not think that the cultivation of wheat ought to be *encouraged*—there will always be too much wheat sown in comparison to other produce. One has to walk a long way before he can see a field of beans or an acre of turnips, carrots or other root crops—except potatoes.

Veterinary College.—This subject must not be allowed to drop. "Syllabus" must agitate. The remarks of Syllabus on the premiums offered by Agricultural Societies deserve consideration—but they are too short; he ought to treat the subject in detail. It is very easy to find fault, but it is not so very easy to offer a better plan than that which we condemn.

"Deodorised Manures."—How long will it be before Mr. Ellerman's discovery will be turned to *practical* use among us? What a large quantity of most valuable manure is annually carried away, polluting the St. Lawrence! This valuable manure from its portability and strength, would be of the greatest advantage to the farmers about Montreal, where carriage must be an expensive item.

Weeds.—Too much cannot be said of the importance of eradicating weeds. Too many fields produce crops of weeds rather than of cultivated crops.

"Short Horn Cattle."—Could not the Agricultural Society of the County of Montreal import some of these? The Massachusetts Society some years ago imported a variety of Ayrshire and Devon Cattle, which have been the means of greatly improving the breed of cattle throughout the State. Which breed is the more valuable to us: the Short Horn or the Ayrshire? In those parts remote from towns I should give the Devon the preference to either of them.

Manure for Turnips.—I have tried wood ashes in unlimited quantities for turnips; I have found guano preferable. I must confess that I have the greatest objection to planting the turnips in any quantity. If there be any successful grower of turnips about us, I wish he would favor your numerous readers with his system of cultivation.

"Wool."—The two articles on this subject deserve attention. I shall recur to them again in connection with some remarks which I hope to submit you ere long on the too much neglected animal—the sheep. By the way, could not Montreal have a woollen factory established on such a footing as would induce farmers in the District to raise the best of wool. Would such a Factory not pay? In Upper Canada, woollen factories are being erected every day.

"Potato Disease."—Articles on this subject are *amusing*—nothing more. All that has been written on the subject shows that the writers know *nothing* of the disease or it causes.

August number.

Having written so lengthily on the July number, I will dismiss the number for the present month with few observations.

The first article, suggested by the letter of Rusticus, treats on a subject which the sooner it becomes a matter of legislation the better. But the forests are destroyed, and no coal mine has yet been discovered in any part of Canada. The fact stares us in the face!

The theory of the rotation of crops, p. 237, shows the importance of a proper rotation. The remark that change of crop, not only checks the deposit of the eggs (of the wire-worm) but by removing the material food of the young vermin, it materially prevents increase, or even their continuance, which otherwise, as is the case, for instance, with the wire-worm, might for four or five years be a pest to the soil, deserves serious attention from those who are so liable to be troubled with the Hessian fly.

The importance of Agricultural Improvement was never better shown than in the article, p. 245, treating of Mr. Neilson's farming. When will the truth be established that the prosperity of the country depends upon *Agricultural* Improvement?

"Turnips."—Will no Canadian farmer give us some remarks on raising Turnips? I am of opinion that in this country they are a *most* unsatisfactory crop.

"Strawberries."—"This is not the season" to transplant. Pray, what season? When may this article have been published in the Gardener's Chronicle?

Mr. Moody, of Terrebonne, tells us in his advertisement that he has on hand three *Reaping Machines* of the latest and most improved construction, *capable of cutting twenty-two acres per day*; and that these have been manufactured by himself. A description of the work performed by these machines, and the expense of labor,—with a comparison of the expense by manual labor alone, would be interesting to the readers of the Journal. Will Mr. Moody see to this? I observe that the price of these machines is said to be "moderate"—why not at once affix the price?

Agricola.

Chinese Sayings.—Some of the extraordinary expressions of the Chinese are sarcastic enough. A blustering harmless fellow they call a "paper tiger." When a man values himself overmuch, they compare him to "a rat falling into a scale, and weighing itself." Overdoing a thing they call "a hunchback making a bow." A spendthrift they compare to a rocket which goes off at once. Those who expend their charity on remote objects, but neglect their family, are said "to hang a lantern on a pole, which is seen afar, but gives no light below."

MANAGEMENT OF CALVES.

TO THE EDITOR OF THE SUSSEX AGRICULTURAL EXPRESS.

SIR,—In reply to yours, wishing to know my method in rearing calves, I beg to say that when I rear calves with gruel, *I first break the ground oats that I make the gruel from, and give a calf from two and a half to three quarts at a meal, made tolerably thick;* teach them to eat *bran and oil-cake* as early as possible *by putting your finger into their mouths,* and introducing some. *Some calves at a fortnight old will eat it greedily;* when that is the case, calves may be raised with little trouble, for when they eat bran and oil-cake well there is no occasion to give them gruel, they will drink water; and I have proved from experience that when calves take to eating bran and oil-cake at an early age, they may be raised without liquids; of course place water that they may drink if they choose. When I was at Ranscombe, I was told by Mr. Colgate that some North Devon heifers that General Trevor purchased from the late Earl of Leicester were raised without liquids: they were taken from the cows at a fortnight old, and had nothing but bran; there was moisture enough in the bran that they did not require it; I thought this marvellous; but I have since found from experience, when I have had a calf that would not take gruel or skim milk, they have to take bran and oil-cake; they have done better than those that have had the gruel. I should prefer, if I had milk, to give a little with the gruel. This winter I have raised two calves differently from what I ever did before, and never had any do better. When they were about three weeks old I boiled turnips, and gave them the water and the turnips mashed together, with a little skim milk; a calf at a month old ate a gallon of turnips per day; mine were the white round; Swedish turnip, carrot, parsnip or mangel wurtzel, would be preferable. I frequently read in your paper of the improved methods of feeding cattle. Thirty years ago I fed all my brother's fatting stock with boiled linseed and corn, and cut hay, and was quite certain it was the best plan. Mr. Howis, at that time, steamed all the food for his cattle, and on a large scale it is the most economical plan; but as I once said in a letter I published in your paper, it is a great difficulty in getting persons to attend properly to feeding cattle on steam or other cut food. By over-feeding you may clog the appetite, and the animals will not then feed so well, and then perhaps you may be told they have tried the above plan, but that it did not answer, when, in fact, it was from mismanagement they did not succeed. I have heard my late father say it was no easy matter to persuade a person that had always been in the habit of getting over a chest every night to get into bed to remove it; so you will find it not an easy matter to get people to fall into what they may think is quite a new plan, and in their narrow ideas can never answer. I feel quite certain, upon a large scale, it would be right to steam, not only your straw and hay, linseed, corn, &c., but also young roots, and mash them up together, as it now frequently occurs that when you are feeding on roots in the winter, we have frost, and the roots do but little good in consequence of being raw and cold when they are most required to be warm; and on farms, where there is no meadow land, you might fat your stock on turnips and straw feed after steaming on the above plan. Perhaps many farmers would laugh at my plan as mere theory, but I could assure them that my little knowledge is founded on practice.

Your's truly,

R. TURNER.

Westerham, May 10.

HOW MUCH WATER TO BE PUT TO THE POUND OF LINSEED MEAL GRUEL FOR FEEDING CALVES. —Steep one pound of linseed meal in two quarts of cold water, from 12 to 24 hours; pour four quarts of boiling water over it, and keep stirring, and give it a boil for about ten minutes: let it stand till blood warm: mix three pints of the gruel with three quarts of milk. This gives a meal for a calf about a week old; increase the quantity as the calf gets older, and is able to take it. A good calf of six weeks old will require twelve quarts at least daily, and you can mix the proportions of linseed gruel and milk to your pleasure; the usual way is, when to save the milk is an object, to keep increasing the linseed gruel, and diminishing the milk till at the end the calf can be fed on the gruel alone. You must not neglect to add a teaspoonful of salt to each feed.

Bog-mould is certainly worth 4d. per cart, for the purpose of making compost, and the richer the other ingredients to be mixed with it, the better for grass, or any other land; but there is very little virtue in it alone, for that purpose, although on dry and harsh lands it gives good potatoes alone, but this is more from its mechanical action. Lime mixed with any compost (headlands, bog-stuff, &c.,) is much better allowed to lie for some time, and the oftener it is turned over the better, before using it—say from a month to six months.

The odour of turpentine is a deadly poison to moths and their grubs. A few pieces of paper, smeared very lightly with turpentine, and placed in drawers where furs and woollens are kept, will completely prevent the ravages of the above-named destructive insects.

NEWSPAPERS.—A newspaper in a family is equal to three months' time in a school each year. Go into a family where a newspaper is taken, and into those who "cannot afford it," mark the difference in the children, and be convinced.

SAWDUST CHARRING & CLAY BURNING.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Having been repeatedly applied to for instructions for charring sawdust, and also for burning clay subsoils, containing little or no organic matter, to act as fuel, I take the occasion of Mr. Whitmore's paper, at the Royal Agricultural Society, reported in your last, to bring the two questions together and let them answer each other.

Charred sawdust is a form of charcoal particularly adapted for manure, but the difficulty is, to keep so light and loose a substance from falling into the fire and burning away, if put on sparingly; or, if heaped up to prevent this, from filling and choking the air way, and thus extinguishing the fire.

The clay subsoil of stiff soils, turned up and burnt, not only manures, by yielding its alcaline and other fertilizing ingredients, but, at the same time, both deepens and loosens the soil—three benefits of great importance. But such subsoil rising in heavy clods, which contain very little combustibe matter, requires fuel to keep it burning, which is not always at hand, nor to be had cheap.

When sawdust is within reach it is just the thing; the clay will supply the knobs to build up with and support the sawdust, with air ways between the skill of the burner being exercised in so proportioning and arranging them that the sawdust shall fall in fast enough to keep up the fire and moderate the air way, to the charring point, without filling in so as to extinguish it. And this may be done by varying the arrangement according to the following proportions. Where clay burning is the object one ton of sawdust would probably suffice for 100 of clay; and where the object is to char the sawdust, I think, with skilful management, two tons of clay would do for one of sawdust; considering that the clay does not consume, and will shrink but little, whilst much sawdust falls through the hollows as it becomes charred. Where clay is not at hand weeds or peat may serve the purpose.

Both are improved by the charcoal being disseminated through the substance of the clay, which may be easily done with the shovel before burning and while the clay is soft; but this may hardly pay for the labour unless in garden culture.

There is yet another method of charring sawdust for manure, on a different principle, *i. e.*, by the heat produced in slacking lime.

If wet sawdust be heaped up with fresh burnt lime the wet will be drawn out by the lime for slacking, and the heat produced may fire the heap and burn the sawdust to ashes. But if the proportion of sawdust to lime is very great, keeping the stones of lime far apart, the heat of slacking will be too much weakened by dispersion to produce fire.

By keeping a medium then, and covering well in from the air, we may attain a point at which fire will be produced in the heart of the heap, but prevented from breaking out to destroy the charcoal.

This medium must depend more or less, on the quality and dampness of the sawdust; but for that of fir, in its ordinary damp state, in the saw-pit, by changes of weather, we might try 20 bushels to one of lime, laying one-fourth as a bed, mixing one-fourth of the wettest with the lime, and covering in with the remaining half. If the fire break through, more sawdust might be heaped on, and so much more charred; or if no more the holes may be stopped with earth in the usual manner.

J. PRIDEAUX.

A CURE FOR THE DISTEMPER IN CATTLE. *(By the Earl of Essex).*—I cannot resist giving a recipt for the treatment of beasts that may take the prevalent distemper. It shewed itself, last Winter, in one of my yard stock, by its discharging abundant saliva from the mouth, with sore and inflamed tongue and gums, very dull, no appetite, confined bowels, and very hot horns. I desired the bailiff to give him one-half pint of the spirit of turpentine, with one pint linseed oil; repeating the oil in twenty-four hours, and again repeating it according to the state of the evacuations. At the end of twenty-four hours more, the bowels not having been well moved, I repeated both turpentine and oil. In two days the beast shewed symptoms of amendment, and in three or four took to his food again, and did perfectly well. All the yard beasts, and two of the fattening beasts, have had it, (five others I had sent to London before the disease appeared), and all have been treated in the same manner with perfect success. Half-pint of turpentine is the smallest, and one pint the largest dose, during three or four days. Little food, besides oatmeal gruel, was given.

DISEASE IN SHEEP.—A disease has attacked both lambs and sheep in this neighbourhood; the symptoms are, sore nose, nostrils, lips, and outside of mouth. There are blisters, from which there is a running, which, as the animal recovers, dries up, a scab forms, falls off, and new skin and hair come; but if it increases, it prevents the animal feeding, it gets foul, increases in size, swelling, and soreness, and the animal dies; when it is light, it does not seem to affect the appetite, they graze well, keep their condition, the only evil being that they are liable to be tormented by the flies. If you can say what course ought to be pursued, you will oblige me. It comes on all sorts of pastures.—Give a dose of Epsom salts to your sheep and lambs, 1 oz. to 1½ oz. is a dose for a full grown sheep; and ¼ to ½ an ounce a dose for a lamb already to size. Take away a little blood, and wash the parts affected with a solution of chloride of lime in the proportion of 1 oz. of the powder to 2 quarts of water.

