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TOWNSHIP OF YORK FARMERS' CLUB.

ESSAY ON MANURES.

At a meeting of the Club, held on Wednesday, the 6th of December, at Daw's Hotel, on the Kingston road, Mr. WILLIAM LEA read the following Essay on Manures:—

MR. PRESIDENT AND GENTLEMEN,—At the request of several members of our Club, I have endeavored to produce an essay on some parts of practical agriculture, and I am not without the hope that it contains matter worthy of your best attention. My own information on chemical subjects is too limited to admit of my advancing any doctrine not supported by the highest authorities. The efforts I have made to produce this essay have been useful to myself; for nothing is more calculated to make us *learners* than the effort to become teachers. The subject of manures is of paramount importance to the farmer. He may drain, plough, harrow, sow, may proceed on the most approved principles; but unless he make to the soil an adequate return in manure, for that which he takes from it in the form of crops, he will discover to his cost that, in omitting to manure his land, he has been violating a fundamental law in agriculture, and that his former profits will not compensate him for the injury which he has been inflicting on his land, and the losses which such omission, or mistake, cannot fail to entail upon him.

Of so little value was manure to the early settlers in some parts of Canada, that we are informed that farmers were in the habit of removing,

by the assistance of their neighbors, their out-buildings from amidst the accumulation of manure that in a few years had grown about them—such a proceeding being deemed less troublesome and expensive than that of carting away the valueless and offensive matter,—and such was the fertility of the soil around them, that we cease to feel astonished that, when farmers were forced to remove their manure, it was in many cases deposited on the ice, that it might, when a thaw came, be swallowed up by the deep water. But these days have passed away, and the enlightened cultivator of the soil has discovered that no land, however fertile and vigorous, will long continue to bear the drain of successive crops, but that Mother Earth, justly called Nature's best Bank, must have her vault replenished by deposits of nutriment proportionate to that which she has yielded. But, though manure is no longer regarded as a valueless obstruction, still it is in but too many cases deprived of much of its value by the waste to which it is subjected, and it is to such waste that I beg leave to call your attention, in the hope that what I have to say on the subject may not be without value to some one or two at least of my auditors.

The waste to which I allude is of two kinds; first, general; next, local. By general waste is implied the loss of the fluid which rich manures yield so freely—loss which results either from its being drained off and suffered to ooze away in sundry small channels into hollows, and places where it can be of no use; and, secondly, by the gradual evaporation of these juices, from inattention, and the want of a proper place for the deposit of manure. Now, it has been clearly

ascertained that manure suffered to run dry in the manner referred to, loses by far its most valuable constituent, which is the urine of animals, yielding an aid which forms one of the most important elements in the food of vegetables.

It is an invariable law of nature, that nothing—no form of matter—is what may be called thrown away—nothing is lost—every portion of matter having its proper value and use in the economy of the universe.

All animals and vegetables that have existed have become decomposed, and have entered into the formation of succeeding vegetables and animals. Man should take a lesson from this great fact, and should let nothing that his industry, or the natural fertility of the soil he cultivates, produces, become profitless. Every portion of matter should be husbanded with care, for, soon or late, under proper management, it will amply repay the care devoted to it. My own intercourse with farmers is rather extensive, and I regret to say that in few or no cases have I seen anything like proper arrangements made for the deposit and preservation of manure, and particularly of the valuable juices above mentioned. In most cases the manure is so placed that one would almost believe that the object was to drain it as dry as possible—to suffer its most valuable part to dribble into small pools—soon to evaporate and dry up—or to find its way into the ditch—there to poison the air, and to engender disease, instead of creating wealth.

The following is a brief description of the arrangements which would obviate the waste and loss referred to—arrangements which I have endeavored to carry into effect on my own farm.

The cattle yard should be about 100 feet long, by 80 feet wide, and it should be enclosed on the north and west by the barn and cowsheds. The centre of the yard should be slightly concave, so that the liquid draining from the manure finds a receptacle in the centre, and affords a fit deposit for dry matter, such as straw, peas, haum, &c. Any surplus moisture that may gather in this hollow is conveyed by a drain into a tank, in which there is a pump, so that this valuable fluid may be conveyed by a spout to any adjacent spot for making liquid manure compost,—to be described farther on,—or to be applied as circumstances may require. All the buildings should have spouts so arranged that the water may be conducted to or from the farm-yard at option.

And here I must take leave to present to you a few observations on the importance of having buildings furnished with spouts in the manner mentioned, and of providing water cisterns, particularly in situations where the supply of water is liable to be deficient occasionally. The following extract, from the New York *Cultivator*, affords the readiest mode of informing you on this point:

“The great mass of country residents seem to have no more conception of the floods of pure, clear rain water, which flow annually off the roofs of their dwelling houses, sheds and out-buildings, than if they had never heard of those huge watering pots—the clouds in the sky. If all the rain which falls in the Northern States, within a year, were to remain on the surface of the earth, it would form an average depth of about three feet. In the Southern States it would be more than this; in the American tropics it would amount to about 10 feet; near Bombay (Asia) 25 feet. Every inch of rain that falls on a roof yields two barrels to every ten square feet, and 72 barrels are yielded by the annual rains in this country (Canada) on a like surface. Consequently, a barn roof 40 feet by 30 yields annually 864 barrels of rain water, being over two barrels a day. Thus, the amount of water placed at the service of the farmer increases in a corresponding ratio with the extent of his roofing. The value of such a supply it is needless to dwell upon. Only a very small part of the water that thus falls can be contained in the miserable cisterns and tubs in common use. Cisterns adapted to hold the needful portion of water we know not where to find. It is true that where a frequent demand is made on a cistern it need not contain anything like the year's supply; space for a sixth part of it would suffice, for the variations in the wet and dry periods of the year do not amount to more than the rain of two months.”

The above extract shows clearly the vast benefit derivable from the proper spouting of roofs, and the establishment of capacious cisterns, not only for securing a constant supply of soft water, but to prevent the literal washing away from manure that part of it which is best calculated to promote the growth of plants.

The sewage, or refuse, running off from the interior of the dwelling house, should be preserved with the greatest care; all the waste water of the kitchen, which, in many cases, contains a great deal of animal matter, should be conveyed by pipes into the garden, for the purpose of watering it, and not the least portion of the house sewage should be suffered to run to waste.

The second description of waste often taking place on farms, results from leaving animal and vegetable matter lying here and there in the

fields, much of which matter, properly collected, being of very great value; for decayed weeds, grass, stubble, leaves, ditch and pond scourings, sawdust, ashes, matter having once had life, become the material for producing future life.

The animal matters, such as flesh-blood, and house sewage, are extremely rich in nitrogen, and carbonic acid; and the scourings of ditches and ponds usually contain some decayed or decaying matter, or have some portion in them of the inorganic constituents of plants, such as salts, or other mineral substance, rendering them valuable as absorbents of manure, or for mixing with substances which are either apt to ferment too rapidly, or are too powerful in their action upon plants to be used without being mixed with substances of a less stimulating nature. In short, there is no refuse matter on the farm, however contemptible it may appear to the un-instructed eye, that does not contain the elements of future vegetable life, and which is therefore as capable of being made into as valuable a compost as that which is yielded by the immediate farmyard, if subjected to the proper process.

And here the use of Gypsum, or Plaster of Paris, or, in its absence, Lime or Chalk (articles but too scarce in this locality), is strongly recommended, in order to fix the ammonia, which usually escapes from manures, whether solid or liquid, into the atmosphere, producing the effluvium of the farmyard, or other places where manure lies, such as fowlsheds, pigsties, &c., which is so offensive and so injurious to human health, and even to the health of the animals that inhale it. For even a slight sprinkling of gypsum, lime, or chalk, acts as an absorbent of the valuable ammonia, and takes it away, or rather prevents it from entering into the atmosphere, so that whenever an offensive smell is found in or near the farmyard, the fact seems as a notice that the valuable ammonia is escaping, and with it is departing more or less hard cash from the farmer's pocket; for such must be the result of the damaging process through which the manure is going whenever it gives rise to offensive odors. There is no necessity that any department of the farmyard, cowshed, stable, fowlhouse, pigstye, or manure heap, should give forth an odor offensive to the most delicate sense of smell; on the contrary, a sweet and grateful effluvium—or at least an inoffensive smell—should pervade the farmyard.

Gypsum, chalk, and even lime, being out of the reach of many farmers, it may be well to notice some of the artificial deodorizers which form substitutes for the natural absorbents of ammonia.

One pound of green copperas, dissolved in one gallon of water, and sprinkled with a watering pot over stables, cowsheds, &c., affords a deodorizer of great power. Sulphuric acid is mentioned as not being so cheap as this solution, but nothing is said of the mode of using this acid.

From what has been said it will be obvious,

1st. That the drainage of the farmyard should be to its centre, so that none of the fluid oozing from the manure, whether generated in it, or descending on it from the spouts, or in rain, should be suffered to escape;

2ndly. That the dwelling house sewage be conveyed in pipes to this common receptacle of every kind of fertilizing matter created by the deposit of both animal and vegetable substances;

3rdly. That gypsum, lime, or chalk, or some of the artificial absorbents of ammonia, and consequently preventives of bad smells, be sprinkled on dung heaps, and in the sleeping houses of the animals, for by such means alone can the escape of the very essence of manures be prevented. It may now be added that when liquid manure is seen to accumulate so as to form pools, it should at once be drawn off, and conveyed to the land as speedily as possible.

The practice of using liquid manure is advancing rapidly in England. The following passage from a modern work on husbandry shows the light in which this plan is now viewed by authorities:

"I have no doubt whatever but that fifty years hence nearly all artificial manures will be applied in a liquid form, as I think it will be found that, in point of economy of material, cheapness of conveyance, and the rapidity with which it will act, the system of using manure in liquid will be found superior to all other modes."

It is obvious that manure, in a fluid state, sinks at once into the ground, and, coming in contact with the roots and their spongeola, is at once taken up by the plants—at once becomes their food; whereas masses of solid manure, even when fully decayed, lie long on the surface, when not ploughed in, lose much of their value by evaporation, and often are scattered about and wasted. I cannot conclude this part of my subject without pointing out the importance of attending to the question of time, in relation to the retention of manure, whether

solid or liquid, in its receptacles. The heat engendered in manure heaps, if allowed to continue beyond the proper time and the proper degree, may be said to burn up the manure—a state to which the term “fire fanged” has been applied.

Liquid manure will invariably evaporate if allowed to lie too long. The exact time which either should lie in the receptacles cannot be exactly stated. It varies according to the material, the aspect, the season. In these respects the farmer must exercise his observation, and learn from experience when the proper time arrives for feeding his land with wholesome, and not exhausted, over-baked sustenance.