MILKING.

This is a subject of too much importance to be passed over; and I fear that I must add that it is a subject far to much neglected. The milking of cows resolves itself naturally into two heads—viz, how to milk, and when to milk. 1. *How to milk.*—It is astonishing what difference there is in good and bad milking. 1. If every drop of milk in the cow's udder be not carefully removed at each milking, the secretion will gradually diminish in proportion to the quantity each day left behind. This fact is well established, and is to be well accounted for on philosophic principles, as well as borne out in practice, Nature creates nothing in vain, and the secretion of milk in the cow only suffices to supply that daily lost—the milk left behind in the udder is re-absorded into the system, and consequently the next milking will be so much the less in quantity. But another reason why every drop of milk should be taken away, is to be found in the well-known fact, that the last milk is double as good as the first milk; hence, if not removed, there is not merely equal, but double loss. 2. Milking should be conducted with skill and tenderness—all chucking or plucking at the teats should be avoided. A gentle and expert milker will not only clear the udder with greater ease than a rough and inexperienced person, but will do so with far more comfort to the cow, who will stand well pleased and quiet, placidly chewing the cud, and testifying by her manner and attitude that she experiences pleasure rather than annoyance from the operation. Cows will not yield their milk to a person they dislike or dread. I have taken some trouble to acquire the art of milking, in order that I might be able to describe. You take the teat in your palm, enclosing it in your fingers, tighter below than above, but not absolutely tight anywhere—a portion of the upper part of the hand, the thumb is uppermost—embraces a portion of the udder, and the whole hand is drawn gently downwards, towards the extremity of the teat between the thumb and the forefinger; very little practice enables the milker to do this with ease, rapidity, and tenderness. I need not say let the hand be carefully washed before each milking; but I dare say it is seldom thought necessary to wash the cow's teats. This, nevertheless, should be done, and it will be found that the milk will flow more freely with any teats, than if you wet them with the milk; at least; I find it so, and think myself an expert milkman. 3. We now require to consider when the cows are to be milked—a question again resolving itself into two minor ones—viz., at what hours, and how often? The ordinary practice is to milk cows twice daily—at about five o'clock in the morning, or, in the winter, as soon after daylight as possible, and again at the same hour in the afternoon, thus leaving twelve hours interval between each milking. Some recommend milking three times daily during the summer months, stating as their reason, that cows are then after calving, and flush of milk, and that the three milkings are calculated to increase the quantity of the secretion. Some even recommend four milkings during that season. There can be no question but that, when fed in proportion, such a constant demand would necessarily increase the quantity of milk secreted; but then it is likely that the same causes might produce such a depression in the secretory system—natural consequent upon unusual exitcement—as would cause a decrease of milk in autumn and winter, in about equal ratio—*Farmer's Journal.*

However, the festivals of the saints may point out when changes of the weather usually take place, and we learn from the lines of Gay, that the remark on Paul and Swithin's day, was as current in his time in England, as it is at the present day in Ireland. In July a continuance of rainy weather generally commences about the middle of the month; the vapours which have been raised and accumulated by the heat prior to that period, especially if June be dry and warm, usually fall about that time, and rain continues in proportion to the antecedent drought: this has given rise to the popular tradition of Saint Swithin—of course there are exceptions to this tendency, but the remark should not be contemned. A sensible writer on this subject says, "in this as in most cases, the popular error has some foundation in truth." Farmers should look to it and "attend also to the passing and local signs of winds and clouds, and tints of the sky, and other omens, not to be despised;" they should be like Wordsworth's shepherd:—

> "Learned in the meaning of all winds,
> Of blasts of every tone; who oftentimes,
> When others heeded not, he heard the sough,
> Make subterraneous music, like the noise
> Of bagpipes on distant Highland hills."

The most learned men have studied this subject; Aristotle, Aratus, and Virgil were well versed in it; and so were Bacon, Bartholine, Dereham, Newton, Locke, Ozanam, &c. Dr. Beatty, and our countryman, Kirwan, were also great weather philosophers. This year there are favourable indications of good harvest weather. Peter and Paul's day, June 29th, was remarkably fine. The oak-tree, also, was clothed before the ash; the hawthorn had a profusion of blossoms, all which presage a good and favourable harvest. The month of May was wet, this foreshows a dry September. The harvest moon I know will not be beneficial until 1853, but this respects its rising and not the weather. See *Ferguson's Astronomy, Lynch's Do., pages* 33, 34, 181; *Keith's Globes, Prob.* 56. This year, also, is the first of the weather cycle which begins always favourable to the farmers, and I wish it to be so.—Yours, &c., JACOB THOMPSON DUNNE, *Cullenagh, Maryborough.*

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

FOUNDED, 1845, BY ROYAL CHARTER.

Patron.—H. R. H. PRINCE ALBERT.
President.—EARL BATHURST.
Vice-President.—EARL DUCIE.
Principal.—MR. WILSON, F.R.S.E., F.G.S., &c., &c.

Both In and Out Students are admitted on the nomination of Proprietors. The College fee is £50 per year for Resident, and £30 per year for Non-resident Students. The College is situate in the middle of a farm of 460 acres, where an improved system of tillage, consistent with the purposes of the College, is carried out. In addition to Practical Agriculture, the various sciences connected with it—Chemistry, Botany, Geology, Natural History, Natural Philosophy, Surveying, &c.—are taught by resident Professors. A well appointed Laboratory, conducted upon the Gleeson system, gives every facility for chemical manipulation.

Objects.—The object of this Institution is to provide such a course of instruction as will be most useful to the practical farmer. The benefits to be derived by the agriculturist from a judicious application of scientific information are becoming daily more and more extensively acknowledged; while the means of obtaining that information, if indeed it can be obtained at all without for the time sacrificing a due attention to the practical operations of husbandry, are so scattered and costly as to be within the reach of very few. The College instruction in each department is conducted in strict subordination to the object proposed; every subject is treated in such a manner and to such an extent as its bearing upon agriculture demands. The theoretical and practical teaching go hand in hand: and the whole is combined with the advantages of Collegiate discipline.

Farm.—The farm is held on lease from Earl Bathurst, for a term of 47 years, determinable *at the option of the Council*, at certain periods; and imposing no restriction as to the mode of cultivation. It is situated a mile from Cirencester, and contains 450 acres (420 of which are arable) of a varied character and soil. The best established system of tillage will be adopted; and the breeding and feeding of the stock will be combined with a dairy. Every description of trial and experiment will be made in such a manner, however, as not to risk general results, it being the determination of the Council that the system pursued on the Farm shall be the one most profitable, and such as the pupils may adopt with confidence in their future occupations; still a portion of land will be set apart for experiments. New farm buildings are in process of erection.

The College.—The College which adjoins the park and woods of Earl Bathurst, is situated on the farm, about a mile and a half from the town; the principal front, 190 feet long, has a south aspect, and commands an extensive view over North Wiltshire. The ground slopes in every direction, and a more healthy or beautiful site could scarcely be pointed out. The buildings include a large Dining Hall, Library, Museum, and Laboratory, besides the offices and ranges of sleeping apartments on two floors. The best mode of heating and ventilation has been adopted. separate rooms are provided in case of illness, and a detached house for cases of infectious disorder.

Management.—The management of the College is committed to the Principal, who is reponsible to the Council for the general well-being of every department. He has all matters of discipline under his immediate control, and vigilantly superintends the industry, progress, and moral habits of each student, reports of which will be sent, at least, half-yearly, to the parents or guardians. A regular attendance at the daily Morning and Evening Prayers of the Church of England, and at the Parish Church on Sundays, is required: but the sons of dissenters may respectively attend such places of worship as their parents shall, by letter to the Principal, request.

Course of Instruction.—The College Course extends over two years, commencing from Midsummer, and this is the shortest time in which any student can proceed to the final examination.

The *theoretical* department comprises—1. Oral instruction in practical agriculture. 2. Elementary Geometry applied to surveying, levelling, cubage of solids, &c. 3. Mechanics applied to agricultural implements, to the erection of sheds, and construction of roofs, &c. 4. Hydraulics applied to draining and irrigating. Designing and drawing of plans for implements and buildings. 6. Chemistry and General Physics, in their various important relations to agriculture. 7. Geology and Mineralogy, do., do. 8. Botany, Vegetable Physiology, and Natural History, do., do. 9. Principles of the Veterinary Art. 10 Methods of Farm Accounts.

Practical Instruction.—The students spend the half of each day on the Farm, and take part in all the manual operations of husbandry. They have the advantage of becoming acquainted with the construction and working of the best implements. They are charged in succession with the superintendence of the various routine-works on the farm, such as the labour, the teams, the stables, the cattle sheds, &c.

Admission of Students.—Students are admissible only upon the nomination of a Proprietor, or Donor of £30: they are not allowed to enter the College under the age of fourteen years, and must, at the least, be thoroughly well versed in the routine of a good English Education. Before admission, they will be required to pass a strict examination in the following subjects:—The Construction of an English Sentence, Geography, the first four rules of Arithmetic simple and compound, Reduction, Proportion, Interest, Vulgar and Decimal Fractions.

Charges.—The charge for pupils in the Col-

lege is £50 per annum, to be paid by half-yearly instalments in advance, together with such charges as the Council may fix for the maintenance of the Library, Museum, and Laboratory. These amount to £2 per annum. The above terms do not include laundress, medical attendance, books, or class materials.

Vacations.—There are two Vacations in the year, one of a month commencing about the last week in June; and the other of six weeks, commencing shortly before Christmas. Students cannot be allowed to remain in College during the vacations.

Out-Student.—Non-resident Students of any age will be allowed, upon the recommendation of a Proprietor, to attend the Lectures and avail themselves of the practical instruction of the institution. The annual charge is £30, to be paid in advance for the year. During their presence at the College and on the Farm, they are amenable to the College authorities for their conduct, under penalty of forfeiting the fee. Those under the age of twenty-one are required to reside in boarding-houses licensed by the Council.

Cirencester is a station on the Great Western Railway, and has a direct railway communication with every part of the kingdom.

Any person having a pupil for admission must apply by letter to the Principal, who will supply him with the necessary printed forms, which he is required to fill up and return.

Donations of Books to the Library, or of Specimens to the Museum by any Proprietor or friend of the Institution will be thankfully acknowledged by the Council; as also will any Collection deposited in the Museum, of which the greatest care will be taken by the respective Professors.

All payments should be made through the Bankers.

Cirencester, January, 1847.

The following is added for the information of those who may be desirous of becoming proprietors:—

Constitution.—The Charter orders that General Courts of the Proprietors shall be held annually, at which all questions shall be decided by the majority of votes present or by proxy; and that each Proprietor shall have one vote and each Governor two votes at such Courts. Provision is also made for the appointment of a Council of Administration, consisting of a President, Vice-President, and twenty-four Subscribers; who have ample powers to carry into effect the objects of the Institution, and to enact and enforce Regulations and Bye-laws. On the day on which the Annual General Court is holden, one-third of the members of the Council, not being the President or Vice-President, go out of office but are re-eligible. The Charter limits the responsibility of each Proprietor to the amount of shares entered in the deed of settlement opposite his signature, and provides that any balance accruing after the payment of expenses, and interest after the rate of £4 per cent. on the capital subscribed, *shall be applied solely to the advancement of the Institution.*

Capital.—The Capital has been raised by transferable shares of £30 each.

Nomination.—One share (or donation to the amount of £30) confers a right of nomination. This right is not interfered with by the recommendation of Out-Students.

Governors.—Five shares constitute a Governor, and entitle him to two votes at every General Court.

Applications for shares, &c., must be addressed to the Secretary of the Royal Agricultural College, at the London Office, 15 Duke street, Adelphi.

All the varieties of mangel-wurzel, and also Swedish turnip transplant well, but much care and attention are requisite in the operation, and also in the preparation of the ground. Prepare the land well, by digging or ploughing, harrowing and rolling, so as to have it well pulverised, and manure well with short, well-decomposed farm-yard manure. The proper time to transplant the mangels will be when they are about the size of a good goose-quill—the size of the little-finger is rather large—they should be taken up carefully, and if possible, do not break the tap-root. Have ready a bucket or tubfull of rich puddle, made of rich earth and soft or manure water, mixed to the consistence of cream, into which plunge the roots of the young plants as you take them up, just so deep, and no deeper, than they have been in the ground; the roots and small fibres will get coated with this puddle, and you can transplant them at your leisure; for this purpose use a nice, well-pointed planting-stick; those made of ash will be the best, as the grain of the timber does not roughen up so soon as that of the softer kinds of timber; open the holes with this stick, and insert the plant, just a thought deeper than it grew originally in the ground; if you plant it so as to bury the heart, the plant will not make a good root; take particular care that the small end of the tap-root is not doubled up, and close the earth smoothly and tightly on the plant by the setting-stick. The process of transplanting the Swedish turnip is exactly similar, but you may, with safety, wait till the plants grows larger, although the smaller the size of either, the less they will miss their moving. We and several other of our acquaintance have had just as fine crops of Swedes and mangels by transplanting as by sowing, and some persons who have practised transplanting prefer it, inasmuch as it gives a better season and larger time to clean and pulverize the ground than can be done early in the spring; and we are of opinion, that a crop of mangels and Swedes, transplanted carefully, as we have described above,

will be found much superior and vastly more profitable than a crop of the softer and more perishable turnips sown now. In our practice we found transplanted Swedes *less* liable to root than those sown. They are more liable to grow deformed; but this, as we take it, is attributable to want of care in transplanting—they are either planted too deep, the tap-root double up, or the ground has been made too hard around them.

Mangels should be thinned out from 12 to 15 inches plant from plant, according to the natural fertility of the soil—poor land at the former distance, and rich land at the latter or a greater distance. Carrots from 6 to 8 inches plant from plant, and they should be hoed between in the same manner as turnips are.

COOLING THROUGH THE NIGHT—DEW—RAIN.

When the sky is clear and calm during the night, vegetables cool down and very soon show a temperature inferior to that of the air which surround them. This property of cooling in such circumstances belongs to all bodies, but all do not possess it to the same degree. * * *

In a night which combines all the conditions favourable to radiation, a thermometer of small size laid upon the grass will be found to mark from 10° to 14° or 25° of Fahr. below the temperature of the surrounding atmosphere. Thus in the temperate one of Europe, as Mr. Daniell has observed, the temperature of meadows and heath is liable to fall during ten months of the year, by the mere effect of nocturnal radiation, to a temperature below the freezing point of water; this is particularly apt to happen in spring and autumn, when the destructive effects of radiation are most to be apprehended, the nocturnal radiation of these seasons frequently lowering the temperature several degrees below the freezing point. It has been observed that when the sky is clouded, the destructive effects of frost are not apparent, although the same temperature of the atmosphere be indicated by the thermometer. If the freezing of the soft and delicate parts of vegetables, in circumstances when the air is several degrees above the freezing point, be really due to the escape of caloric into planetory space, it must happen that a screen placed above a radiating body, so as to mask a portion of the Heavens, will either prevent or at least diminish the amount of the cooling, and that this takes place, in fact, appears from the beautiful experiments of Dr. Wells. A thermometer, placed upon a plank of a certain thickness, and raised about a yard from the ground, occasionally indicated in calm and clear weather from 6° to 7° and 8° Fahr., less than a second thermometer attached to the lower surface of the plank. It is in this way that we explain the use of mats or of layers of straw; in a word, of all those light coverings which gardeners are so careful to supply during the night to delicate plants at certain seasons. Before men were aware that bodies on the surface of the earth become colder than the air which surrounded them during a clear night, the rationale of this practice was not apparent. * * * * *

In severe winter, the frost, by penetrating the ground, would frequently destroy the fields sown in autumn, were it not that in high latitudes the snow which covers the surface becomes a powerful obstacle to excessive cooling, by acting at one and the same time as a covering, and as a screen preventing radiation. As a covering, because snow is one of the worst of conductors, one of those substances which for a given thickness oppose the passage of heat most effectually; it is, therefore, an obstacle almost insurmountable to the earth beneath it getting into equilibrium in point of temperature with the atmosphere. As a screen, because in sheltering the ground it prevents it from undergoing the cooling which it would not fail to experience in clear nights by radiation into the open firmament. It is on the surface of the snow that the great depression of temperature takes place, and the substance being a very bad conductor, the soil cools in a much less degree. In the month of February, 1841, I made some experiments which show that the snow which covers the ground acts in the manner of a screen. The thermometer, in every case, indicated a higher temperature under the snow than when placed upon the snow.

Hambolet says that forests exert a great influence in lowering the temperature of a country. By reason of the vast multitude of leaves, a tree, the crown of which does not present a horizontal section of more than about 120 or 130 square feet, actually influences the cooling of the atmosphere by an extent of surface several thousand times more extensive than this section.

A fog, as a celebrated naturalist said, is a cloud in which one is, and a cloud is a fog in which one is not. The vesicles of clouds tend towards the earth, like all heavy bodies, but by reason of their specific lightness, the resistance of the air which they displace lessens the rapidity of their descent When they are of larger size, they coalesce and form drops of water which fall with greater celerity. When these drops fall through strata of very dry air, they undergo partial evaporation, and this is the reason, wherefore, there is sometimes less rain upon plains than upon mountains. It is believed that in Europe, it rains more heavily and more frequently in the day than in the night. In the equinoctial regions it would seem that the opposite rule holds good. Near the equator, where the temperature remains nearly constant throughout the year, the rainy season commences precisely at the period when the sun approaches the zenith; and wherever the latitude of a place in the torrid zone, where its rains, is of the same denomination, and equal to the declination of the

sun, storms occur. In such circumstances, the sky, in the morning, is of remarkable purity, the air is calm, the heat of the sun insupportable. Towards noon clouds begin to show themselves upon the horizon, the hydrometer does not advance towards dryness as it usually does, it remains stationary, or even falls towards extreme humidity. It is always after the sun has passed the meridian that the thunder is heard, which, being preceded by a light wind, is soon followed by a deluge of rain. In the torrid zone thunder-storms happen in one place or another, not only every day but every hour, and even every minute of every hour throughout the year, so that an observer placed at the equator, were he endowed with organs of sufficient delicacy, would never lose the roll of the thunder. In very warm climates the dews are so copious as to assist vegetation essentially, supplying the place of rain during a great part of the year. Forests, or a luxuriant vegetation, are said to increase the dew in their locality. In Australia, drought is the grand enemy to settlers and agriculture, and this drought is attributed to the absence of trees and forests.—*Boussingnault.*

FATTENING OF CATTLE.

Practice does much in enabling us to select the animals that will fatten readily. In a general way it is well to choose young animals that have a large chest, the body bulky and rounded, the ribs finely arched, the bones small, the legs short, the neck thick for its length, the skin soft, pliant, yielding to the touch, and moveable over the body, particularly over the ribs; the tail should be scanty, the buttocks not deeply cleft but fleshy, well *breeched*, as the precise term runs in some districts. The look of the animal should be sharp and bold, the horns slender, white, and rather transparent. The animal must have been cut quite young and while feeding on milk.

The celebrated English breeder, Robert Bakewell, succeeded after a long and troublesome course of experiments, in creating a race of neat cattle and sheep, which show themselves particularly disposed to take on fat. The fundamental principles established by Bakewell, after all his experience, are these, smallness of bone, fineness of skin, and cylindrical shape of body, are the surest indications in cattle of the disposition to lay on fat readily, and upon the smallest quantity of provender. The most striking features in the breed obtained by Bakewell, commonly known as the *Dishby breed*, may be summed up in the following terms:—

1. The animal short on his legs.
2. The back-bone straight.
3. The carcass rounded and almost cylindrical.
4. The chest deep and large.

The disposition to fatten young is also a precious quality in the beast, it is intended to bring up for the butcher; the feeder comes the sooner to his return. Sinclair thinks that independent of good constitution, which is indispensable, this quality is derived especially from meekness of disposition, from good temper; and as docility is generally the result of good treatment in early life, young animals ought always be treated with the greatest gentleness, and made perfectly familiar.

The different races do not all yield meat of the same quality, and this quite independent of age. The best meat has a very decided and characterestic flavor after it is dressed, which indifferent meat wants, or which is replaced by a savor that is disgusting rather than agreeable. The fat in the best meat, as well as being laid on superficially, is distributed through the substance of the muscles, so as to give the flesh a marbled appearance.

In fattening cattle, it is perhaps of more importance than in general feeding, that the provender should be distributed regularly; plenty of soft litter, and the greatest attention to cleanliness, aid materially in fattening. The cattle-house should be dark and quiet, well ventilated; in a word, all the conditions ought to be combined which conduce to sleep, and secure freedom from disturbance of every description, and from bad air. According to Mr. Low and Mr. Stephenson, an ox weighing about 800 lbs., and consuming about 45 lbs. of hay, or the equivalent of quantity daily, should increase 2 lbs. in weight of flesh daily. The equivalent for this portion of hay should be given in roots, oil-cake, or grain, which can be ascertained by reference to the tables. Breeders have discovered that it is by no means advantageous to feed animals beyond a certain point of fatness. The excess of weight which is obtained, with the assistance of quantities of food, exaggerated as it were, no longer compensate for the additional expense incurred.—*Ib.*

Sowing-machines.—Mr. Hornsby, of Grantham, received the premiums on this occasion. His prize drill is thus described:—A turnip-seed, mangold wurtzel, and manure drill, two rows upon ridges, and three on the flat. This drill is fitted on wheels, and is capable of depositing compost, bones, guano, or any other pulverised manure, in a moist or dry state, fitted with stirrers in the manure part, with rotary motion and lever to put ditto in or out of action as the drill travels. By the use of the stirrers, and the front of the box moving inward by a lever, the whole of the manure can be deposited without the assistance of a person pottering. Also with double-actioned iron levers the manure coulter and seed coulter act independently of each other, so that a large quantity of coarse, badly prepared, moist compost can be deposited deep and covered up, and the seed put in immediately after, or the manure and seed together if required. A pair of concave rollers are also attached to this drill, to roll the ridges; the rollers made to shift on the axle to suit different widths, and can be easily taken off when not required.—*Farmer's Herald.*

DEEP AND SHALLOW DRAINING.

It was well observed by Sterne, "that circumstances govern everything in this world, for no man can govern them;" and in like manner, the opinions of men are almost invariably formed by the circumstances in which they are placed, and by the appearance of the objects which they are accustomed to behold. Few minds ever take a discursive range; indolence rests within a narrow confined circle, and is contented with the agreeable thought that the outer world is exactly formed according to their miniature comprehension. And experience has yet been unable to remove this universal disease of the human mind.

Deep and shallow draining is wholly a case of circumstances. On purely clay soils, the opinion of the Duke of Portland is most strictly true, "that the drains cannot be too shallow, provided they are not disturbed." In strict adherence to this maxim, he has drained and continues to drain with great success the tilly and soapy clays of Ayrshire, at the distance of 14 feet apart and the depth of 2 feet. The drains are placed in the furrows, and the ridges are carefully kept in the position. I lived in Ayrshire for several years, and witnessed the success of the system. The tiles are 3 inches in span, are placed on soles, and covered with straw, furze, fen, or brushwood, on which the grassy turf is reversed. This system is founded on the truth, that the soil is a pure clay to the depth of many feet, that it is not traversed by any permeable strata, that no water springs upwards to damage the surface soil, and the rains of heaven are the only damage to be guarded against.

Moving from the pure unmixed clays, we come to the soils that are formed of different substances, but of which clay is the chief ingredient. Sands and gravels convey water freely; the strata are often very thin and scarcely perceptible, and the clay itself is often so mixed as to be rendered permeable. In such cases, a distance of 5 or 6 yards will be sufficient. These soils are the most common all over the British Isles.

The third class contains the poachy alluvial clays, sands and gravels, which are infested with springs, and which do not freely absorb the water that falls in the shape of rain These lands may be dried by a width of 6 to 8 yards, which last figure may be called the utmost distance that can be used with any advantage. A greater width will leave the middle space of ground undrained.

An average depth of drains may be stated at 2½ feet, which I have always used very successfully. Mr. Smith, of Deanston, lately stated to me in private conversation that he had yet seen no reason to depart from this depth, which he had so long used. We also joined in the opinion that stones are better filling for drains than tiles, and I always used them in Wales; viz., 15 inches of broken quarried stones, and 15 inches of earth over them, which freely admitted the action of the subsoil plough. If lands be damaged by springs of water rising upwards, a depth of 2½ feet will intercept it, and convey it away as harmlessly as a depth of 10 feet; for water 2 feet below the surface can inflict no damage upon it. Hence a greater depth is useless.

Stones broken to the size of large road metal are preferable to tiles for the purpose of drains; they afford a greater number of interstitial cavities, and consequently facilitate the reception of water. From 6 to 12 inches of broken stones laid over the tiles, or a quantity of clean gravel, will form the *ne plus ultra* of draining. But many situations do not afford either of these materials, A single tile forms too small an orifice.