I can say but a few words on the mode of conveying liquid manure from the tank to the field. This can be done only by pipes of clay, wood, or iron, to, or as near to the place requiring the process as possible. Wood, in this country, is the cheapest, and, on the whole, the most advisable. It is obvious that the tank or tanks should be so situated as to afford some degree of elevation above the fields most likely to require this kind of manuring. The following mode of making liquid manure composts is given in the *Journal of Agriculture* for January, 1845, and I beg here to observe, that this and similar publications should be on the table of every person aiming at scientific agriculture; and such agriculture alone can be profitable:

“The attention of the agriculturist has of late years been more directed to liquid manure, and to the mode in which it may be most beneficially applied to the soil. The advantages derivable from it have been more or less insisted on by various farmers, according as its effects have been exhibited, success which will vary according to the manner in which the manure is applied to the soil, to the nature of the soil itself, and to the kind of crop it was intended to affect. The writer (Mr. J. Lawson, of Elgin,) has sometimes applied it to the soil in a manner differing from the usual mode; and, as the benefit he has derived from his mode has been considerable, while the mode of preparing it and the attending expense have effected great saving—the application also being much facilitated—he will here communicate the process he has adopted. Having your farmyard provided with a liquid manure tank, erect a shed convenient to it, but outside the fence of the cattle-yard. In this shed should be the materials to be acted upon by the liquid, which is to be conveyed in pipes from the tank to this spot. The shed preserves the materials from rain, and a wall of stiff clay has to be placed so as to confine the liquid, and prevent waste. This clay barrier should be about eighteen inches in height. The materials for

forming the compost should consist of 30 bushels of coal dust, that is, the earth from the bottom of an old coal pit, where charcoal has been made, or clay slightly burned may be used in place of this, either material being perfectly dry. To this add 3 or 4 bushels of ashes (quere, wood or coal?), half a barrel of plaster of Paris, and where the land is deficient in lime, one barrel of this substance. These materials are to be put in the reservoir under the shed, and well mingled. The tank being now filled with liquid, it is every now and then pumped over these materials until they are perfectly saturated with the liquid. In these proportions the compost may be made to any extent. To every 25 or 30 bushels of the compost add 1 bushel of bones, dissolved in diluted sulphuric acid—this addition being made a few days before the compost is applied to the land. The bones are thus dissolved:—To each bushel add 22 lbs of sulphuric acid, diluted with 44 lbs of water; put this dilution into a wooden vessel; then add the bones; let the whole remain in the cask for 24 hours, stirring as frequently as is practicable. It is applied in the following manner to turnips:—The drills, being formed in the ordinary way, should be partly levelled by a single shake of a very light narrow; the compost is then sown by hand in the bottom of the drills, at the rate of 25 or 30 bushels to the acre, and covered in with the plough, which again forms drills; the turnip-seed is then sown on the top of the drill in the usual manner. Should the manure be too moist to be handled, the addition of some dry earth will remedy this difficulty. For Indian corn, one handful to a hill or drill will be sufficient. It may be applied to potatoes just as to turnips, with the exception that the sets should be put into the drills before they are turned back with the plough, to cover the manure. This compost makes a good top dressing for clover, or for grain crops, sown broadcast over them in the spring, at the rate of about 30 bushels to the acre. The time occupied in making this compost is very short, and the work may easily be done by the farm servants. Where the charcoal dust cannot be got—and it is the best—the clay may be burned in a small temporary kiln. On a farm of 200 acres, as much manure may thus be prepared from the surplus drainage of the cattle yards in a season, as will be sufficient for 10 or 12 acres. The cost, exclusive of the labour, of preparing this compost, may, for one acre, be stated as follows, viz:

$\frac{1}{2}$ barrel plaster.....	3s. 0d.
1 “ lime.....	2s. 6d.
1 bushel ground bones.....	1s. 10d.
22 lbs sulphuric acid.....	9s. 2d.

Making..... 16s. 6d.”

As in part connected with this subject, it may be mentioned that where bones dissolved in sulphuric acid are applied to land, they become more easy of application by being mixed with burned earth, in the proportion of 4 bushels of earth to 1 of bones. They may in this form be

applied in a dry state instead of a liquid by means of the water cart.

Farmers are very much opposed in general to trying experiments. You might as well tell them that gold dust was the best manure for their farms, as to tell them of any new experiment. They would be afraid it would cost more than they would gain by the operation. I will quote an experiment, stated by Professor Henslow, not to prove to you that these things are really useful, but this may show that there is something in it worth attention. "A patch of land without manure produced nine coombs of barley per acre; another portion of the same land, of similar dimensions, manured with liquid manure, produced ten coombs; and a third portion of the same, manured with liquid manure, in which the ammonia had been fixed by a little sulphuric acid, was increased four coombs an acre." You may say there is a mistake in it,—I do not say there is not,—but I think it shows you that you ought to try these experiments a number of you together, and you would arrive at the true results in a shorter time. The following owe their origin to the perusal of a very interesting essay by Mr. Towers. The subject of manure appears to be inexhaustible; it has been treated of by men of the first order of science, and examined in all its bearings; while the merely practical farmer has gone on in the ordinary routine, applying decomposing substances to the land, which experience has taught him, as well as the most inquiring philosopher, to consider as the pabulum of vegetable life, the restorer of land deteriorated and impoverished by vegetable crops. Of late years the theory of nutrition, by the absorbent powers of the leaves, has rapidly advanced, and we are told by some that 19-20ths of the nutriment of plants are assimilated or imbibed by their leaves. However true this theory may be, may we not be allowed at least to simply doubt its accuracy? But we will drop this subject, and take another, which is established upon far more certain evidences—the ordinary manure from well-fed, healthy cattle,—to which an abundant supply of good food is given, the animals being also supplied with a sufficient quantity of litter to absorb the excretion. An important question here presents itself—What is the best state in which manure can be employed—is it better to allow it to ferment, or to lay it in the land at once? Most practical farmers will say, O! there is nothing like a good

rotten dunghill; keep your dung in a hollow place, where the water will lie round it, and have it dripping out of the cart as you cart it into the field. Very good, no doubt, but let us look a little closer into the facts, as they are presented to our view. To answer this question, the component parts of dung coming fresh from the stable must be understood. This fresh manure is a gross mixture of straw and other vegetable refuse, which have been used as litter, with the solid excrement and urine. Fresh manure which has undergone scarcely any fermentation contains the following substances:

Water.....	75 parts
Soluble vegetable and animal matter and salts.....	5 "
Insoluble matter and insoluble salts, vegetable fibre and straw.....	20 "
	100

Reduced by long fermentation to black "spit," dung manure, according to Boussingault, contains—

Water.....	72-80
Organic soluble matters and soluble salts	1-50
Insoluble " "	10-27
Straw converted into peat.....	12-40
Finely-divided peaty water.....	3 63
	100

Here the water is decreased by 2-30 parts in the 100, but the vegetable matter is changed to the condition of what is termed "peat," or "humus," a substance which is formed by the extraction of very old vegetable masses, which is supposed to form the prepared food of plants. Take a cupful of the brown liquid which floats abundantly to waste in every large yard (I think I may safely say) in this township, put it into a deep glass vessel, and stir into it a small quantity of powdered quicklime, let it settle, and then stir in a little more lime, and thus proceed until the liquid has lost its color and become almost clear; or to prove more conclusively, take muddy rain water, and stir in lime as before until the water becomes of a pale, clear hue. The lime has combined with the humic extractive, fixed it as an insoluble humate, and in a condition to be acted on by soil, or by the roots of plants, by slow degrees.

Thus, then, lime is a corrector,—one which combines with, and fixes redundant vegetable matters,—or at least that portion of it which is in any degree soluble in water, or in the solution of soda, potash, and ammonia; and by the substantiating of this great fact, the fixtural of the

nutrimental quality of the humus, and humic acid, which flows from our dunghills, has been proved, and established upon philosophical principles. If it be admitted that lime acts beneficially upon surplus vegetable matters, chiefly by the paramount affinity which it possesses for humic acid, the advocates for a very moderate degree of fermentation in the masses of dung, acquire a strong position, since it is obvious that a protracted fermentation terminates in the production of a cold humus mass, which consists of little else than black carbon, effete inorganic matters, and the said humic acid, soluble in the saline alkalies, but fixable by the action of lime. But, independent of the final conversion of manure into a substance replete with a matter injurious to crops, amounting to at least one-fourth;—observe, for instance, fresh dung that has been drawn out into a field, and thrown into a heap to rot, as it is called, and allowed to ferment without a covering of earth, or anything to fix the ammonia, which is constantly escaping during fermentation, or count the loads, and you will be surprised at the decrease in quantity, and the decrease in quality is equally great, if not greater. I will now give you a description of a plan, practised in Norfolk, for making a manure heap: many agriculturists are acquainted with it, but some of you may not, and may perhaps feel curious about it. It has obtained the name of the “Norfolk Pie.” “The custom is to carry out all the manure made in the separate yards during the winter, as opportunity may offer, into the fields intended for turnips, calculating the quantity at ten loads per acre. In the first instance, a platform of earth is made to receive the manure, and then a proportion of cow dung is cast over it, which is considered the weakest manure, upon that pig, which is held to be the best; then some from the store and fold cattle, followed by horse dung, and then more of the pig’s, always compressing the heaps by casting over it. Then plough round the heap, and throw a light coat of earth over the top and sides, to keep it from fermenting. It remains in this state to within a fortnight of sowing the turnips, when it is turned over, and in its fermented state it is put into ridges of 27 inches, the ground turned over it by the plough, and the seed sown immediately after.” This method of preparing a mixen produces a certain degree of fermentation, while it tends to confine the gases that are extracted, producing also that slight degree of internal action, which Mr.