Moorish soils may be mentioned; the upper stratum is usually a black or hazel heathy loam, incumbent on a bottom of very compact gravel, sand, and clay. This subsoil denies the downward progress of the water, and it percolates or runs between the "hard and the soft," gathers into a superfluity, and converts the upper soil into a puddle. Such lands comprehend many varieties, which cannot be drained even at a distance so close as three yards. Personal experience fully satisfied me on this point. In this case, the drain has only to carry away the oozings of water that percolate between the subsoil and the upper soil, and this alone damages the latter; and for this purpose, a depth of drain of 10 feet would be wholly useless.

Mr. Mechi's idea of the permeability of clay is completely refuted by science and experience. The alluminous base absorbs fifteen times its own weight of water, and retains it with great obstinacy. Clay is never found in a pure state, but I have seen it sufficiently pure to deny the passage of water at the distance of one yard from the edge of the drain, and a foot of it, when relaid on the top of a drain five feet deep, has refused any passage to the water, and rendered the drain underneath to be wholly useless. The foot of clay became equally wet as the adjoining land, and rendered the drains in effect to be wholly invisible. There is no arguing against experience.

Deep draining is wholly overturned by the single fact of the impermeability of clay; and original and enlightened as the ideas of Mr. Parkes and Mr. Mechi appear to be, they have yet much to learn from practice. They have got some permeable clays to deal with, and they have drawn the most fallacious inference of success in all other cases. Mr. Elkington thought his boring system would drain all lands till the clay undeceived him; and Mr. Brown, of Markle, a most excellent farmer and writer, asserted that no soils could be found that two horses could not plough. He farmed the friable clays of East Lothian, and had never seen the clays of Kent and Surrey and Sussex, which defy all the ploughs in Scotland; and at this day many Scotch writers are of the

same opinion. Nothing can be more absurd. And so fares it with deep and shallow draining.

Draining of land is intended for two purposes—to carry away the surface water, and to intercept the springs of water that ooze from the permeable strata, rise upwards and damage the upper cultivable stratum. Now the drain must be sufficiently near to the surface to receive and convey away the surface-water before it gathers into a superfluity and inflicts damage, and to intercept the springs at such a depth below the surface where it can do no harm to the upper soil. Water flowing two feet and a-half below the surface is equally innocuous to cultivation as if running at a depth of twenty feet. True economy consists not in getting things cheaply done, but in getting them well done; and on some of the soils I have mentioned, a thin distance of drains would only show the necessity of having a greater number placed between them. In my former and present practice I steadily adhere to Mr. Smith's opinion above quoted. JOHN DONALDSON,

An Assistant Drainage Commissioner.

April, 6, 1848.

SPADE HUSBANDRY,—Saxmundham, April 18, 1847.—Sir,—I feel great pleasure in forwarding you the promised statement from Mr. John Sillett, of Kelsall, showing the method he pursues in cultivating his two acres of land. It is necessary, for the guidance of those who adopt his method, to state that he keeps his cows (which are very productive) housed all the year, and bedded on sand, with a drain to carry the moisture away into a tank which is outside the cow-house. The moisture from the hogs is also conveyed by a drain into the same reservoir. The liquid thus obtained is used for manure, which he has found of infinite service in producing unprecedented crops. I might further state that the land is manured every crop, and dug with a three-pronged fork thirteen inches in length.

Mr. Sillett has divided his land into four portions—three of 60 rods, and one of 120, which is grass, reserving 20 rods for beds for raising plants for transplanting, and has given a statement of each, which is as follows:—

No. 1. Was planted in October with spring cabbages in rows two feet apart, and one foot three inches from each other; between each row of cabbages he dibbled a double row of wheat. In February he planted between each cabbage early potatoes. The cabbages came off about the middle of May, and the potatoes in June. He then prepared the land for Swede turnips, which he had raised upon beds; he transplanted the turnips the latter end of June the same distance from each other as the cabbages stood, which gave them a sufficient quantity of air to grow until the wheat came off, which was the beginning of August. The turnips had then all the air that was necessary to bring them to maturity, and in the October following they were as large as the turnips grown in the ordinary way. The following is the produce:—19 bushels wheat, 7,900 cabbages, 7,900 turnips, and 90 bushels potatoes.

No. 2. Was appropriated to the growth of beet. In April the seed was dibbled in ridges two feet apart, and a foot from each other; by this method the beet became very fine, and were admired by all who saw them for their size and quality; the quantity thus grown amounted to 720 bushels, which was followed by a crop of spring tares, which are now growing for food for the cows.

No. 3. Was planted with drumhead cabbages in rows three feet apart, and two feet from each other, and between each row of cabbages was dibbled a double row of beans and peas. The cabbages amounted to 3000, and weighed on an average 18 lbs. The beans and peas produced 12 bushels.

No. 4. Grass manured with liquid manure; 40 rods were cut green for cattle, and the residue produced two tons of hay, which is at the rate of four tons per acre.

If we take the produce at a low calculation, supposing all to have been sold (which was not the case), it would have realized the following sums:—

	£	s.	d.
No. 1.			
19 bush. of wheat at 9s. per bush.....	8	11	0
7900 cabbages at 0½ each.....	16	9	2
7900 turnips, allowing 50 to the bush. which would make 158 bush. at 6d. per bush.....	3	19	0
90 bush of potatoes at 4s. per bush.....	18	0	0
No. 2.			
720 bush. of beet at 6d. per bush.....	18	0	0
No. 3.			
3000 cabbages at 1d. each.....	12	10	0
12 bush. beans and peas at 4s. per bush.....	2	8	0
No. 4.			
3 tons of hay (allowing the grass cut to produce the same on average as that cut for hay), at £5 per ton.....	15	0	0
	£95	17	2

I am supposing everything to have been sold, excepting the spring tares, but as they are not produced within the year, I have omitted to give an idem of their value. In this calculation I have not set the produce at its real value, as it is not my wish to over-rate the advantages to be derived by the spade over the plough.

The statements here given are simply facts as to the produce, and their value if sold at the price stated; and as I have shown in my former letter the profit realised by Mr. Sillett from two cows, I shall leave others to make their calculation as to the propable advantages to be derived by the system of cow-keeping over the one I have stated; suffice it to say that the statements here given can be borne out by Mr. Sillett, who states that before

he commenced he did not know even the various seeds, and now that he has made himself acquainted with the system, and has thus far been successful, he feels fully confident he shall be able to make his land produce by spade cultivation double what it has done. This, therefore, is further evidence, tending materially to prove that the land is capable of maintaining in comfort all that are willing to bestow that labour and attention that is required for the proper development of the capabilities of the soil.—*Thos. Newman.*

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, SEPTEMBER, 1848.

We consider it necessary in every number of this Journal to remind the members and friends of this Society, how essential their co-operation and active support is to its useful and prosperous working. If there is a lively interest clearly manifested by members and friends to promote the objects for which the Society were organized and incorporated, it will cause others to think the matter of some importance, and induce them also to unite in the good work of improving the country and augmenting its products. There never was a period in the history of Canada, when the united exertions of the community was more urgently called for than the present, to devise every means in their power to prevent the country retrograding, after the rapid advances it has made the last few years. Some millions of pounds currency have been expended within a very few years upon our cities, towns, canals, rail-roads, &c. and we are now called upon to adopt measures that this vast expenditure shall not be capital unprofitably invested for the country, as it must be, if it does not find full employment. Fortunately for us, we possess a beautiful country, a fertile soil, and not unfavourable climate, that places the means in our own power to give the required employment to all the vast capital now expended, and which cannot be again realized, or converted into available capital for expenditure in any other way. The improvement of our agriculture, and the augmentation of its products are the only resources in our power that will not disappoint us. This being a fact that cannot be disputed, it necessarily follows, that no subject should receive so much attention from the whole Canadian people. It is not sufficient that there exists no law to check individual enterprize in agriculture. In other countries as well as in this, direct instruction and encouragement is required to call forth this enterprize into activity. How can we expect to recommend agriculture as of so vast importance, when we have not provided in any of our schools or colleges for the instruction of our youth in the science and art of agriculture. The people will not readily be persuaded that there is much real importance attached to agriculture, when there is no regular education or practical instruction provided for those who engage in the business, as there is for other professions and trades. Model-farms, Schools, and Colleges, are as necessary for the regular instruction of the rural population of this country as education and instruction are for the learned professions, or any other business or trade. Agriculture is of the first importance to the human race, and it is entitled to the first and principal care and attention of all governments and states. We should not presume to write so confidently on any other subject, but on this there cannot be any mistake. We suppose few will question, that if this country produced twenty million pounds worth in a year, it would be more advantageous for the whole Canadian people, than if it only produced half that amount. We would think it a very great advantage were we to receive a grant of one or ten million pounds annually, and yet we neglect our own resources that might readily be augmented by that amount. What honour or reward would the country be disposed to give to the minister of agriculture (if we had one) who would be the means of aug-

menting the productions of our country to the extent of one or ten million of pounds annually! A stranger might fancy that no honour or reward that could be conferred would be too great. By whatever means the required improvement can be effected in our agriculture we are bound in duty to our country to adopt them without hesitation or delay, so far as they are in our power. However, past experience may be calculated to damp our expectations, we would wish to hope the time has arrived that our agriculture shall receive all necessary attention, and that as all are interested (as we have endeavoured to prove) in its full prosperity, all will unite to ensure its improving and prosperous condition. It is this source almost exclusively that must supply all the wants of the Canadian people, as well as the Revenue for the support of our Government, and all charges we may be subject to the payment of. Convinced as we must be, that the only resource of this country is her Agriculture, to furnish her people with all they may require, can anything be of greater importance to us than providing those engaged in husbandry, with the best instruction in the science and art of agriculture. Not only all this, but a complete superintendence over the agriculture of the country, would, we conceive, be necessary, to see that all was going on prosperously, that Farmers had suitable varieties of seed that would be most likely to yield good crops, or that such varieties should be procured and sold at a fair price. We have constantly heard, particularly within a few days, of the great losses sustained in various parts of the Province by sowing the old four months wheat of Canada, instead of the three months Black-Sea wheat, and also by sowing at unsuitable periods. Such losses are a great drawback, and a serious general evil to the country, that might be prevented. It is particularly so, when the potatoe crop is now, in all probabibility, lost to us. We may fairly estimate that the loss of every acre of potatoes is equal to the loss of from four to six acres of grain, in the way of food. The waste and misapplication of so much labour, manure, seed, and soil, that might have produced good crops of some other kind, is a serious evil, and will diminish considerably our general produce. The result of this years experiment leaves no longer any doubt as to the uncertainty of potatoes as a general crop, and it will necessarily produce a great change in our Agriculture. In most other countries, potatoes constituted, directly, and indirectly as food of animals, a large portion of the food of man, which they can no longer depend upon. To make up this deficiency, much more of other crops will have to be cultivated as a substitute for the heretofore immense produce of potatoes. These matters are of very serious consequence, as the subsistence of the people of most countries will be influenced by the want of potatoes, that have always been a great resource, particularly in times of failure of other crops. This resource we are likely to be deprived of for some time, and it becomes our duty, therefore, and our *first* duty, that our lands should be cultivated well, and with such varieties of crops, as will gives us abundance, and a surplus, that if a part should fail or be lost, we should still have sufficient food. There should not be any difficulty to do this in such a fine country as we are blessed with. We should be able to produce two or three times as much food as would supply our own population. In any case, the food of man is a matter of such importance, seeing how soon we may lose a large portion of it that was nearly ready for our use, that our Agriculture is a matter well entitled to the most careful superintendence, and the attention of our talented men, to secure to it every support and encouragement, that would place it in a constantly improving and prosperous condition.

We have heard much of the unprofitableness of farming, but we believe there are many causes for it besides those usually assigned. Where many labourers are employed, if their labour is not properly directed and faithfully executed,

no profits can be realized. The unskilfulness of farmers is another cause. There is still one more cause, that farmers may have expenditures in no way connected with their business; and if capital is lost in this manner, it is often unjustly attributed to unprofitable farming. But all these objections out of the question, what would become of the human family were all to give up farming because it is said to be unprofitable? The objections have no weight, or should not have any. Our business is to endeavour to make farming profitable, as we cannot live without it. We take upon us to say, that with sufficient capital, and skill to employ it, farming may be very profitable, but we admit the want of either of these essentials, is fatal to its success. We should never recommend farming were we not convinced of these facts—and were we not further convinced that there is no hope for this country except from the prosperity of her agriculture.

This is the time when draining has to be done to prepare the soil for producing good crops the next year, and if it is neglected we need not expect to have our lands in a state to yield us large crops next season. Draining and manuring should be as much as possible done in the fall, and where manure is applied to grain crops it will prove much more advantageous to have it ploughed in in the fall than in the spring. Covering the soil with straw or other substances that would shade it from the light during summer, and prevent any great vegetation, is a certain means of producing and increasing fertility. We have many substances here that might be so employed and taken off again when the land was to be ploughed in the fall. It is a species of summer fallow suitable for light soils that may not require many ploughings. Straw, small branches of trees, or any thing of that kind, that could easily be obtained, might be spread upon the ground as an experiment, to see the amount of fertility that could be produced by this mode. We do not say it would be judicious to try it on a large scale, but where manure is difficult to procure in country places convenient to the forests where small branches could be had in abundance, we believe farmers might make use of them for the improvement of their land by a covering of small branches with the leaves on as soon as the leaves appear in spring. There are many of these small branches, young shoots, &c. which could be had when the forest is convenient. The leaves have much manure in them, and when the branches would be gathered off in the fall, the leaves would remain to be ploughed in. This may appear a strange mode of manuring land or augmenting its fertility, but we believe it would have that effect to a considerable degree, and the small brush gathered off might be burned to spread on the land. If straw was employed it could be gathered off to the dung yard, to make manure for other land. We propose this plan as one that could be adopted under particular circumstances, for light land when the material for covering could be easily obtained from the forest, if the farmer had no straw. In many places, exhausted lands lie close to the forest, where the means are to be had for their improvement even though the farmer should have no straw. By increasing the fertility of his land in this way, he will soon increase the quantity of his straw, hay and grain. However incredible it may be that lands may be manured by the method we propose, we are convinced that the thing is quite possible, and might be a great source of manure to farmers who find it difficult to procure any other besides the little they make themselves. There are many weeds and much grass to be had in woods besides small branches of trees, that might be collected to spread over land in the commencement of summer, to manure and fertilize it for fall ploughing and future crops. The forest may thus contribute to the manuring of arable land convenient to it, and we trust the experiment will be fairly tried before our plan is rejected for its novelty. For heavy lands summer fallowing by many ploughings is necessary.

For many years, when the crops were nearly at maturity, we have made a visit to the farm of Charles Penner, Esq., of Lachine, and never without experiencing much gratification, and encouragement to recommend an improved system of Agriculture, by seeing the results obtained on that gentleman's farm from such a system. At our last visit, it was not one or two particular crops we observed to be excellent, but every crop cultivated upon the farm was excellent, and appeared to have all that was possible done for each to ensure good returns. Mr. Penner, perhaps, cultivates a greater variety of crops than any other farmer, and of hops, particularly, we believe, he has the largest quantity of any person in North America. This is a crop requiring large quantities of manure, and most expensive and constant labour during the whole time of their growth and gathering. Nevertheless, all is done in perfection, and there is no apparent neglect to any crop grown upon the farm. The implements are of every variety required upon a large farm, and of the best description, suitable to their various uses. Without such implements it certainly would not be possible for Mr. Penner to have his variety of crops so perfectly cultivated. We are not surprised that he has been awarded the first prize for the best managed farm in the County of Montreal, and have no doubt he would be awarded the same prize if he had to compete with the whole Province of Canada. He has several beautiful thorn-hedges, all of which have been planted to our knowledge within a few years. How desirable it would be that thorn-hedges should be substituted for those long straight lines of dead-rail-fences, than which there cannot be a greater disfigurement of Canadian landscapes. We would recommend to any of our subscribers who may doubt our report, to satisfy themselves on the subject, as we have always understood that Mr. Penner is most kindly disposed to allow any farmer who may desire it, to see his establishment, and we can tell them they may profit by the visit if they are disposed to receive instruction.

At the Northampton Meeting of the Royal English Agricultural Society last year, the first prize was awarded to a wheel plough, the old Y. L. invented by Ransom of Ipswich. It is thus described:—A two wheel plough, invented, improved (with Ransom's truss-beam), and manufactured by exhibitor, for strong land. This implement is capable of working 12 inches deep if required; and with a lighter mould-board will not be found too heavy to be used as a two horse plough. The ploughs that were awarded the 2nd and 3rd prizes for strong land, had wheels also. For the trial of ploughs for light land there were 22 selected, and those awarded the 1st and 3rd prize were wheel ploughs. The 1st is thus described;—A patent iron plough with two wheels, marked S. A. (No. 2. maker's list) invented and manufactured by the exhibitors, Messrs. Howard & Son, of Bedford, with a new method of fixing the wheels, by which means the width of the furrow-wheels may be altered more readily than upon the old plan. It is also superior to the original method for deep ploughing, and upon dirty land, where the soil accumulates upon the old sliding axle. The third prize awarded in this class was also for a wheel-plough of Mr. Busby's, invented, improved, and manufactured by himself, adapted for all descriptions of soil, with a moveable nose-piece, upon which the shares are placed, which can be set more or less, to land with more or less pitch; this has been found an advantage where cast iron shares are used, for, as they wear down, the plough will still retain the same hold or inclination towards the soil." We know that the plough of Ransom, first described, is an excellent plough, having imported one of them. At the York Meeting in July, wheel ploughs obtained first prizes for heavy and light land.

Farmers who have summer fallow in progress should give them all the necessary working, cleaning and manuring. There should not be a weed or root of any plant to be seen

upon them; they should be all gathered, and carted off to rot in the compost heap, or be burned on the ground. We have long recommended summer fallows as a means of improvement, in the power of every farmer, but we regret that very little land has been regularly fallowed. Half the arable land of Canada which is composed of strong clay requires to be summer fallowed, and would be infinitely improved by the process, well executed.

AGRICULTURAL REPORT FOR AUGUST.

The beginning of the month was very favorable for finishing the hay and barley harvest, although we had occasional falls of rain. The hay cut after the 1st of August was generally got in very well, but had become a little overripe. Timothy grass requires to be cut when at maturity, (which it is always considered to be when the head flowers,) as exactly as a crop of grain, and it deteriorates considerably when not cut at the proper time, and loses much of the seed. The crop of hay on the whole is not a large one, and some has been materially injured in curing. The barley crop has been generally got in well, but the grain is not so plump as we have often seen it, in consequence, we suppose, of the straw being very much broken down by heavy rains before it was quite ripe. The breaking down of any crop previous to its becoming ripe never fails to produce injury to some extent. The wheat, peas and oats have also suffered from the same cause, but we cannot say to what extent. Indian corn on dry soil never had a more promising appearance in this country, than at present. We have been told by a friend who has made the experiment that pig manure is much the best for the production of Indian corn, and farmers should reserve it for this purpose. The potatoe crop, we regret to say, is reported to be a complete failure. This is the more to be regretted as a large quantity was planted this year, in consequence of the crop having generally succeeded last year, and paid the farmers well. Potatoes are most expensive to cultivate, and the seed, this year, was very high priced. Their failure, is, consequently, a great loss to those who planted large quantities in the hope of realizing large profits. There is another cause to lament this loss—that a great quantity of manure has been applied to the land, and much labour expended and lost, without scarcely any return, when all this might have been appropriated to other crops that would have succeeded. It is a dangerous speculation, under the circumstances of our total ignorance of the cause of this disease, to cultivate potatoes extensively, until we are certain we can do so safely. If the disease had been satisfactorily accounted for, by any one of the numerous writers on the subject, we might hope to apply some remedy, but in all the volumes published, no reasonable or satisfactory explanation of the disease has yet appeared, and while we remain in this ignorance respecting its cause, we cannot hope to apply any remedy. We believe that by careful cultivation and storing, that potatoes may still be grown to a certain extent, but not in great fields, as heretofore. Manuring moderately the land the previous fall, and applying a reasonable quantity of salt and lime, when planting, and subsequently before they are earthed up, would, we have no doubt, tend to preserve them, and when taking them up, drying them thoroughly, and storing, mixing them with some dry substance, such as sawdust, chaff, or charcoal, they might be preserved from decay. We may have substitutes for the potatoe, though not equally relished as that favourite root. Windsor beans would grow here in great luxuriance, and they could be made use of both in a green, and ripe state, by proper cooking, and they are much more nutritive than the potatoe. Carrots, parsnips and some other roots, may also be produced here in large crops. It is better for us to resort to these than cultivate large fields of potatoes, to rot before our eyes. We perceive by late accounts from Ireland that the people of that country had, this year, returned to the cultiva-

:on of the potatoe, and nearly given up the cultivation of other roots, which they had been induced to commence growing the two previous years; and should the potatoes fail them now, as it is generally feared they will, from present appearances, the most fearful destitution and suffering are anticipated. After the example we had in that country it should be a warning to us not to attempt to grow potatoes as a chief part of our food, when we are not forced by scarcity of land, or poverty, to do so. We have heard many reports respecting the results of early sowing of wheat; some early sown is said to be a total failure by the fly, and other early sown said to be a good crop, and very little damaged. We have heard further, that farmers who have sown the old four months wheat of Canada, have it spoiled by rust; should we be able to give any positive information before the Journal goes to press, we shall publish it. If the late sown Black Sea wheat was safe from rust this year, we might confidently expect it will continue to be so, as this season was well calculated to produce the disease; we fear, however, that it has rusted in many instances. Much will depend upon a fine harvest for securing the wheat crop. The oat crop was exceedingly good this year, being generally sown early. We have seen grass-hoppers almost cover the crop, and they must have done it considerable damage in many places, they are of such large size, and manifestly devour the grain, and cut off others that fall to the ground. Oats where lodged have been damaged. Carrots and parsnips are good where due attention was given to their cultivation and weeding. Turnips have suffered much by the fly, but there are good crops nevertheless, and some late sown, where the previous sown were destroyed by the fly, may yet succeed. The hoeing and weeding of these crops by inexperienced hands, is a most expensive business, and makes the crop of little value to the farmer. The great point is to prevent the necessity of much weeding by proper cultivation and cleaning the soil previous to sowing the seed, which may be done. It is essential to prepare land for these crops, and for beans, in the fall, as they require early sowing, and if any part of the preparation of the soil that could be executed in the fall is allowed to remain over to the spring it will greatly retard the work of sowing, and lessen the chance of a good crop. Farmers have not all in their power, certainly, to produce good crops, but they have much, and their neglect to cultivate properly is sure to produce the consequence—bad crops. The month has been favorable for the production of grass, and the cut meadows are covered with verdure, which is not often the case in Canada. Cattle will have abundant food this fall to put them in good condition before the winter. Butchers' meat, and butter are a full supply, and prices moderate. We have no regular cheese market, and we regret that most of the samples brought for sale here, are not the best quality. We have, however, some that is good, and this proves we might have more, if not all good, as there is nothing in the soil or climate to prevent it. The appearance of the orchards gives promise of a fair crop, where they have been preserved from the ravages of the caterpillar. We wish it was possible to offer any accurate estimate of the value of the whole crop of Lower Canada, as it might give us some confidence in the future. That an abundant crop has been produced, there can be no doubt, but as to the extent of the drawback by the loss in potatoes and damage to other crops, we cannot be quite certain at this moment.

There is little doubt that sufficient draining, a more careful cultivation, selection of suitable seed, and proper period of sowing would have a great influence upon the general produce of crops in such seasons as the present. Crops were produced in great luxuriance, but they have suffered damage from various causes, that might have been lessened to a considerable extent, under a more perfect system of husbandry, and by the application of lime and salt that are necessary to give strength and firmness to

the straw on very fertile soil, to prevent straw becoming too long and lodging. Sowing in drills, and covering the seed evenly and sufficiently, would be another means of securing a good strong growth of grain crops, firm in the straw, and full in the head. In conclusion, although the heavy rains we had from the 15th to the 20th of the month, have, undoubtedly, done extensive injury to the crops, the fine weather, subsequently, has enabled farmers to secure a considerable portion of them in fair condition. It was impossible that such heavy rains, continued four days, should not have injured crops that were beaten down or lodged, as many of them were, and particularly peas, ready for harvesting, sustained considerable damage. We have also seen wheat rusted, and some lying upon the ground, sprouted, but hope the sprouting is not to any great extent. We have been told that many of the crops have had water standing upon them, and it may be conceived the damage this would produce. A continuation of fine weather will have a great influence upon the result of our harvest. We regret that it is now impossible to realize the favourable anticipations we had from the beautiful appearance of the crops some time back, but if we should have fine weather, we may be able to harvest a very ample general produce, notwithstanding the loss of potatoes and damage to other crops.

August 31, 1848.

The great "Exhibition" of the Agricultural Society of Canada West, is to take place at Cobourg, on the 3rd, 4th, 5th and 6th of October next, and it is expected that the attendance will be very numerous, and the show of Cattle, Implements, &c. &c., worthy of the intelligence and enterprize of the Agriculturists of Western Canada. We hope the time is not far distant when the Agricultural Society of Lower Canada shall also have their great Exhibition of Agricultural Products, Implements, &c.