Gerardin alludes to, as required, in order to “destroy the cohesion of the vegetable fibre, predisposing it to a decomposition and solution, which is useful to manure before spreading it on the land.” But, like all other attempts to regulate a movement which is always progressive when once excited, it is subject to great uncertainty. Every vegetable, and animal substance, deprived of the vital principle, is from the same moment brought into a state of decay, or slow combustion; and when with such substance we combine others, replete with nitrogen, with fecal and urinous excretions, all blended together, more or less, in straw yards, stables and cow-houses, and, of necessity, requiring a lapse of time, and exposure to varying atmospheric influences, it will be evident that no two compressed, or other compound masses as above described, can be expected to become exactly similar in any given number of days. In the essay the evidences of Thuer, Schmalz, Hassanfrabz, &c., have been appealed to. The chemist last named, it is said, “manured two similar lands, one with long dung, in which the straw had only commenced to putrify, the other with perfectly decayed manure, capable of being easily cut with the spade. These two lands were cultivated in same manner; the second produced larger, stronger, and more vigorous plants the first year than the former; but the second year, when neither was manured, the former produced larger, and stronger, and more vigorous plants the first year than the former; but the second year, when neither was manured, the former produced larger and stronger crops than the second; the third year the former still had a slight advantage over the latter.” “An experience of more than seven years,” says Pickett, “has convinced me that we shall be great gainers by using manure as soon as it comes from the stables.” “For six years,” observes M. de Roublesdorf, “I have followed these principles on the farm I cultivate. With the single exception of sheep dung, all the others were conveyed to their destination and spread, even when the land was covered with snow, as soon as they were taken from the stable. It is to this circumstance that I attribute the good state, continually increasing, of my land, as regards manure.” My own practice has been, and I am decidedly in favor of it, to take out all the manure made during the winter, early in the spring, or as soon as the frost will permit, in a

fresh state. It is applied to the potato crop, spread in the open drill, and the seed dropped on the top of it; the drills are then closed; again plough, which effectually covers the manure; the ammonial gas evolved by the manure thus covered, must necessarily pass through the earth, and is consequently taken up by its absorbent powers. The essayist goes on to say, "That by placing a dense body of new manure deep in the ground, a permanent fund of enrichment would be created; for, after all the pros and cons which theory may advance upon the nutriment derived from the air, the ground is and will be found the real laboratory of production. I contend not abstractedly for the old opinion, or against the absorbent power of the foliage; I only insist upon the fact, that the gases are most advantageously prepared in the soil, whence, whether they pass through the roots in the state of sap, or into the air, to be thence attracted by the leaves, is a matter of indifference. The ground, its moisture, the electric actions of the roots, constitute the grand apparatus of nature; and to these, under a wise system of application, which experience alone can teach, we would trust for the establishment of the most perfect system of economy." Marshal Bugeault is a staunch advocate for fresh manure. He says, "Manure, when allowed to putrify for six months, loses half its fertilizing properties, whatever care may be taken to preserve it. When used at once, it causes a continual vegetation, and may be doubled in amount at the same time. The plants produced will restore to the farmer the principles they have drawn from the manure; whilst they themselves have drawn their nourishment in part from the atmosphere, they will afterwards, as food or roots, serve for the food of cattle." M. Noerte, Professor at the Royal Academy of Agriculture at Moeglin, Prussia, notices some experiments of graziers, made by weighing, and which give the following results, indicating a loss of 22 3, or somewhat less than one-fourth:—"After fifty-nine days, there remained of 100 parts of manure only 77,7 of the whole; and thus progressively, but always in a decreasing ratio, the most active decomposition always occurring at its earliest stage." M. Gasparin "considers it a complete illusion on the part of those who, deceived by the intimate admixture of materials in old dung, conceive that it has acquired value; by long fermentation it has lost nearly half its substance, more than half its solu-

ble principles, and two-thirds of its nitrogen." Schattenmann describes an excellent practice, long employed in Switzerland. It consists in "saturating the ammonia of urine and dung with sulphuric acid, sulphate of iron, or gypsum; no trace is thus lost of the active principles of the manure, because the sulphate of ammonia is not volatile; and manure treated in this way possesses much greater powers. All the farmers of Alsace who have adopted this method bear testimony to its value, and desire that it should be more extensively used." The quantity of sulphuric acid required to fix the ammonia in a liquid manure tank may easily be determined, by its subduing the fetid odor. I make one more extract referring to the quality of manure which should be chosen for the several crops of the farm. "It should be remembered that each plant contains particular salts which are necessary to its growth; thus all the grasses and corn have a large quantity of silica in their stems, and of alkalies and earthy phosphates in their seeds. Tobacco, peas, clover, and the stems of the vetch, contain much lime and magnesia; while turnips, marigold, potatoes, contain much alkali in their leaves and stems. If, then, these plants do not find the requisite quantity of these salts in the soil, they cannot be expected to thrive. The best mode of restoring these salts is to bury the residue of the former crops as manure. The dung of pigs fed on peas and potatoes, the dung of cows fed on hay and turnips, contains the necessary saline principles of grasses and turnips. That pigeons' dung contains all the saline principles of grain, that rabbits' dung contains those of herbaceous plants and legumes, and that the solid and liquid excrements of man contain those of all seeds in great abundance, and consequently they are useful to all grasses without exception, and are capable of taking the place of any other manure." Whatever may be thought of the defective management of farm routine, certain it is that there are men at work of profound ability, whose researches must lead to the best results. Let us improve upon them, while we testify gratitude for their labors.

FIRE AND WATER.—The Menai Bridge, says Herschel, consists of a mass of iron, not less than four millions of pounds in weight, suspended at a medium height of about 120 feet above the sea. The consumption of seven bushels of coal would suffice to raise it to the place where it hangs.

THE SMITHFIELD CLUB CATTLE SHOW.

Abridged from the Mark Lane Express.

We have again the pleasure to offer a report of the annual gathering of the Smithfield Club. It is very gratifying at all times to be able to report satisfactory progress; and of this we have abundant evidence on the present occasion. The improvements made in the showyard, allowing more space for the exhibition both of stock and implements, the beautiful order of arrangement, the cleanliness and neat fittings to the stalls, the disposition of the various pens, and the easy approach to every animal, make a visit more than usually interesting. The whole arrangement reflects great credit upon the indefatigable Secretary, and his able coadjutors, the Stewards of the Show. We might further say that we have seldom seen such an assemblage of contented faces. The proverbial grumbling said to be inherent in the British farmer is for once, at all events, thrown aside; we meet only with the composed and happy countenance, manifesting deep interest in the exceedingly good and great show before them. It is true that, occasionally, individual specimens of each breed of animals have surpassed those shown at the present meeting; but we think, as a whole, it is above the average, and that each separate breed is fully and admirably represented. We have watched carefully for several years the attempts made to introduce new breeds of cattle and sheep, by crossing in various ways. This year has certainly produced some very good specimens of the kind. Amongst them we would name the Earl of Radnor's steer, Mr. Hewer's ox, and Mr. Tucker's heifer, in the cattle classes, and Mr. Druce's three sheep. We mention the latter, as we have had our eye upon them for some time, as knowing it was an attempt at a new character of animal, to be derived from Cotswold and Down cross. At the Gloucester meeting, we reported unfavorably; they then denoted large, coarse heads and offal, with no counterbalance in frame. The specimens shown at this meeting are a very great improvement, and is the result of judicious in-and-in breeding. It is certain that these crosses have produced some extraordinary animals; and it is interesting to ascertain and notice how they favor the sire or the dam. The Shropshire breed, specimens of which were exhibited by the Earl of Aylesford, are very superior animals, and are, we believe, the result of careful crossing from Down and Leicester. We are not aware of other attempts at continuous crossing, but shall be glad to receive any reports thereof, if attended with success worthy of notice.

In the cattle classes, we have not much to remark on this head; indeed, we do not know of any continuous cross, with a view to perpetuate the breed shown at the yard. Those shown were very good specimens of a single cross.

SHEEP.

The sheep classes, as a whole, were well represented, the Down and half-bred classes particularly so; but we should like to have seen a better and more numerous class of long-wools of both kinds, that is, *Leicesters*, and *long-wools not being Leicesters*. Some good animals were shown, but, we think, not equal to former years. The extra stock class contained several very good specimens of these breeds, but nothing worthy of more especial notice. In the cross-bred classes many very splendid sheep were shown; proving satisfactorily the desirability of continuous attempts to introduce improved breeds. In the Down classes we think great progress is yet making: our taste accords most with the production of a great weight of food of good quality in a given time, either in growth or feeding. We think the Hampshire Downs shown gave decided advantages on this point, being very large, and heavy. The pure Downs also gave evidence of improvement. We never saw the Duke of Richmond's Downs show so well; they retain their symmetry under a broader frame of greater substance.

PIGS.

The celebrated Coleshill breed, though fairly represented, are not equal to former years, and we miss the class of fine porkers, of the kind bred by Mr. F. Hobbs, and others of the same school. As a whole, with the exception of class 31, we do not think the pig classes so well sustained as usual.

AGRICULTURAL ROOTS.

Thomas Gibbs & Co., Half-moon street, seedsmen to the Royal Agricultural Society, have a better selection of roots (all from their own seed) than we expected it was possible to have exhibited this year. A drum-head cabbage was pointed out weighing 31½ lbs.: various roots of mangel-wurtzel, of Long Red, weighing from 15 to 21½ lbs.; Yellow Globe do. attaining to 21½ lbs. weight; Red Globe do. 18 lbs. The variety of Long Red is said to have produced this season 56 tons per acre, and grown by Mr. Smith, of Harrow Weald, Middlesex. We were greatly interested in seeing several specimens from the Royal Farms—Yellow Globe mangel-wurtzel, weighing 21 lbs., from the crop which won the first prize of the Royal East Berks Association; several specimens of Purple-top Swede, from the same farms, of very large size: we saw no specimens elsewhere to equal them. Several specimens of swedes and mangel grown by Prince Albert (and for which his Royal Highness has gained the silver cup of the Royal South Bucks Agricultural Society, and prizes from the East Berks Agricultural Association respectively, for two years running,) are excellent even for the best turnip seasons. Those of the Duke of Bedford and Sir John Cathcart are little inferior, while Mr. Howard has one fully equal. The specimens of kholabi and Belgium carrots, the latter grown by Col. Challoner, are also remarkably fine. Seeds are fully up to expectation as to quality; and, in variety, far beyond enumeration.

Mr. Skirving exhibited some very fine specimens of his variety, and many other common varieties—carrots, red and white, very good.

Mr. Chivas attended with specimens of his Orange jelly turnip: it seems almost equal to a melon in shape, and also in sweetness of taste, but we think it is not possible to grow any great weight per acre.

Mr. Skirving's Fluke potato is a very flat-shaped variety, *fluke shape*, or a flat oval; color, white; and appears to us not large enough to yield greatly in ordinary culture.

IMPLEMENTS.

The show of implements and machinery, now that everything is in its place, is fully as favourable as what we expected last week. The rather limited amount of space naturally makes the articles more select than otherwise they would be, with fewer doubles, but not to that extent which might be expected. At the same time improvement has obviously been made in this respect on the present occasion. About 313 stands, $2\frac{1}{2}$ by $4\frac{1}{2}$ feet, have been divided among 88 exhibitors; some occupying only one, others upwards of a dozen, while a few have not made their appearance.