We heard very many complaints, this spring, of the excessive hardness of the soil, and the difficulty of working it to a fine tilth by the usual modes employed. We can fully credit these reports from the continued dry weather we have had, and the fact, that we have no clod-crushers here to break down these hard lumps, and few of our common rollers are capable of doing so, however heavy they may be, as strong iron teeth are necessary in any roller employed for this purpose. The best means to prevent these hard lumps in clay soil would be sufficient drainage. If clay soil was properly drained, the rain would pass down through the soil, and leave it moist and mellow, and not liable to form into these hard lumps or masses that cannot be worked effectually, or produce good crops however fertile the soil. Draining and summer fallowing is required to almost every acre of strong clay land in the country, to bring it into a proper state to produce good crops. During the process of fallowing, the roller, clod-crusher, and cultivator, are all implements that may be used most advantageously, and indeed are necessary to perfect execution of the work.

We give insertion to a Summary of the Proceedings of the Royal English Agricultural Society at their late great Meeting at the City of York, and also to the speech of Prince Albert at the great dinner on that occasion. We wish we could copy more of the speeches to show in what estimation Agriculture is held in England, by the first in the country, in rank, wealth and education. In the speech of the Belgian Minister he observes that Agriculture was the making and the saving of his own country. It may do the same for Canada if it is not our own fault or neglect. At the York Meeting there was 724 entries of Stock and 1508 of Implements.

Total amount of Prizes of the York Meeting, £1845. Of this £350 was paid for Implements, and £340 for Reports and Essays.

Carrots.—In England they allow their larger cart-horses 1 bushel of white carrots and 1 gallon of oats, or half a gallon of ground beans, in the 24 hours, and the horses are said to work and thrive upon this food, with some hay. One acre, properly cultivated, would produce 800 bushels carrots, and this would be sufficient, with from 80 to 100 bushels of oats, for four horses for seven months, with a certain portion of hay. This would be a considerable saving, and one acre of land would be producing as much food as five or six acres cultivated in oats. The carrot tops, if not fed to cattle when the crop is taken up, may be spread upon the land, and ploughed in, and be an excellent dressing of manure for the succeeding crop of grain. In this country we might certainly, by proper cultivation, hoeing, and weeding, raise as large crops of carrots as in any other on earth. The great point is to have the soil sufficiently fertile, deeply dug and well pulverized to sow in time, and keep down all weeds.

We find in the late number of the *Farmer's Gazette*, statistical returns from various sections throughout Ireland of the state of the growing crops, that must give a good idea of what the crops are likely to be. We have long endeavoured to recommend the adoption of this plan in Canada, and we believe it might be easily carried into effect, and could not fail to be advantageous to our agriculture and to its improvement. Such returns, made correctly upon a good plan, would show the true state of agriculture, and afford an opportunity of applying suitable remedies where any defect would be found to exist in our system of husbandry. This information would be useful in other respects also, and enable us to judge of the general produce of the year. Without such returns, we remain in total ignorance of the quantity and value of our annual productions, and what we really have to depend upon to meet the demands upon us.

The cost of burning clods on summer fallows in England is from 8s. to 10s. per acre, and about 30 chaldrons of burnt clay are obtained for the acre for this price. The clods are gathered off with a kind of fork with several tines one inch wide, and half an inch interstices, and made into small heaps for burning. This fork gathers only the clods and allows the dust to pass through. The ashes are spread at 2s. per acre. This dressing is considered equal to an ordinary one of farm yard manure. They burn the clods with stubble, bean stalks, and furze. A waggon load of either of the two first will burn $1\frac{1}{2}$ acre, and of the latter $2\frac{1}{2}$ acres. We have abundant fuel to burn clay, without burning stubble or bean stalks. The borders of fields, the scouring of ditches, and clay dug from pits, are also burned for manures in large heaps. There is nothing to prevent us adopting the same plan for obtaining manure.

We would again urge those who have the means to provide in time for the importation of fresh samples of seeds for sowing next spring, wheat, oats, and barley, of suitable varieties. The wheat should be the Black-sea, three months wheat, and no other, unless varieties that would come to maturity in the same space of time, and not be liable to rust in the straw, or varieties that would be proof against the ravages of the fly, at whatever time sown. Of oats and barley, the best that could be had should be imported, and by the fall ships, so as to be able to sow early in spring,—the oats particularly. Changing the seed, even of the same varieties, has a most favourable effect on the crop grown from it, and every farmer may convince himself of this fact that makes the experiment.

We must once more call upon subscribers to this Journal, and all who receive it, to pay their Subscriptions without delay. The Society is at considerable expense in publishing the Journals, and they possess no funds to

meet these charges except the Subscriptions of Members and for the Journals. They have Agents in many parts of the Province who are prepared to receive subscriptions, and give receipts, and where there are not agents the money may be sent through the Post Office to the Secretary, paying the postage. We hope our friends and subscribers will not put the Society to the expense of employing a travelling agent to collect. The Journals have no connection with parties or politics, but are published solely with the view of promoting the improvement of our agriculture, and we trust those who receive and read them will find it fully worth the amount of the small subscription.

Mr. Boussingnault says "that in those countries, the nature of whose climate is favourable for pasturage, the rearing of cattle presents immense advantages, but the animals can only be fattened in those that are the most fertile. The meadow that suffices for the growth and keep of a bullock, will not always bring the animal into condition for the butcher." As, however, there may be considerable difference of opinion as to the profitableness of rearing and fattening cattle in Canada, we shall submit what he says on the subject. We know that no good system of Agriculture can be carried on without a due proportion of meadow, pasturage, and cattle. Mr. Boussingnault is of the same opinion. "Wherever it has been possible to lay down extensive and productive meadows, it is beginning to be clearly understood that the introduction of even the best system of rotation, were to make a false application of Agricultural science. In my opinion, there is no system of rotation, however well conceived and carried out, which will stand comparison in point of productiveness with a natural meadow, favourably situated and properly attended to. The reason of this is obvious, and follows from the very principles we have laid down in treating of rotations. The whole object of the best system of husbandry is to make the earth produce the largest possible quantity of organic matter in a given time. But in such a system we are limited by the climate, inasmuch as we are obliged so to arrange matters that our crops shall always attain complete maturity, the consequence of which is, that with all our pains, the soil remains unproductive during a certain number of weeks and months towards the end of autumn, in the early spring, and through the whole of the winter. But in our meadow-land vegetation is incessant, (in Canada it is not so in winter.—Ed. A. J.) in the spring it proceeds when the main temperature is only a few degrees above the freezing point of water. It is, therefore, easy to obtain conviction that a given surface of meadow-land must necessarily produce a larger quantity of forage than land laid out in any other way. It is true that forage thus obtained will not, like the cereal grasses, answer immediately for the support of man, but it nevertheless concurs powerfully in this by pruducing milk, butter and cheese, and in butcher's meat. The land is also ready at all times to be applied to other crops.

Storrington Farmers' Club.—After an interesting discussion upon the propriety of forming a Farmers' Club, the Chairman put the question for the establishment of the "Storrington Farmers' Club" to the vote, when the resolution was unanimously carried. The Chairman congratulated the meeting on the unanimous decision at which they had arrived. He was decidedly favourable to the establishment of the Society, believing that the intercourse and exchange of ideas arising out of such associations were calculated to lead to much practical advantage. If farmers always remained at home, satisfied with their own plans and with their own systems, they naturally got conceited (laughter) and were impressed with the opinion that those plans and systems were the best that could be followed; whereas if they belonged to an association like that which it was the aim of the present meeting to establish, they interchanged ideas and communicated to each other facts which the experience of each supplied. Thus most valuable information was often acquired.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

(ABRIDGED FROM THE YORKSHIRE GAZETTE:)

"Hence he to fields descends, manures the soil;
Instructs the ploughman, and rewards his toil;
Plans useful work, when peace and plenty reign,
And Art joins Nature to improve the plain."

Nearly eleven years have passed away since the propriety of establishing a National Society for the Improvement of Agriculture was first broached by the late Earl Spencer, whose name will ever be held in grateful remembrance by the yeomanry of England. The Royal Agricultural Society of England was founded in 1838, after many attempts had been made, and many suggestions thrown out by some of the leading farmers in England, as to the probable value of such a society to the advancement of practical agriculture. The first person who systematically addressed himself to the question was Wm Shaw, Esq., of London. From the year 1834 to the period of the first public meeting of the Society, Mr. Shaw, on every proper occasion, not only suggested the public advantage likely to be derived from such a Society, but he excited the Duke of Richmond, Lord Spencer, Mr. Handley, and other great leading agriculturists, to propose its immediate formation. The first public expression by these great friends to agriculture of their willingness to co-operate in the promotion of a National Agricultural Society, similar in its objects to the prosperous Highland Society of Scotland, was made at the dinner of the members of the Smithfield Club, on the 11th of December, 1837, when Earl Spencer was the first to allude to the subject in a speech, in which he dwelt not only upon the advantages which would arise to agriculture from the exertions of a National Society, but alluded to the great principles to which such an institution must adhere, such as the careful avoidance of political discussions, and all interference with schemes which might be likely to become the subject of legislative enactments—principles which have been since ingrafted into the charter, rules, and bye-laws. The feeling thus publicly expressed was immediately and warmly responded to by the Duke of Richmond, Mr Handley, Mr. E. Wilmot, and others; and so clearly expressed was the desire of all the members of the Smithfield Club then assembled in favour of the proposition, when Earl Spencer thus first briefly alluded to the subject, that immediate steps were taken to effect the formation of such a Society. In the month of March, 1838, therefore, an advertisement appeared in the public papers, furnishing in its list of subscribers the names of those who must, in conjunction with Mr. Shaw, be regarded as the founders of the Society.

The project was well received, the meeting was well attended by a great number of influential noblemen and gentlemen connected with agriculture, and the Agricultural Society of England commenced its career under auspices of the most satisfactory and encouraging character, no less than 250 noblemen and gentlemen connected with agriculture at once enrolling their names as members. Earl Spencer was soon after elected the Society's first President, and Mr. Shaw its Secretary, an office which he resigned in 1839, when the present able Secretary, Jas. Hudson, Esq., was elected. We may truly say that the anticipations of the originators of the Society have been more than realized. "The little one has become a thousand." The Society held its first meeting in July, 1839, at Oxford, when the Quadrangle of Queen's College was fitted up as a pavilion for the grand dinner, which was attended by about 2,500 individuals. At the subsequent meeting, at Cambridge, in 1840, the number of members had increased to about 4,000; and in the same year the Society received a Royal Charter of incorporation. In 1841 the Society held its annual meeting at Liverpool, when its members had increased to 5,382; and the following year the meeting was held at Bristol, when the number was augmented to 6,500. Derby was the next place selected by the council for their annual gathering, which was held in that town in 1843; and there the local advantages and peculiar situation of the town combined with many facilities for the transmission of stock and implements to render it the largest meeting which had been held, and to increase the number to about 7,000. This number was augmented at Southampton in 1844; while at Shrewsbury, in 1845, in spite of the total want of railway communication, and the consequent inconvenience and difficulty of transit, many new members were enrolled. The meeting at Newcastle-upon-Tyne, in 1846, was the eighth which the Society had held, and was equal, as a whole, to any of its predecessors. At the meeting at Northampton last year no change took place either as regards the energy displayed by the members and active supporters of the Society, the numbers and excellence of the stock and implements exhibited, the appreciation by influential bodies of the importance of its objects, or the desire of the public at large to benefit by the opportunity afforded them of examining and inquiring into the merits of the animals of various breeds, and the application and utility of the machines and implements exhibited. Last, but not least, is the splendid meeting at York, to have been present at which will be one of the pleasantest reminiscences in the history of the thousands whom it has drawn together from every part of the country—a result which must be attributed to the central position of the town, the peculiar local advantages, and the insurpassable facilities afforded for the transmission of stock, implements, and visitors, to and from almost every place in the kingdom.

The Royal Agricultural Society of England consists of an indefinite number of governors and members, who have the free power and privilege of

electing at each anniversary meeting a council, formed of one president, twelve trustees, twelve vice-presidents, and fifty other members, regulated in their proceedings by bye-laws from time to time enacted, and to whose care the entire management of the Society is entrusted; such President and Council reporting at two general meetings in each year the state of affairs and progress of the objects of the Society. We find from the Report of the Council in May last that during the preceding half year 139 new members had been elected; 31 having died, and 82 having been struck off. The Society then consisted of 93 life governors, 186 governors, 648 life members, 5,387 members, and 21 honorary members; making a total of 6,335—which number has, we believe, been materially augmented.

If it be asked how is it that this institution has obtained such a position—such a rank among the great societies of the world, we refer to the principles upon which it was formed, to its constitution, and to its devotion to practical agricultural facts. Its constitution is based upon liberty of opinion to the fullest extent; liberty, controlled by order—liberty, regulated by virtue. The next great polar star is the determination that its study shall be confined to pratical facts—a determination supported by and dependent upon patience and long continuance, without which improvement is unattainable. And lastly, calling to its aid truthfulness, and guiding itself by the principle of submission to the will of God, it repudiates all humbug and clap-trap, and requires to know not only of the successes but also of the failures of its members. The seclusion from the discussions of the Society of all topics of a political tendency, or having reference to questions pending or about to be brought forward in either House of Parliament, is another ingredient in its constitution, which has been undeviatingly recognised from its original establishment; and this political and legislative neutrality has been made a permanent condition by the terms of Her Majesty's Royal Charter, granted in March, 1840.