Our space will only allow a few notices of particular machines, &c., gathered from the interesting and copious report of the *Express*.

Mary. Wed'ake and Co. show a variety of corn and cake crushers of different sizes; also turnip and chaff cutters, a haymaking machine, a lawn mowing machine, and domestic flour mills, well adapted for emigrants, either with French burr stones or steel. They also exhibit a gorse mill, an article which recommends itself to more than farmers, for in the neighbourhood of this great metropolis we could point out hundreds of acres which would return much more profit under gorse than grass, because the former would be invaluable green food during the winter to the cows of private families, who, if they once tasted gorse butter and cream, would give a long price for such green food.

Thomas Lloyd and Son, 15, Old street Road, are the exhibitors of domestic steel mills and corn bruisers, of the best workmanship and material; and although many object to the former without assigning a valid reason, we could contrive to make a family brown loaf at sixpence with them, instead of eleven-pence as we are now paying, a difference of some importance in domestic economy.

James and Frederick Howard, Bedford, of their large assortment, exhibit as samples their first prize R and P ploughs. Their ploughs have long been justly celebrated in every province of the kingdom, and the recent improvements made upon them have brought them to a very high degree of perfection.

B. Samuelson, Banbury, exhibits his digging machine; a powerful instrument in loosening the soil and turning up weeds. Of this series of stands we find Anthony's far-famed American churns.

Richard Garratt and Son, Saxmundham, have, as usual, a fine show of implements and machinery, consisting principally of drills and thrashing machines, driven by steam or horse power. The money prizes and medals which this firm have received would make a handsome little fortune to a farmer. Below stairs they exhibit their portable steam-engine, with a combined thrashing and dressing machine; and upstairs a horse-power portable thrashing machine.

William Coulson, Fetter-lane, York, exhibits a very ingenious and highly-meritorious mortising and boring machine, capable of mortising all sorts of wooden work connected with agriculture, as gates, fencing, &c. The boring part is added (under patent) very lately, and greatly enhances its value.

Arthur Lyon, Finsbury, London, exhibits mincing, pulping, and sausage-machines of the highest value in culinary affairs, and which doubtless ought to find a place in the farmer's kitchen.

Burgess and Key, Newgate-street, exhibit a model of an improved reaper, with screw gathering apparatus, which screws round the corn into a swathe. The enslaving labour of the man who works the rake of the American machines is justly condemned by every one who practically knows anything about labour, or who has any fraternal feeling in his bosom for his fellow-creature; and while this is an honest acknowledgement of the evil itself, it is also a laudable endeavour to get rid of it—with what success in the field we are, as yet, unable to say; but on the carpet is very interesting.

William Crosskill, Beverley, Yorkshire, shows his improved Bell's reaper, about the best of all the reapers yet in the field; inasmuch as it abridges labour in the greatest degree, doing away with the slavery of the man and rake. To lose sight of this important fact is to lose sight of the very object of machinery.

Ransome and Sims, Ipswich, have an invaluable selection, both above and below stairs. Their portable engine and combined thrashing and dressing machine can scarcely be beat, while their ploughs are superexcellent. What we have said of ploughs may justly be said of their fixed engines, of which one (a four-horse power) is shown as a sample.

R. and J. Reeves, Bratton, Westbury, exhibit two liquid-manure drills—the one, a Chandler; and the other, on what is believed to be an improved plan. The former has been sold to His Royal Highness Prince Albert, for Norfolk Farm.

William Dray and Co., Swan-lane, London, show their Lincoln Prize Hussey Reaper, in whose favour so much has been said. Little money is a powerful monitor, and has exercised its influence among more than merely practical farmers; hence the prudent plan of a special award being appropriated to cheapness. In this respect Hussey's machine has not a rival as yet; and from the high degree of perfection to which W. Dray and Co. have brought it, the finding of one will not be an easy task. We are far, however, from throwing obstacles in the way of the inventive world by supposing it is impossible to make a cheaper machine than even this is. This

firm also shows a very ingenious Belgian manure and seed dropper, worthy of the notice of gardeners and small farmers' under spade husbandry, while for large farms they would be useful for blanks and headlands.

Signor Carlo Minasi, Brecknock-place, Camden-road, also shows his patent hydre-incubator on their stands, which possesses the highest degree of merit. Clucking hens have always been experienced as an eternal annoyance about every farming establishment, and as it is said that "three dips in the dam will make a clucking hen lay again," we wish Signor Minasi every success at our Christmas Meeting, for both pleasure and profit in the management of poultry are obviously greatly in his favour.

Clayton, Shuttleworth and Co., Lincoln, have long occupied a very enviable position in agricultural mechanics; more especially as to portable and fixed engines; and on the present occasion fully maintain their ground. Below stairs they exhibit a portable engine with combined thrashing and dressing-machine, and upstairs a fixed engine, a saw-table, chaff and turnip-cutters, and corn and linseed-crushers. All these things exemplify in the most satisfactory manner the high degree of perfection to which this firm has attained in the manufacture of heavy machinery of every kind, justly meriting that honourable and marked esteem which it has always received of the agricultural world.

W. P. Stantley, Peterborough, exhibits two sets of steaming apparatus, for which he has justly acquired pre-eminent distinction. The proper cooking of food for stock is a question second to none in agriculture, and this firm has done much to solve it. He also shows compound steel mills and corn bruisers of high merit.

W. Busby, Bedale, Yorks, shows his far-famed prize ploughs and carts, as also drill horse hoes. These are articles of the highest merit and most deserved celebrity.

Richard Read, 35, Regent circus, London, exhibits bullock-pumpkins and garden-syringes of various kinds; they are both of the best quality and description, and are indispensable articles to farmers and gardeners.

J. A. Williams, Baydon, Hungerford, shows his "Patent self-holding lever-plough and cultivator." It has long been a cherished desideratum among ploughmen to get a plough to go of itself without holding, and our Christmas exhibition of this year bids fair to solve the problem by Mr. William's trifurrow plough, which goes on three wheels, requiring no one to hold it. Each of the three ploughs has a lever for regulating the depth of the furrows, with the necessary contrivances for fixing their breadth. We do not much admire the ploughs, but they are moveable for the grubbers or cultivators, of which there are four, with an additional lever; hence a Howard, a Ransome, or a Busby plough may easily be substituted, which silences this objection. The machine is adapted for steam or horse power, and obviously prognosticates a new state of things; but experience in the field, of which we have none, is absolutely necessary before judgment can be safely awarded as to merit; at the same

time we may observe that, from experiments made, the patentee is sanguine as to results; for ploughing in seed in soils liable to "spew out the young plants," it may prove "a great affair," as he thinks it will.

Robert Hunt, Fair's-Colne, Essex, exhibits his "Improved engine for drawing clover," with a dressing-machine combined; thus delivering the cloverseed ready for market.

James Dobbs, 7, New Orchard-street, Bath, an excellent spirit level, with stand and staff.

R. H. Nichols, St. John's Eedford, exhibits his patent universal horse-hoe, which has several mechanical advantages in its favour—as the easy mode of steerage when the corn drills are crooked, and the regulating of the depth of the hoes in going over an uneven surface.

F. Phillips, Hall-farm, Brandon, Suffolk, exhibits his Lincoln prize patent root pulper. The reduction of roots to a pulp for the mixing with ground corn and chaff, is a proposition which has very justly met with general approbation, and the machines are among the best pulpers manufactured.

Taxford & Sons, Boston, exhibit their prize fixed and portable engines, and a combined thrashing and dressing machine—articles for the manufacture of which this firm has long been justly famed. In construction and manufacture their portable engine develops the highest degree of mechanical skill and workmanship, in evidence of which we have only to mention that it has been selected by the Governments of France and Prussia for the Museums of Art and Agriculture of those two empires, and by our own Government in her Majesty's dockyards. The incasing of the working machinery, or parts at the end of the boiler, under the immediate eye of the engineer, is universally admired. Similar characteristics of usefulness and durability recommend their fixed engines and thrashing machines.

William Williams, Bedford, exhibits his celebrated pipe machine, which has procured no less for himself than purchasers, so much satisfaction in many a yard. Independent of all the new machines which have from time to time appeared, it still maintains its popularity wherever introduced.

E. H. Bentall, Heybridge, Maldon, shows one of his prize patent broad-share and subsoil ploughs, a powerful instrument in loosening soils.

Wm. Cowley, Newport, Pagnell, Bucks, exhibits his improved tipping-cart, with vulcanized India-rubber springs, and horse hames, which have both been much admired.

McNeil & Co., of Bunnhill-row, London, exhibit samples of their patent asphalted felt for the roofing and ceiling of houses; for putting under slates so as to exclude frost in winter and heat in summer. For these and other similar purposes this felt has now acquired a lasting fame.

James Burton, 370 Oxford street, exhibits his "patent stable fittings," plain, enamelled, and galvanized; hay-boxes, mangers, and water-troughs. His improved enamelled fittings, and

method of fixing the halters, are highly meritorious, and ought to find a place in every well-managed stable.

Tree & Co., 22 Charlotte street, Blackfriars-road, exhibit Ewart's cattle-gauges, which few intelligent farmers now want; also, Bedington's patent horse-halters.

In comparing these observations with our notebook, we find many details in the latter, of necessity avoided, for want of space. The brevity of our remarks may demand indulgence, but no apology. We never have, on any previous exhibition in the bazaar, had so little occasion to find fault, or so much good cause for general commendation. As a whole, the exhibition may be taken as an index that the state of British agriculture is highly prosperous, while it proves in the most satisfactory manner that our implement-makers are not so far behind the other arts in the manufacture of machinery as many imagine, and that farmers are following them as fast as the stubborn circumstances of the soil will permit.

In concluding our report, we beg to express our great gratification at the result of the meeting: seldom have we had such a successful one. We rejoice to see our Princes and Nobles competing in friendly rivalry with the humbler classes for the various prizes, and many of which they have deservedly carried off. What a contrast to the feudal ages!—no danger of the prophet's warning, "Woe to thee when thy princes eat in the morning," that is, luxuriate instead of attending to useful duties and employments. We trust the efforts of the Smithfield Club will long be blessed with great prosperity, and realize many such interesting meetings.

BIRMINGHAM CATTLE AND POULTRY SHOW.