Tuesday.—The Society commenced the business of the meeting by opening the implement yard for public inspection at 8 o'clock on Tuesday morning. The yard was situated on the Bootham-road, a level plain, about one mile to the north of York, near the point where the Helmsey-road and the Scarborough Railway intersect. The department of the yard occupied by cattle was that nearest to York, and that occupied by implements the farthest from it. The whole structure was in the form of a square, and covered 22 acres of ground. It was enclosed within a substantial boarding about 10 feet high, above which were seen the white canvass roofs of the sheds, and running in parallel lines from east to west. The proximity of the railway gave the Society great facilities for getting the cattle and implements quietly and easily into the yard. To the west of the yard, and on the opposite side of the road by which it was approached from the city, were the tents of the horticultural and floricultural show, rising at the centre into a huge pavilion. The yard of the Society and the tents had the appearance of two great encampments.

Thursday.—On this day the Cattle Show was visited by 25,732 persons. In the early part of the day the tickets were exhausted: about 1,200 were admitted by paying money at the door. On Tuesday 1,113 persons were admitted; on Wednesday, 6,066: and, on Thursday, 25,732: making in all 32,912, for the period spoken of. By far the greatest proportion came in with the half-crown tickets; whereas, formerly, from one-third to two-thirds only have been admitted, and the remainder at one shilling each.

The Pavilion Dinner, took place on Thursday afternoon, at four o'clock, in the Great Pavilion erected in St. George's Field, and was attended by a company numbering 1200—a company as distinguished by rank, and as important in character, as it was imposing in number. Every seat was occupied, and the demand for tickets was far greater than could be supplied. The company began to arrive shortly after three o'clock, and before the hour appointed (four), the pavilion was full, and nearly all the company were seated. The scene was a most magnificent and imposing one. The Earl of Yarborough, the President of the Society, occupied the chair, and the Earl of Chichester, the President-Earl, the Vice-chair. His Royal Highness Prince Albert, and the other distinguished guests, were welcomed with applause on their entrance.

The Pavilion in which this great dinner took place was erected in St. George's Field, a spacious piece of land belonging to the Corporation of York, and situated between the high road to Selby and the very beautiful and fashionable promenade, called the New Walk, "made," says Drake, under the date of 1730, "a year or two ago, at the expense of the city."

The Pavilion, like the buildings at the show-yard, was erected by Mr. Manning, of London. There were six entrances to the pavilion, one in the rear, adjoined the New Walk, reserved for the chairman and his immediate supporters, who occupied an elevated platform, erected along the side, extending some yards both ways from the centre. Immediately opposite was another elevated platform of corresponding dimensions, for the vice-chairman and his supporters. There were three other entrances to the body of the pavilion, for the general company. Between the elevated platforms eleven tables were placed in rows, with seats on each side, and ample space between for waiters, on either side of these, and skirting the ends of the platform, were seven tables, rising gradually towards each end of the pavilion, with seats on one side only, so that the company looked towards the chairman and the centre of the pa-

ilion. The pavilion was 140 feet long 84 feet deep, and was capable of accommodating 1,400 persons comfortably, though the contract for the dinner was only 1,200. The floor was boarded throughout, and the whole of the tables and seats were supported by wrought-iron tressels.

His Royal Highness PRINCE ALBERT rose to acknowledge the toast, and was received with loud and reiterated cheers. He said: Gentlemen, I have been most deeply touched to witness the expression of your loyalty to the Queen (renewed cheering), and to the members of the Royal Family generally (more cheering). I beg to return you my best thanks for having received the toast of my health with so much cordiality (cheers). It has been a great satisfaction to me to have been enabled this year to pay you an old debt (cheers) —in thus coming amongst you, and attending at this most useful and interesting meeting (loud and reiterated cheers). All I have seen to-day and yesterday exhibits a bright picture of the progress of British agriculture; and for much of that progress the country is, I firmly believe, indebted to this Society (cheers). Agriculture, which was once the main pursuit of this, like every other nation, holds, even now, notwithstanding the development of commerce and of manufactures, a fundamental position in the realm (cheers.) And although time has changed the position which was once held by the landed proprietor with his feudal dependents, yet the country gentleman with his wife, and the country clergyman, the farmer, and the labourer, form still one great, and I hope united family (cheers)—one united family, in which we gladly recognize the foundation of our social state (cheers). Science and mechanical improvements have changed the mere practice of cultivating the soil, in these days, into an industrial pursuit, requiring capital, machinery, skill, and perseverance in the struggle of competition (cheers). We must consider this a great progress, as it demands higher energies and higher intelligence (cheers). Conscious of these changes, we agriculturists of England (tremendous cheering) collect in these meetings—the meetings of the Royal Agricultural Society of England—in order to communicate to each other the result of our various experience, and the progress that some may have made in the application of science, in the improvement and ingenuity of machinery, or in the breeding and rearing of cattle (cheers). Feeling, as I do, a high and lively interest in these noble pursuits (cheers), and having myself in a small way (renewed cheering and laughter), experienced all the pleasures and little pangs (cheers) and knowing its paramount importance to the country (cheers), I feel highly gratified that the President of the Society should have entrusted to me to propose to you the toast of the day, which is, "Success to the Royal Agricultural Society of England." I trust you will respond to it with enthusiastic cheers. Gentlemen, "The Royal Agricultural Society of England, and success to it!"

PROFESSOR SIMMONDS' LECTURE.

At four o'clock Professor Simmonds of the Royal Veterinary College, London, delivered his lecture on calving and lambing, at the De Gray Rooms. He commenced by speaking of the importance of the subject of breeding stock to all classes of the community, as all were dependent on the successful production of food; that the flocks and herds of England were the boast of her farmers, and the envy of the whole world; that success in breeding rested upon a knowledge of the principles and natural laws that govern the reproduction of animals; and that it is impossible to improve the character of stock without due attention to these principles.

He then went on to say, that the practice of breeding with a view to improvement depends upon the principle that "like produces like;" that numerous causes combined to prevent the certainty of progressive improvement, such as food, domestication, &c. Selection of stock for breeding is also a subject of the highest importance; and all animals selected should be chosen with reference to form, colour, freedom from disease, and should indeed be as perfect as possible in every way.

The learned Professor then remarked, that disease was often hereditary in animals; that this was also the case with colour, and in predisposition to particular forms of disease. He here gave the example of the rearers of Yorkshire, and stated that even by crossing with other breeds, it was extremely difficult to eradicate this tendency; that it was also with regard to colour in cattle; that after frequent crossing a disposition to a peculiar colour would still remain, and as an example, he mentioned the cross between the Devon and the Hereford cattle. That change of character and external appearance is most peculiar to domesticated cattle, animals in a state of nature are less inclined to change; this arose partly from the separation of herds at certain seasons, and partly because the most vigorous males obtained the largest proportion of the females. Degeneration thus taking place to a very light extent. The professor also mentioned that in breeding care should be taken to suit the males to the inclination of the females; and he here quoted some remarkable instances in which a strong preference appeared to be manifested by animals for each other. That it was of the highest importance to secure a pure race for the purpose of breeding, and that for want of proper precaution both as to race and perfection of development, deformities were often perpetuated; and he mentioned the instance of a race of pigs with a perfectly united hoof. These principles applied equally to all animals After these introductory remarks, Professor Simmonds entered into a lengthened detail of the anatomy of the generative organs in the cow, alluding to the different periods of gestation in various animals, and then fully described the process of parturition, with examples of natural and unnatural position of

the fœtus and the methods of treatment, so as to overcome the difficulties.—*Farmer's Herald.*

PROFESSOR JOHNSTON'S LECTURE.

The learned Professor addressed the meeting, which was held in the De Gray Rooms—the President of the Society in the chair—"*On the Application of Science to Agriculture.*" He argued, from the great diversity observable in the productive qualities both of corn and herbage, the evidence of design on the part of the Creator, that the soil should be cultivated and improved by the intellect and intelligence of man; and to the want of scientific skill might be attributed many of the defects observable in the general cultivating of the land. He would principally direct their attention to the discrepancies frequently observable on the same farm, one part of which might be a fine healthy green, another a pale sickly yellow. How comes it that the one should produce forty bushels the other perhaps but twenty bushels an acre? It was too frequently owing to defective knowledge and to a neglect of the application of scientific skill to the cultivation of the soil. True, in our standard books there was a mass of knowledge; but that knowledge was unknown to the mass of the farming community, and all he required was to see it diffused. These large meetings he regarded as peculiarly favourable to this purpose; they were a sort of Lancastrian schools by which the waters of knowledge were destined to be distributed, and would equalize the difference between good and bad crops both of corn and herbage. Where experiments were made, there were too often a vagueness and inattention to accuracy which materially injured and wholly defeated the ends for which such experiments were made. Nay, it was frequently a mere matter of guess-work. This was bad. He strongly maintained the necessity of strict attention to facts and all their minutiæ, however apparently unimportant, involving precision in number, weight, and measure. He would not dwell on particular cases of the advantage of combining chemical with agricultural knowledge; but he might state generally a few leading principles,—such as that lime shortens and strengthens the straw of corn; salt often changes the quality both of straw and corn; lime and salt were better than salt alone. Such deductions were invaluable. The Professor at considerable length animadverted on the discordant statements frequently put forth by pretended experimentalists, adduced them as so many additional proofs of the want of the attention to accuracy of which he had complained; concluding a very able and interesting lecture by explaining and enforcing the policy of farmers making themselves acquainted with the composition of artificial manures, their ignorance of the component parts of which often led to serious loss and inconvenience, not to mention the imposition it might lead to on the part of the venders of such prepared manures.—*Ib.*

DRAINING IMPLEMENTS.—A model was exhibited of a very powerful machine, invented and manufactured by Mr. J. Paul, of Tharpe Abbot's Hall, Norfolk, which is thus described:—"This machine may be worked with three or more horses, and by a single operation will cut a drain from three to five feet in depth at the rate of four feet per minute, leaving it in a finished state with a perfectly level bottom for the tiles to rest upon. It is also calculated for raising subsoil to the surface for the purpose of claying lands, and, when used with four horses, will raise from four to five cwt of clay per minute, and on stony soils it may be made equally efficacious, although the operation would be somewhat slower." Mr. Paul has applied the same principle to a separate machine for deep subsoiling and pulverising the land to the depth of twenty or thirty inches, and at the same time bringing up such portion of the subsoil, to be distributed on the surface, as may be deemed expedient.—*Ib.*

EXHIBITION OF LIVE STOCK.

In regard to numbers and quality of the stock exhibited at this meeting, it was the most successful gathering the Society had yet held. As to the quality of the stock, we would state, that in horses, sheep, short-horns, and pigs, for all of which Yorkshire ranks high as a breeding county, we recognised many animals that have on previous occasions been known to fame—and amongst them the names of the competitors are those of the best known breeders from the most distant counties of England.—*Ib.*

VETCHES.—Mr. Bury, of Hanslope Park, in Buckingamshire, reported to the Council the fatal effects of a single feed of meal from Vetches, purchased at Liverpool, on nine of his pigs. The meal was made into porridge and given to the pigs the same evening; they were all found cold and dead on the following morning. Prof. Way remarked that this poisonous effect was produced either from mineral poison mixed with the meal, or in consequence of some poisonous quality chemically engendered in the meal itself. He was inclined to think, from such a result in many vegetable substances, that the latter was the case.—This view was corroborated by Mr. H. Wilson, of Stowlangtoft Hall, who informed the Council that two of his fat porkers were both destroyed by having been fed for a week on meal ground from damaged rice purchased at a cheap rate, and its feeding qualities tried as an experiment upon the pigs in question.—Mr. Hobbs has found Vetches unfavorable, unless given with other food, and he conceived that no crop exhausted the land so much as Tares.—Mr. Bennett regarded Tares as an injudicious food for any animal. He spoke from his own experience, having used them extensively at one time for his sheep. The Tares he had used were the cheap foreign Tares of the Market.

BEANS.