This Exhibition came off the week succeeding that of Smithfield, and appears to have been eminently successful. It has been established about from four to five years, and is evidently doing good service, particularly to the Midland counties. The situation of Birmingham, as the centre of a vast system of railways, is peculiarly favorable for getting up displays of this kind. We are indebted for the following description to the *Mark Lane Express*:—

What cattle shows have done for our stock, this show has done for our poultry. The *rara avis in terris* is such no longer. The one good bird or so, which came only to prove how bad were nearly all the others, can now expect no such distinguished position. In nearly all classes nearly all were good, and the judges confessed they never had their experience so hardly tried as they found it at this meeting. But poultry, we must repeat, is no longer a mania. It may still certainly be more or less the especial pursuit of the amateur; shorn, however, of nearly all that "fancy" character which once made it his business alone. Our breeds of chickens

were unquestionably never so good, while they were as certainly never so easily to be obtained. We hear no further of hundreds and thousands, except as a joke. Birds are sold for what they are worth, and a lot, even of prize Cochin China, may be had by the catalogue figures at a pound a-piece.

Self glorification is but an ungrateful task; it may be remembered, though, that some two or three years since, when this same Cochin China was in the very height of his ascendancy, we were the first to dispute his claims. We argued that for almost any purpose, either appearance, quality, or economy, we had fowls long known amongst us immeasurably his superior. For the farmer particularly we maintained there was no bird like the Dorking. Time, too, has fully justified us in this. For real use, the direct object for which poultry are supposed to be kept, there is no bird like the Dorking. This was the chief attraction of last week's show. If there had been a gold medal for the best pen of fowls of any kind, to this sort must it have been awarded. For beauty, or really fine plumage and shape, there is only one variety superior to the Dorking cock; while for the table, there is none, we believe, equal to it. The handsomest, or to use a yet more significant term, the most "thorough-bred" of all, is the Game fowl. A new and very commendable feature in the Birmingham Show of this year was a series of prizes for the best cock, singly, of each particular kind. The Game, as might be expected, were very strong here. The first prize-bird was decidedly, as far as form and plumage went, the best of the whole exhibition. It is seldom so perfect a one has been shown. He was the property of Mr. France, of Ham Hill, Worcester, but sold at the price marked in the catalogue—five pounds.

Nearly co-equal with the Dorking and Game came a Spanish, a breed which for general purposes many maintain are amongst the very best we have. They have been considerably improved upon of late, and never made a better display than on this occasion. We are here again, studying barn-door capabilities. The Hamburgs, on the other hand, though of almost every possible tint and spangle, were thought to be on the decline. The same may be yet more decidedly written of the Malays; whereas the Cochin Chinas, that once fashionable color more particularly known as the "Buffs," were much better than of late. There appears, however, not the slightest chance of their regaining anything of their quondam popularity. It was amusing, indeed, to notice the common neglect with which they were treated. Their warmest supporter, Mr. Sturgeon, now ranks no higher than "a commendation," though Mr. Punchard still holds his own as a first prize man.

It would be impossible for us to find room for a prize sheet, running to such an extent, and divided into so many sections as that of the poultry department of the Bingley Hall Show. We have endeavored, however, to convey some notion as to its general character, as well as of the state of the market. The dearest of all now

seem to be the Bramah Pootra, possibly because they are the scarcest. Assuming they will ever come into general request, there is no fear that they will soon find their level from forties and fifties to common sense prices. Unable as we are to do full justice to the awards, we may yet avail ourselves of the opinion of the judges, as to be gathered occasionally from a note in the prize list. They recorded, then, two classes of the silver-spangled Hamburg as "*meritorious*," the colored Dorkings as "*very meritorious, and deserving the highest commendation*." The cinnamon and buff Cochins were, on the same authority, "*an excellent class*;" the white Cochins "*a very good class*;" the Dorking cocks shown singly, "*a very excellent class*;" the Spanish cocks shown singly were "*the whole class commended*;" the Game fowl, blacks and brassy-winged, as a class "*generally meritorious*;" the white Aylesbury ducks also "*generally meritorious*;" and the turkeys "*a very good class*." As for the Aylesbury ducks, we never remember to have seen anything like so generally excellent a collection, and we have known them some time, too, both at home and abroad.

When we find, year after year, how one show is made to support the other, we come the more to wonder how the Smithfield and Birmingham meetings should ever have been allowed to clash. Without the opportunity of visiting the two, one cannot fairly ascertain how the different breeds of stock are just at present supported. By the experience of the Smithfield Show, for example, we might have written the Hereford cattle as going rather out of fashion. Birmingham steps in, opportunely enough, to correct this. The best beast here was a Hereford—he took the gold medal as the best. The best cow here was a Hereford, and she took the gold medal as the best. There was no want of competition, either, to damage such proof. The gold medal cow at Smithfield—that mistaken notion of Mr. Towneley's—was at Birmingham. She was here, again, the best of her sort; but not, the judges decreed, the best of all. The show of Shorthorn cows and heifers, in fact, went very much as the week previous—Mr. Towneley and Mr. Langston again first and second with their cows, and Mr. Phillips with his heifer. These classes—the Durham cows and heifers—were altogether very good, and might have been generally commended. The Shorthorn oxen and steers, on the other hand, were quite as remarkable the other way. A rougher lot, taking them all, we never remember to have seen; and there was nothing like a first-class animal amongst them. Mr. Stratton, it will be observed, took the uppermost place, with a beast undistinguished at Smithfield, and by no means in high favor here.

A limited entry of Devons still spoke more satisfactorily to the general excellence of the sort. We do not remember a bad animal amongst them. The show, however, was chiefly confined to our best known exhibitors: Prince Albert and Lord Leicester carrying all before them. The Prince's Devon heifer, first here, was the second prize at Smithfield; while of Devon cows there

was only one exhibited, but to that one the judges very properly awarded the premium. For general merit, we must repeat, the lead was unmistakably with the Herefords: when we come to consider the good cows and heifers in both the Durham and Devon classes that succumbed to a Hereford, we may fairly assume that Mr. Stedman's was a very perfect animal. She exhibited, indeed, both in form and color, all the best points of her breed, and had a round, low, and broad contour, not always the distinguishing marks of the sort. Mr. Heath's gold medal ox, though apparently not so highly bred, had fattened into a very serviceable beast; still his superiority over those against him was not so apparent—a fact that speaks well for the general strength of the entry. It is remarkable that the gold medal beast of the Birmingham Show at this meeting is the twin-calf of the one which took the same honor last year. In the Hereford steers Prince Albert and Mr. Niblett with the same two animals changed the places they occupied in London—the Prince here being the first and Mr. Niblett the second. It will be recollected the same thing happened last year with the two Shorthorn cows, and public opinion declared that the Birmingham was the more correct award. There is little choice, though, in this instance: both are very good, and two fresh sets of judges would be quite as prone again to differ.

Of the other kinds of cattle, the Long-horn has but a local repute that is not very likely to extend in its influence. Far more popular, one would imagine, must be the Highlanders and Scots, of which there were some very capital specimens. Birmingham, in fact, is commonly strong in these classes—the best quality of meat, we are assured, that the butcher can procure, and yet a beast never shown to the extent that might be expected. The Duke of Beaufort exhibited some promising crosses of the West Highlander with both the Gloucester and Jersey cow, the former obtaining a commendation from the judges.

In the show of sheep, considerable advance was observable—especially in the Southdowns, by far the best ever seen here. Despite the absence of the Duke of Richmond, Lord Walsingham could not improve on the two second premiums he took at Smithfield—a sufficiently significant fact of what he had against him. The sheep, however, above all others peculiar to Birmingham, is the Shropshire Down, one of the most useful varieties we have, and that is daily growing into repute. One of the great secrets of the sheep-breeder is this improving or enlarging on the frame of the pure Southdown; and we can only say it has been most successfully attempted by "the proud Salopians." It is being more boldly tested with other breeds, as some very excellent pens of cross-bred sheep bore witness to. They were all Downs on one side, crossed with the Leicester, Cotswold, and Oxfordshire Longwools; the most successful being with the Cotswold.

In the pig classes—once a strong point in a Midland Counties show—there was a very observable falling-off, both in the number and quality of those exhibited. It has often struck us, indeed,

that of late we have scarcely been advancing so systematically with the pig as with our other breeds of animals. The best show we have seen for some time was one of Berkshire pigs, in Ireland. There were but few of this kind at Birmingham, the show running almost entirely on Prince Albert's, Mr. Wiley's, and the Cumberland or Yorkshire white pig, with a sprinkling of the curious coloured Tamworth.

WINTER PLOUGHING.

(From Purdon's *Irish Farmer's Almanac*, 1855.)

We have strenuously enforced on our readers the necessity of having the land intended for green crops ploughed at an early period in November or December. The earlier it is done the better; for the longer time that the upturned soil is acted upon by the influences of the weather, it will tell so much the more on the after fertility of the soil. At the same time, the ploughing of stubbles, to be effectual, must be deep—not the scratching apology for tillage which we find in so many cases, not only with small farmers, but also with those who ought to know better. We have been often told, by men who pretend to have all the skill in the world, that deep-ploughing, whether by the ordinary plough or the subsoil-plough, is all new-fangled nonsense; that such notions may do very well for gentlemen farmers, or the demesnes of noblemen, where they imagine expense is a secondary consideration, but that it is not applicable to “the farmer who has his rent to make.” Such objections—for arguments it would be ridiculous to call them—can only proceed from those who are profoundly ignorant of the first rudiments of agriculture; and until such persons either change their opinions or their profession, so long will the mode of farming pursued in Ireland be defective.

ROTATION OF CROPS.

As this is the season when the preparatory operations for cropping during the following year are performed, it is a fitting opportunity for discussing the principles of a succession of crops. This is one of the most important subjects to which the attention of the farmer can be directed, because his success in a great measure depends upon it. We may drain and subsoil our lands; we may add manure in the greatest abundance; but if the cropping of the farm be not arranged on a proper system, all these operations will be ineffectual. It is found that, when plants of the same kind are cultivated for a series of years on the same portion of land, however fertile the soil may have been, it gradually loses its powers of production, until the return from it becomes so small as not to repay seed and labour. By such persons as farm in this manner it has been found necessary to allow the land to lie uncultivated for two or three years, when it has become, as they term it, “run out;” and as it will then be found to have recovered, in some degree, from the treatment given to it, it is again subjected to the same course, until its exhaustion proclaims the necessity for

desisting, for some time, from growing any crops on it. Since the failure of the potato we have observed that there are many farmers who try to manure a greater breadth of stubbles for the succeeding crop of wheat or barley; and the practice or bare fallowing is also extending. Now, in order to understand the absurdity of such cropping as the above, we shall state what are the recognized principal of successional cropping. “First, every plant has a natural tendency to exhaust the soil; second, all plants do not exhaust the soil equally; third, all plants of different kinds do not exhaust the soil in the same manner; fourth, all plants do not restore to the soil the same quantity nor the same quality of manure; fifth, all plants differently affect the growth of weeds.”

It is from the soil that the food of plants is chiefly derived; and, as each species requires food peculiar to itself, it naturally follows that, when one species is grown for a series of years on the same spot, the food which this required, and which existed in the soil, must become every year lessened, until finally exhausted. But, as different species of plants require different kinds of food, it is evident that, although that which is necessary for one kind of plant may have been exhausted, there may still remain in the soil a sufficient supply of other substances which would prove favorable to plants of a different nature from those previously cultivated. Again, some plants derive their food from the surface-soil; whilst the roots of others penetrate deeply, and extract their food from more remote sources. If, therefore, a succession of such plants as derive food from the surface be cultivated for some years, this surface-soil must, of necessity, become exhausted of the suitable supply of food, whilst the store contained at a greater depth is untouched. It may be urged that the food which has thus been extracted from the soil by any particular variety of plants is restored when we apply manure. This is true; but mixed manures, such as farm dung, contain a variety of substances suitable for very different kinds of plants; and, therefore, such as are not required by the species grown either lie useless in the soil or are lost. But there are other reasons why plants of a different kind should succeed each other; and one of these is stated in the fifth proposition mentioned above—namely, that “all plants differently affect the growth of weeds.” Not only is the growth of weeds encouraged by the growth of certain plants, but the removal of these is precluded by the mode of cultivation applicable to these plants. When oats are grown in succession, we find that scutch-grass, crowfoot, and other weeds, will, in a short time, cover the land and choke the crops; and if such land be subjected to the strictest summer fallowing, in the course of which every possible vestige of the weeds is destroyed, yet if grain crops are again cultivated, the land will again become foul. It is necessary, therefore, to alternate such crops with others of a different nature, which will allow of these weeds being eradicated during the process of cultivation required to grow the alternated crops. We are

aware that some speculative farmers suppose that, by pursuing a certain course of management, the growth of weeds may be checked, if not entirely overcome. This they propose doing by drilling the grain crops, and by the use of the horse and hand hoes during the earlier stages of the growth of the plant; but whilst we admit that such treatment will check the progress of certain weeds, we must deny its capability of superseding a system of alternating plants of different natures. Such is a brief view of causes which render a rotation of crops necessary to secure the fertility of the soil; and we would wish to impress the importance of the subject upon our readers, because there are, comparatively speaking, very few farmers in Ireland who understand the importance of successional cropping.

FEEDING OF SHEEP.

It appears from experiments of the Leipsic Society, that sheep cannot be fed to their full extent on hay alone, and that those of a particular breed, which, when fed on hay, reach a weight of 90 lb., acquire an additional 10 lb. by the use of concentrated food. Further, that hay is not favourable to the production of fat, but that the grains, especially rape and linseed cake, greatly surpass it. Experiments on cows, have also shown that 1 lb. of rape-cake given in the food produces an increase of $\frac{3}{4}$ lb. of milk, and that with cows of high milk-producing powers it may produce double that quantity; or, on the average, rape-cake will produce its own weight of milk.—The highest effect is produced by 2 lb. daily; but this quantity is too high, if butter is the object, as it acquires a disagreeable flavour; but when the milk is to be sold, this quantity may with safety be employed. In the production of milk, rape-cake cannot be replaced by double its weight of hay; and under favourable circumstances, when combined with food poor in nitrogen—such as straw, potatoes, or turnips—it will produce three times the nutritive effect of hay. Rape-cake is equally favourable to the production of flesh, and it appears that 1 lb. daily will increase the live weight of a cow by 15 lb., and sustain it at the higher point.—In one particular experiment the live weight of two cows was increased, in the course of fourteen days, by 62 lb., and with the consumption, in addition to their former food, of 66 lb. rape cake. This effect, however, was only produced under favourable circumstances; for when three or four lb. rape-cake *per diem* were used, the animal only reaches a weight proportionate to this increase after the lapse of a very

considerable time; and it appears that the more nearly the animals approach the fully fed condition, the more slowly do they increase in weight especially under the influence of the same food.

With sheep, 1 lb. rape-cake added to the daily food will gradually produce an increase of 20 lb in their live weight, provided the composition of the total food be properly attended to. This, however, it will only do in the early part of the feeding, its effect being somewhat diminished in the latter part of the process. The poorer the other nutritive matters supplied to the animal are in nitrogen, the larger is the quantity of rape-cake which may be advantageously employed. It is not found advantageous to give to each sheep a larger quantity of rape-cake than $\frac{3}{4}$ lb. daily. If the daily food of a sheep of medium weight consist of 4 lb. turnips, $1\frac{1}{2}$ lb. hay, and a quantity of rape-cake be supplied in addition, commencing with a small quantity, and gradually increasing it to $\frac{3}{4}$ lb., the weight of the animal will increase in the course of six or eight weeks by about 13 lb., and with the expenditure in all of from 28 to 30 lb. of rape-cake. It thus appears that the effect of rape-cake on the sheep though favourable, is not so striking on the cow. These experiments have been followed by an inquiry into the quality of the dung produced. To connect together the whole inquiry, it may be well to mention the principal points established. It appears that when rape cake is given to sheep, not for the purpose of fattening, but in small quantity, and a part of their winter food, not more than 1-6th of the original quantity of nitrogen disappears during the nutritive process and by decomposition, and the other 5-6th remain in the dung. The quality of the cow dung is similarly increased; for, as 1 lb. of rape-cake produces 1 lb. of milk, containing only $\frac{1}{4}$ of the nitrogen of the cake, the other $\frac{3}{4}$ must manifestly appear in the dung. When, however, a rapid increase is taking place in the weight of the animal, a smaller proportion of the nitrogen will pass into the dung, and a larger quantity be retained within the body of the animal. What proportion is thus retained for each 100 lb. increase in the live weight cannot be accurately deduced from the experiments; at all events, it is clear that Boussingault's estimate of 3.66 lb of nitrogen is too high—a result which is also brought out by Mr. Lawes' experiments. It may happen that, when a rapid increase in the weight of the animal occurs, the whole of the

nitrogen of the concentrated food may be retained in the animal; and this actually occurred in one of the experiments where in fourteen days 56 lb. of rape-cake gave an increase of 62 lb. live weight, and at the same time 38 lb. of milk.—In this case the rape cake employed contained 2.8 lb. of nitrogen, and the nutritive products 2.49, or very nearly as much; but this is so to speak a mere passing phenomenon: for so soon as the live weight corresponding to this mode of feeding is acquired, only that portion of nitrogen necessary for the milk is retained, and the remaining $\frac{2}{3}$ pass into the dung.

FOOT-ROT AND SCAB.

Foot-Rot.—The usual symptoms are—the feet will be found hot and tender, the horn softer than usual; and there will be an enlargement about the coronet and a slight separation from it, ulcers being from below, with a discharge of thin foetid matter.

The ulceration of foot-rot will not long exist without some other annoyance or constitutional disturbance; when at length the powers of nature fail, and the animal dies from irritation and want. I will state the proper way to proceed.

First, cut the horn away, and clean off all the pus (matter); wash the feet well with soap and water; and rinse them with plain water; after drying a little, wash again with a solution of chloride of lime, in proportion of half-a pound of powdered chloride to two quarts of water. This will remove the tætor and tendency to mortification. The muriate or butter of antimony must be resorted to, by means of a feather applied to every denuded part. There is no application equal to this, in my opinion, and it readily combines with fluids, and becomes diluted. Little or no harm can be derived from it, so far as these foot cases are concerned. It supercedes every other application. The foot should be dressed every day.

SCAB.—From such an infectious, troublesome, and destructive malady a sheep is never even slightly affected but it proceeds to rub itself against everything it meets. As soon as the disease is discovered, it becomes the duty of the shepherd to examine every animal in his charge and remove every affected one from his flock, and dress it with ointment composed of—corrosive sublimate, 1 oz.; white hellebore, in powder, 1½ oz.; whale or other oil, 3 quarts; rosin, 3 oz.;

tallow, 2 oz. The sublimate must be reduced to a fine powder, and mixed with a portion of oil, and also the hellebore powder; the rosin, tallow, and other ingredients then added and well mixed. Should the compound be too thin the oil may be diminished and the tallow increased.—Some little attention being paid to the animals, they will in a short time recover.

CUTTING ROOTS FOR SHEEP.—A correspondent of the *Mark Lane Express* says—"It is a matter of impossibility for young sheep to eat the turnips without being cut; I am certain that they will not thrive as quickly, and I consider that one part out of three is lost. There is this difference in cutting turnips and not cutting them: Suppose you put 100 sheep on turnips not cut and 1 lb. of oilcake, they will not do so well as 100 sheep put on turnips cut for them without any cake, neither will they be fit for the butcher so soon by two months. Let any one try it: they will find my remarks upon this matter quite true."

SHEEP.—No animals upon the farm pay better for a warm stable than sheep. The increase of wool, to say nothing of the saving of life, would be a sufficient inducement, if properly understood, for any reasonable man, to stable his sheep as carefully as his horses. But if you cannot do that, in pity, give them a cheap shed with a southern aspect and a dry yard. Give them plenty of good hay, and roots or grain every day, and they will pay back all the extra charge in the spring.

FRUITS AND FRUIT CULTURE.

The American Government publish annually from the Patent Office—corresponding in some respects to our Bureau of Agriculture—a report upon inventions, agriculture, horticulture, &c. The facts, experiments, discoveries, suggestions and opinions, embodied in the report, are collected from returns in answer to official enquiries sent to all parts of the Union. We had hoped that something of a similar kind would have emanated from the Canadian Bureau, as the law makes provision for it, but political "chiselling," as it is called, seems to have engrossed the chief attention of our public men. It is evidently a mistake to place a mere politician at the head of the Bureau. A person specially qualified should be appointed to that office, and his position should not be affected by political changes.