The word *Bean*, like all our monosyllabic words, is of Saxon origin, and signifies an edible pulse. The plant is a species of the vetch tribe, being the *Vicia Faba* of botanists. Latterly *Faba* has been made to constitute a genus, with one species, or the *Faba Vulgaris*, or the common cultivated Bean. *Generic Character.*—*Stalks*, with several flowers, very short. *Legumes*, ascending tumid, coriaceous. *Leaflets*, elliptical, acute, entire. *Tendril*, abortive. *Stipula*. half-arrow shaped, toothed at the base; annual, flowering in June and July. *Stem*, three to five feet high. *Leaflets*, smooth, larger, acute at each end and alternate. *Flowers*, from six to ten, and more, on a short racemose stalk, deliciously fragrant, white with a broad black velvet-like spot on each wing. *Calyx*, bilabiti, with ovate taper teeth. *Legume*, large, thick, oblong, pulpy within while unripe, containing four or five seeds. Said to be a native of Egypt, but found also in Persia. The genus *Faba* differs from *Vicia* in the greater size of the legume, which is coriaceous, and rather turgid, and in the seeds being oblong, and in the *Hilum* being terminal. There are now many kinds or varieties of Beans in use, all derived from one original. The plant likes a strong moist soil, a whole firm furrow, and never thrives better than on a layer. The seed is generally committed to the earth on one furrow of tilth, by hand in broad-cast, or in rows by the dibbling machine. About three bushels are allowed to an acre; and when drilled, the crop is horse and hand-hoed, according to the width of the intervals. Manure is often applied to beams, laid on in Autumn, and ploughed in. The quantity of seed sown on an acre varies from two to five bushels; and the average produce may be stated at thirty bushels. The quality of the season has a very great influence on the production of beans—a wet Summer producing the undue growth of leaves and stem, and a dry season stunts the growth in every respect. The horsehoeing of the intervals must commence so soon as any weeds appear, and may be continued till the height of the stems impedes and stops the process; the hand-hoeing must accompany the scuffler, and be continued after the former is given up, in pulling the tall weeds that afterwards arise. Wide intervals of twenty-four to twenty-seven inches are preferable to narrow spaces, in admitting horse-hoeing, and the latter only the hand-hoe, which is of very little avail on clay soils. A very good way of sowing beans in wide intervals, consists in drilling the land with one furrow of the common plough, sowing the beans by hand, which fall into the hollows, and then reversing the drills, or harrowing the field across. In any way of Spring-sowing, the land must have an early Winter furrow. In the wide drilling system, two more furrows will be required in the Spring, as soon as the state of the weather will permit. When the seed is dibbled at narrow intervals, the Winter furrows must be well harrowed. Beans may be sown from the beginning of January to the end of March, and later in some certain localities. The shrivelling of the leaves of the haulm, and the black colour of the pod, or legume, with the hardened state of the seeds, give notice of the maturity of the bean crop. They are most generally cut by the sickle, low by the ground, tied into sheaves, and built into thatched ricks, or lodged in barns. The straw and the grain are easily separated by flail or by machine, and winnowed for use. The sheaves are tied by straw-ropes, or tarred twine, which lasts for years on being preserved for use. Peas in mixture are not unfrequently sown with beans, and then the pea-straw serves very conveniently for being made into ropes to tie the beans. The straw of beans when well harvested, is very particularly relished by horses, and the husks of the legume by sheep; and it forms, in any shape, a very useful *short* litter for swine in sties, and for sheep confined in cots. In a good state, it is reckoned equal to the best hay of any kind, or quality. The broadcast crops of beans are equally valuable with the drilled; but the true object of cultivation being to yield crops in succession, that system must be adopted, which prepares the land by pulverisation and the admission of air. Hence, the drilling of beans at wide intervals is recommended. But when they are sown on clay lands after grass, and previous to a summer fallow, they must be sown broad-cast, for the quality of the land admits no preparation for the drill or the dibble. When drilled at wide intervals, cleaned, and the land pulverised, bean culture forms a most excellent preparative for wheat, which is sown on the bean grattans with one ploughing, in broadcast or in drill. The success of a culmiferous crop after a leguminous one, as in the case of wheat following, beans, has afforded to scientific theorists a confirmatory example to the exudatory system, which supposes that plants of an entirely different kind live and thrive on the faces, or exudations of

another. Be this as it may, the practical fact was long known before the theory was dreamed of. The chief use of beans in this country is to feed horses, for which they are very usefully mixed with oats, as they contain the tanning principle, and tend to bind the muscular frame. They are also used in fattening hogs, bruised and unbruised: they make the flesh very firm. Bean meal is used in fattening oxen; mixed with water, and given to cows, it greatly increases the quantity of milk. Some beans are also mixed with new wheats in grinding. Millers generally contrive to use a due proportion, pretending that the clammy new wheats will not grind well without some such mixture. The medicinal qualities of beans are said to be nutritive, but flatulent; the pods yield a water held good against the gripes in children. The bean has been used as a succedaneum to coffee, which in principle, it much resembles—only that it contains but half the quantity of oil. Flatulency is occasioned by the great quantity of air they contain, and which is extricated, and cannot be again absorbed during their digestion in the stomach. The expansion of beans in growing is very great, one bean being sufficient to raise a weight of 100lbs.—*Donaldson's Plants of the Farm.*

Shoeing Horses.—Mr. George Turner, of Barton, near Exeter, having presented at the former meeting of the council, a set of Mr. Mile's model hoofs, illustrating the mode of shoeing horses advocated in that gentleman's work on the foot of the horse, a copy of which Mr. Turner also presented at the same time, an interesting discussion ensued on this subject, in which Mr. Thomas Turner, Professor Sewell, Colonel Challoner, and Mr. Parkins took part. Mr. Turner stated that the system of shoeing advocated by Mr. Miles, was known in the profession as the "unilateral" (or side-nailing) mode, in which the shoe was nailed to the hoof with the most decided effects in preventing the navicular disease to which the horse's hoof was so frequently liable; a system, he added, which in common justice he might be allowed to say was founded upon the important principle discovered by his brother, Mr. James Turner, V. S., of Regent-street, and published by him many years ago in his work on the foot of the horse, of which at the next meeting of the Council a copy should be presented for the acceptance of the Society.

Prof. Sewell remarked that he had found old horses shod with a layer of leather, forming a artificial sole, between the shoe and the hoo recover from the severe affections arising fro injury to the hoof; such, for instance, as co tractions, brittleness, sand cracks, or disea even of the foot itself, such as thrushes, canke and corns, and perfectly regain their origin elasticity and firmness: he also strongly advis that all horses for road or street work should h shod in that manner, during the whole peri of their being required for use. The plan question had been employed by Prof. Sewe for the last 30 years. The leather sole pr vented that concussion from taking place agai the sensitive part of the foot, which resulted inflammation; and by excluding all injurio substances from the hoof, those frequent acc dents were avoided which arose from the fa resulting from the bruising and puncturing occ sioned by such hard and sharp substances the natural horny sole. The plan required little practice to carry it out successfully, a it was not with an injudicious regard to econ my to be abandoned, when after its adopti for some time it might seem, from the appare soundness and safety of the feet, that the hors no longer required it.

Colonel Challoner observed, that 17 yea ago Mr. James Turner had explained to hi the principle of unilateral nailing, to which t attention of the Council was then called, a had practised it on Colonel Challoner's hors for the avowed purpose of promoting the e pansion of the hoof; but Colonel Challoner h since that time been led to adopt the plan felt-shoeing for shell-footed horses, namely, th of inserting, instead of leather, as practised b Professor Sewell, nothing more than thick fe or thick gun-wadding, between the shoe a hoof of the horse. He had found this pl productive of the most beneficial results.

Rain-Gauge.—"The gauge selected w the one now most approved of, and most co monly used, consisting of a hollow cylinder copper or other metal, about seven or eig inches in diameter, and 36 or 40 inches length, with a receiving funnel of the same di meter as the cylinder, and closely fitted to t top. Within the cylinder a float rises, as it b comes filled with water. It is just so muc smaller in diameter as to rise freely; *and the centre is fixed an upright rod, marked inches* and tenths of an inch, *which, risi through a small hole at the bottom of the funn*

exactly indicates the depth of rain falling in any given time. The surface of the water in the cylinder being completely covered with the float, except the mere angular space of about one-eighth of an inch, no evaporation takes place. The gauge must be occasionally emptied of the water it contains. It is sunk in the ground, within a strong box or case, to prevent injury, and to allow of its being easily taken out; the top of the gauge being left about ten or twelve inches above the ground."

PROBANGS AND TROCARS FOR CATTLE.—Professor Sewell presented to the Society further specimens of instruments of practical utility in cases of choking, or of the hove, in cattle, and favoured the council with additional directions connected with the use of each apparatus. He also presented, for the inspection of members, the model of an ox, on which was marked the exact spot where, in the case of hove, the trocar ought to be inserted through the inflated hide into the rumen or paunch, namely, a full hand's breadth below the loins, and behind the last rib, on the left side of the animal. The laterally perforated cylinder, after the stiletto had been withdrawn, might remain in its place of insertion even until the following day, if gas continued to be evolved; and on its removal, an adhesive pitch plaster might be applied over the punctured orifice. The elastic probangs presented by Professor Sewell were very useful for unchoking horses, colts, calves, or other stock, by dislodging the impeding food from the gullet, and were much preferable to the hempen ropes often used instead of probangs for that purpose.

REMARKABLE FIDELITY OF A DOG.—The following fact, evincing a most extraordinary instance of the attachment and fidelity of a dog, was related by a gentleman on whose veracity we could rely, and who had witnessed it. In the parish of St. Olave, Tooley-street, Borough, the church-yard is detached from the church, and surrounded by high buildings, so as to be inaccessible but by one large close gate. A poor tailor of this parish dying, left a small cur dog, evidently inconsolable for his loss, for he would not leave his dead master, not even for food; and whatever therefore he ate, was forced to be placed in the same room with the corpse. When the body was removed for burial this faithful attendant followed the coffin, but after the funeral, was hunted out of the church-yard by the sexton. The next day, however, he was again found there, having made his way by some unaccountable means into the enclosure, where he had dug himself a bed on the grave of his master. Once more he was driven out, and again he was found in the same situation the following day. The minister of the parish hearing of the circumstance, had him caught, taken home and fed, and he further endeavoured by every means to win the animal's affections; but they were wedded to his late master, and he took the first opportunity to escape and regain his lonely situation. With true benevolence the worthy clergyman permitted him to follow the bent of his inclinations, but to soften the rigour of his fate, he built him upon the grave a small kennel, which was replenished once a day with food and water. Two years did this example of fidelity pass in this manner, when death put an end to his griefs; and the extended philanthropy of the kind clergyman allowed his remains an asylum with his beloved master.

REMEDY FOR THE POTATOE DISEASE.

A paper appeared in the *Agricultural Bulletin*, from which we learn that a chemist, named Eusebius Griss, had been paying great attention to the disease, and has found a direct and radical remedy. This gentleman, guided by analogy, has compared the disease of this vegetable to the chlorosis which attacks the human frame; and the idea suggested itself to him whether the same remedies which improve the vitality of the blood, which restore its energy and its colour, might be advantageously resorted to in re-animating the languishing vitality and tone of the discoloured leaves. He accordingly had recourse to an application of salts and iron. He watered the plants with a solution of sulphate of iron, containing from 10 to 20 grains to a litre of water, and moistened the leaves with a lighter solution, containing only about three grains to a litre of water. This last method proved much more immediately the efficacy of the remedy than when it is done watering the plants; for in the lattter case it might be attributed to chemical re-action produced in the interior of the soil. A committee was appointed by the Royal Society to test the result of Mr. Griss's remedy. Experiments were made in various parts, some on an extended, some on a smaller scale; they were very successful in regard to the disease itself, and the committee reported that although some further trials were needed to prove facts, yet it was thought probable that this solution might likewise be found valuable in sandy soils. M. Gandry, of Paris, was induced to try the remedy on some young chlorotic peach trees; and a fortnight after, when the committee of the Horticultural Society inspected them, they had entirely recovered.

How to make Mushroom Spawn.—Get some cow-dung and horse droppings of nearly equal quantities, and get some maiden earth, and mix them in the proportion of four parts of the cow and horse droppings, to one part of maiden earth, till the mass be thoroughly worked and incorporated, as you would lime and sand to make mortar; spread it on a level surface about three or four inches thick, to let some of the moisture evaporate, and until it gets tough, and in such a state that it will cut readily in brick-shaped pieces with a spade, which will be in three or four days; have ready some spawn, which is procured from an old pasture; it is also found in decayed, cold, dry hotbeds, horse tracks in mills, and in most old dungy compost heaps. Having removed the bricks to a dry airy place, and when they are about half-dry, make a hole in the centre of each, and place a piece of spawn in it. Stove them away in a dry shed, and keep shifting them occasionally till they are perfectly dry, keeping the side up that the spawn has been placed in. Pile up the bricks in an open manner as they build pigeon holes, bringing the bricks to a sharp point, having first placed under them a layer of well fermented stable dung, so that a gentle heat may be generated around and through the bricks; this will make the spawn run and spread through the bricks, and when this is observed let them cool gently, and store them in a cool, dark airy place for use, as it may be required—they will keep thus for several years.

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