We give below a few extracts from the Patent Office Report, as a sample of the useful facts it contains:—

Maine Apples and Ice.—Apples grown in this State (Maine) are kept a month longer than those raised in most of the other sections of the country. I therefore believe that Maine will, at no distant day, become one of the largest exporting fruit States in the Union. Immense quantities of ice are annually exported to foreign countries, in ships owned here, which affords us every facility for adding to the cargoes of ice, our long-keeping apples. In this respect we have many advantages over our brethren of other States, which have less seacoast, and, with two exceptions, less navigation. Maine is indented along the seacoast with more than three hundred harbors, suitable for ships, steamers, and other vessels.—*Henry Little, Bangor, Maine.*

Cost and Profit of an Apple Orchard.—One hundred trees planted on an acre of land will cost, on an average, \$25. The land should be kept in a state of cultivation whilst the trees are coming into bearing. About \$25 expended in care and labor, besides the crops taken from the land, will bring them into bearing state. When an acre of trees is in its prime it will average 400 bushels per annum, provided the land is kept rich and loose, and the trees well managed. Average price, 66 cents per bushel. Our surplus apples are valuable for all kinds of stock, particularly to winter store-hogs. Sweet apples are worth about as much as potatoes.—*A. Preble, Lincoln Co., Me.*

Quinces and their Cultivation.—Quinces are coming rapidly into cultivation here. Twelve years ago there were not more than half a dozen bearing trees in and about this city. Now, many families raise their own. The supply of our market with this fruit has usually been from the western part of the State. They are retailed here to private purchasers, at from 31 to 50 cents the peck, according to the supply in market. Deep and rich soil is also found useful. The use of salt, once considered indispensable, is now, I think, entirely abandoned. The liabilities of this fruit to injury are few; occasionally, during a mild winter, its young wood is killed in spots where it is too much sheltered. It is also sometimes injured by the borer.—*C. E. Goodrich, Utica, N. Y.*

Shaker Specific for the Pear Tree.—We have had great difficulty in making the pear tree grow on our clayey soil. After persevering and experimenting fifteen years at least, we have discovered a specific. We tried all the special manures our experiments or reading suggested, until, observing the effect of urine on an unthrifty apple tree, we were induced to try it on some pear trees which were unthrifty in spite of iron, ashes, lime, boneblack, and high manuring. The result was, that the trees shot up a growth as luxuriant as weeds in a hotbed. Those which had rarely made an inch of growth in a season, grew scions from 18 inches to 3 feet even, in the summer following the application. The mode

of treatment should be as follows:—The trees should be well and carefully set out, the soil made good by the application of iron, lime, or leached ashes. As soon as the buds are fairly opened, take of urine from the watercloset about two quarts, and sprinkle it around each tree; stir the surface of the earth a little, so that it may be well mixed, and also to prevent the forming of a crust by rapid evaporation: a cloudy day is the best time for this operation, as it retards the escape of volatile salts. In about a month, another application may be made in the same way. After this, it is only necessary to repeat the operation on those trees which may not have yielded satisfactorily to the first treatment. Care should be used not to overstimulate, as this, of course, would be dangerous.—*Shaker Society, Worcester Co., Mass.*

Plums in Wisconsin.—For raising plums, this country will probably be unsurpassed. The trees make the most astonishing growth; I have seen shoots of one year's age eight feet long; six feet is quite common. The whole timbered country is full of wild plum trees, which answer well as grafting-stocks. A common error is to set grafts too high upon these; the graft outgrows the stock, which is of slow growth, and after a few years the tree becomes top-heavy, and is liable to be broken down by the wind. This is prevented by grafting but a few inches above the roots, and working the soil up to the place of union. Good plums, with us, are sold from 8 to 12½ cents per quart.—*G. de Neven, Fond du Lac, Wis.*

Pruning Trees—Valuable Hints.—I think most people prune too much. The tap-root is cut off when the tree is planted, and all the branches, for at least six feet from the ground, and in some cases they are pruned so severely, that a man on horseback could ride round them without touching his hat to the few limbs that are left. Thus the trees are treated with downright cruelty. The result is, the bodies of the trees are more or less affected with the "sun-scald." However we may respect the customs of our fathers and grandfathers, we are not obliged to copy their errors. To preserve the pear and other fruit trees that have been deprived of their much-needed dress and ornament, we wind the bodies with wreaths of hay, or shade them by cotton cloth from the ground upwards to the lower branches. Where this is done, in every instance it has afforded a sure protection from sun-scalds. I have long been convinced of the great benefit of permitting all fruit trees to branch near the ground, suffering them to form the shape of a pyramid.—*H. Little, Bangor, Me.*

Why does the sting of an insect leave pain?—Because the sting is hollow, and conveys from a bag or sack, with which it communicates, a poisonous fluid that irritates the wound.

From what is the word "electricity" derived?—From a Greek word signifying "amber," because it was in the friction of this substance that it was first discovered.

HOP GROWING IN THE UNITED STATES.

We gather the following information from the last Patent Office Report (U. S.) Such returns in reference to this and other crops in Canada, would be highly interesting and useful, but there must be a change in the administration of the Bureau before we get them. The late (Canada) Census returns on such subjects, can not be relied upon. Perhaps the American Census has been more carefully taken. The Agricultural societies afford the best means for obtaining accurate information on the subject of soils, crops &c. The last American Report informs us that the Hop, so extensively cultivated in the field for breweries, and so well known to every house-keeper, for culinary use was unknown to the ancients. It was raised in Holland prior to 1854, and its properties and uses well understood. It was introduced into England, from Flanders, in 1524, but its strobiles were not used to preserve English beer before the latter part of the reign of Henry VII; and a century after, Parliament was petitioned by Londonders to prohibit their use.

The Hop plant was introduced into the British North American Colonies soon after the first European settlements, and cultivated in New-Netherlands in 1629, and in Virginia as early as 1648.

The amount of Hops raised in the United States in the year 1849; as by the census returns, is 3,497,029 pounds; of which New-England raised 707,743 pounds; New York raised 2,536,629 pounds, and all other States only 253,987 pounds. Vermont, New-Hampshire, and Massachusetts are the principal New-England Hop-growing States.

The first named raised in 1849, 288,023 pounds—Vermont increasing 239,886 pounds in ten years; New-Hampshire, 13,749 pounds, and Massachusetts diminished 133,200 pounds; while New-York increased in ten years 2,086,040 pounds.

Thus, in the year 1839, New York alone raised 2,536,299 pounds, and all other States in the Union only 960,730 pounds.

The Hop product of Otsego County is now much larger than that of any other county in the State or in the United States. In 1839 the annual amount raised was only 447,250 pounds, and in 1849 it was 1,132,052 pounds—being an increase of 684,802 pounds in ten years.

The Hop product of this county, in 1854, according to the report of the County Agricultural Society, is 2,000,000 pounds—being an increase of 867,918 pounds in five years, and 1,552,750 pounds in fifteen years.

The other principal Hop-growing counties in the State are Madison, Oneida, Cortland, Herkimer, and St. Lawrence—Madison raising, in 1849, 529,070 pounds; Oneida, 294,944 pounds;

Herkimer, 163,408 pounds, and St. Lawrence, 101,855 pounds, while Otsego County raised nearly one-half of the whole Hop product of the State.

By the census of 1850, there are in Otsego County 376,868 acres of improved land, and 171,294 acres of unimproved land—valued with the improvements and implements, at \$13,158,005.

By the Report of the agricultural Society, of this county, there were, as estimated, 2,500 acres of Hops in Otsego County, in 1855, yielding 800 per acre, making an aggregate of 2,000,000 pounds, which at 30 cents per pound, realized to the Hop-planters \$600,000.

The cost of production is stated at 10 cents a pound, which makes the actual profit, of the Otsego Hop-crop the past year \$400,000, and each acre of Hops producing a product of the value of \$240.

The price of Hops is, probably, more fluctuating than any other agricultural production, yet an increase of Hop-culture is recommended, for the reason that the average price of Hops for the last forty-eight years, in New England—being about 13 cents per pound—has paid a greater profit than any other agricultural crop during the same period.

In Otsego County, within the last few years, the price of Hops ruling high, I have known many farms of a hundred acres, with good buildings, offered for sale at a less sum than was received by the owner for his Hop-crop upon five acres of land. So you see it is strictly true that the Hop up in Otsego is a great institution.

A PREMIUM ORCHARD.

The Oneida County (N. Y.) Agricultural Society awarded a premium of \$15 to J. Talcott, of Rome, for his orchard of 385 trees, the largest of which were planted in 1849, and are now sixteen inches in circumference. The following statement is from the report of the Society; The land on which Mr. Talcott's orchard is planted is mostly a sandy or gravelly loam with a clay subsoil. Previous to planting, it was plowed in back furrows, and the holes were dug along the ridges, thirty feet apart, three feet in width, and eighteen inches deep. In each hole was put a large wheelbarrow load of compost, made of stable-manure, lime, ashes, and much [decayed forest-leaves would have been as good] under cover the year before. In planting the trees, surface soil was placed about the roots. The orchard ground has been cultivated to hoed crops. Once a year the trees have been pruned, and washed with strong soap-suds, a woolen cloth being used for this purpose. This washing has given the stems a clean, healthy look and has tended to keep away the insects. At the approach of winter the soil has been heaped up about a foot around the trees. This kept away the mice.

Communications.

REPORT ON THE PRESENT STATE OF BRITISH AGRICULTURE,

BY WILLIAM HUTTON, ESQ.,
Secretary of the Board of Statistics, Quebec.

[Continued from our last.]

That the farmers of Canada require to pay particular attention to the increase of the growth of green crops, in order to ensure a fresh supply of that particular kind of nourishment to the soil required for *continuing* the growth of wheat, in as great abundance as it has hitherto been grown, and on the same soil, the experience of our neighbours very plainly teaches us. Mr. Kennedy, in his report on the Census of the United States, says:—"The crop of New England *decreased* in ten years from 2 014,000 bushels to 1,090,000, exhibiting a decline of 924,000 bushels in this old wheat growing country. In the older Townships of Canada, so soon as the farmers cease to have new land to bring into cultivation let us take care lest the same results follow, probably the results of *overcropping*—and tho' in Canada we cannot, perhaps, at present, procure or use to advantage artificial or what are called portable manures, owing to the high rate of freights, &c., we have yet abundance of *new land* whereon to cultivate the turnip, mangel wurzel, and thus increase our manure heaps and also take advantage at the same time of the very high price of meat, which has extended to *our* markets as well as those of Great Britain.

In the present state of our Agriculture, it may be said and perhaps with truth that having other resources we have no occasion for imported manures, at all events as a general thing. There may be localities even now where they would be desirable—a very few years will increase the number. The great resource, viz., new land which the Canadian farmer possesses, is (in the old townships) quickly passing away—many of them having already nearly all the land under cultivation they can spare for that purpose, being obliged to keep enough under wood to supply their fuel. It would appear specially incumbent upon those who have any left to lose no time in following in the footsteps of our old country friends and use the forcing system by the means which are still available to them. It is a fortunate coincidence that high prices are a great in-

ducement to most farmers to increase their stock and crops—at present they will not complain on that score, and it is well that the same movement that increases the quantity of our beef and mutton, butter and cheese, will also lead to the increase and improvement in the quantity and quality of our grain.

I know it is said by many farmers that wages have risen so high here that they cannot undertake any extra labor. Wages have risen just as high in proportion in Great Britain, and extraordinary as it may appear, it is a fact and not difficult to account for, either, that in Canada we are much greater adepts in the use of labor-saving machines and expedients, and much greater economisers of labor than the farmers of Great Britain, in fact they are constantly endeavoring to take leaves out of our book, and it is a fact also well worth recording, that the *acreable* expense of putting down and of saving crops is much less in Canada than it is in Great Britain or even Ireland; therefore, the argument that wages are too high to carry on farming to advantage in Canada does not hold good unless they be also too high in Great Britain, a circumstance which I heard no farmer complain of. In fact, the very high prices of grain, meat, &c., in both countries preclude such a complaint.

There is another subject which is engaging a great deal of public attention, viz:—the producing of more breadstuffs to meet the increased demand occasioned by increased gold—increased prosperity—and therefore increased facilities of purchase for consumption. Free Trade and free importations of grain to England, which almost all the farmers of Great Britain and not a few of those of Canada thought must bring ruin to the Agriculturist in both countries has not been found to afford sufficient means of supply to meet the demand—hence new exertions are necessary to increase production. The exportations from the United States to Great Britain have not been found nearly so abundant as it was expected they would be—and the increased export that there has been of wheat and flour, has not been owing so much to increase of produce as to the means which the farmers have taken to live upon other descriptions of food and spare as much as possible of these commodities for export owing to the very high price which they were producing. In addition to the fact that very many of the States have fallen off in their supplies of wheat, it appears that very little attention is paid to Agriculture in that country.

A late New York paper contains the following remarks:—"Farming is shunned by the great majority of our more intelligent and enterprising citizens—trade—manufactures— invention—shipping—mining—law—physic and gambling are more attractive; and while this shall continue, we must eat dear bread and be glad to get it at any price. Agriculture, guided by science, and pursued by noble ambition is the only effectual remedy for the prevailing dearth, and this like most effective remedies is slow in its operation."

Another paper states the wheat crop of Virginia is almost an entire failure, no fields having any but those manured with guano—and to corroborate these statements it may be mentioned as an extraordinary fact that this little country of Canada with her two millions of inhabitants exports more than one-third, not far off one-half, of the quantity exported by the whole 32 United States and four territories containing 23 millions of Inhabitants—and were the Lower Province to exert herself to improve her agriculture we should export fully one-half as much as all the United States.

According to the last Boston Almanac, the export of wheat and flour from the United States fell off from \$15,893,284 worth in 1848, to \$11,550,063 in 1851, a prodigious falling off, whilst the exports from Canada of these articles have increased from £953,830 in 1850, to £1,834,819 in 1853, nearly cent per cent. The following table shows the export of wheat and flour from Canada for 1850—51—52—53 and the value of the same, showing an advance in one year a/one of 117½ per cent increase in the value of wheat exported, and 54 per cent in that of flour:—

1850.		1851.	
Bushels.	Value.	Bushels.	Value.
Wheat... 1, 95,029	£268 033	Wheat... 933 756	£171,795
Brls.		Brls.	
Flour.... 650,439	685 796	Flour.... 663,623	670 825
1852.		1853.	
Bushels.	Value.	Bushels.	Value.
Wheat... 1,833 593	£353,456	Wheat... 2,666,903	£772,610
Flour.... 702 621	639 377	Flour.... 786 053	1,062,203

The increase in the number of *bushels* grown in 1853 over that of 1852 is about 47 per cent, the high price of 1854 has caused the *value* to be so very much greater in proportion than the quantity but still the increase is *very great* for one year. In speaking of the export of Breadstuffs it is perhaps much to be regretted that so much *wheat* is exported from Canada instead of being first converted into *flour*. On this subject the editor of the *Farmer's Companion* published in Detroit, has been making some observations, tending to show the loss of the farmer by exporting wheat instead of flour:—

"He calculates that the six million of bushels of wheat annually produced in that State, (the United States Census gives less than five millions for 1849) 4,800,000 are exported which would yield 87,600 tons of Bran and Shorts, which if kept at home and fed to cattle would add far more wealth to the State than it receives from the price obtained, because the withdrawal of so much of the material constituents of wheat from the soil will tend to render it unproductive. The analysis of Bran shows that it contains,—

	PER CENT.
Starch Dextrine and Sugar	53—00
Sugar of Liquorice	1—00
Gluten (flesh forming)	4—90
Fatty matter	3—60
Woody matter	9—70
Salts	0—50
Water	13—90
Aromatic	3—40

"In some wheats the ash is as high as 7 per cent. Now all these are as essentially valuable as food as the wheat itself, and for fattening much more so; the oil of wheat residing in the bran, the whole wheat giving only about one cent of fatty matter or oil. The ash of bran consists chiefly of Phosphate of Magnesia, a very valuable salt both in food and in manure—while it is one of the rarest in the soil—one of the most expensive to restore and without which wheat cannot come to maturity."

Another evil consequence of export of wheat is that the flour barrels which are manufactured here, and of stuff of which we have plenty to spare are not required, as the wheat is exported in bulk.

Amongst the various means which have been taken to increase the production of wheat in Great Britain, is one by a Mr Smith who has published a tract that has already reached the twelfth edition, explaining his plan. The *Economist* thus observes in alluding to it:—

"Recent and scientific investigations have tended to show that such a management of arable land as will fit it for receiving and retaining all the fertilizing elements which have been found to exist in the atmosphere and in rain greatly assists—if it does not supersede manure for the growth of wheat, and doubtless the simplicity of a long or summer fallow so general in the modern systems of husbandry has some advantages. Of this, the plan of Mr. Smith of Lois Weeden, furnishes a striking illustration. It will be recollected that that plan consists in cultivating wheat every alternate year, for a series of years, on the same land without manure.

"Three rows are planted a foot apart, then a space of three intervenes, then another set of three rows, then a space and so on over the whole field. The spaces are deeply forked and weeded throughout the year in preparation for the crop the following year—when the land on which a crop has been grown is to be fallowed in the same way."

In a preface to the twelfth edition of his tract, Mr. Smith says:—

"Had any argument or fact been wanting to strengthen this persuasion it would have been supplied by the incidents of the present year; the year 1853 will long be remembered as, perhaps, one of

the worst years for wheat (in respect to yield) ever known. Where one farmer looked for forty bushels per acre he reaped only 24; when another felt assured of having 32 he found it dwindle to 16. There are exceptions, but so it has been generally. I am cultivating a four acre piece of light land, not manured for the last seven years, and this year's crop of wheat was the fourth in succession. What in my case has this year's produce been? It so happens that two fields to the right and left of mine and of precisely the same character and quality with mine were also in wheat this year. The one crop had followed beans with the richest dressing of oil cake dung, the other crop was part on fallow and part after vetches fed off. The yield of the former is set at sixteen bushels or thereabouts, of the latter at twenty; of mine no one I believe not even the most incredulous scold has ever estimated the produce at less than 40 bushels."

This speaks well for the system of summer fallowing and the plan has the merit of novelty—neither has it the great objection of other summer fallows that there are two year's rent, two year's taxes and two year's labor for every crop to liquidate; the naked ground and extra labor on it adding to the extra produce of each crop, in addition to proving a substitute for manure, and on these accounts paying well. Should this new system prove as efficacious as Mr. S. represents it to be, it will furnish a very important fact that one acre of land well labored will produce as much without manure as two acres labored in the ordinary way with abundance of manure. There is no doubt that air and rain made good use of will effect a great deal, but the success of Mr. S's plan would require further confirmation in a wider field. The system is certainly worthy of great attention and a fair trial.

Another laudable exertion to increase the production of breadstuffs and meat was being tried by a first rate farmer on a model farm of his own, of the system of management of which he gave me a description and he appeared to be very sanguine of success. The main plan was to have every alternate crop a grain crop—occasionally stealing an extra crop—i. e., having nine crops off the same land in eight years. Thus, after wheat he would plow down the stubble and sow winter vetches which would be cut off early enough to labor the land and sow turnips. Then he would have barley laid down with clover, and after taking the crop of clover he would plow down the aftermath and sow wheat, then manure for green crop, and so on manuring every fourth year, and occasionally stealing a crop. He had pursued this system on his model farm for some time with entire success—having a crop of grain every second year—and a prodigious supply of green

food for housed cattle and horses, (they were of course never pastured). In fact, very few of the great farmers of Great Britain ever pasture their horses or cattle, and this is one of the great secrets by which they manage to procure such immense manure heaps, and such fat cattle at a very early age—and also such large supplies of milk and butter.

The breed of cattle which appeared to be the most highly approved for this latter purpose, was a cross of the Alderney and Ayrshire, of which I saw some remarkably fine and productive cows in England, and which are very generally as well as very highly esteemed; for Beef the Durham and Hereford, and for draft the Devon appeared to be the most appreciated.

Another so-called improvement was being tried in several places with the confident assertion by some, that it would tend much to hasten the fattening of cattle and hogs. This was solely by means of fermenting the food before giving it to the animal. One eminent implement maker in Belfast showed me a machine of which he said he had sold a great number, used for the purpose of cutting turnips or mangel wurzel very small, indeed in very thin slices from the size of a shilling to that of a penny and not thicker—after which the vegetables so cut were put into a large tub or vat and left in it for some days till they underwent a thorough fermentation, when they were taken out and given to the cattle or hogs.

The upholders of the value of this process do not pretend to say that the fermentation adds to the saccharine properties or any other valuable inherent property, but merely that it is in this state much more easily digested, and leaves the animal more time for sleep by requiring less mastication. I heard it asserted by very respectable authorities that this process amply repaid for the labor by the speed with which the animals that were fed upon it progressed to marketable order.

It was said too by some that fermentation did away with the necessity of "cooking the food." This so-called improvement had been only very lately introduced and its merits had not been fairly, or at all events not generally tested. I may also observe that in the feeding of black cattle wheat chaff and also cut chaff were very much used, being mixed with their cut turnips. In fact one of the great features of improved husbandry appeared to be to hasten forward beef and mutton for market in the speediest possible way,

most consistent with remuneration. The profits on cattle are now made to contribute a very large item towards the farmer's returns, probably on most farms half as much as the grain, exclusive of the manure; hence the great necessity for attending to the rearing of early maturing breeds of cattle and of cultivating green food and linseed, or in Canada, Indian Corn, to force them forward.

(To be concluded in our next.)

UNBURNT BRICKS FOR HOUSES.

To the Editor of the Canadian Agriculturist.

Lindsay, 10th January, 1855.

SIR,—Being desirous of obtaining advice and instruction in reference to the best method of building cottages with *unburnt bricks*. I have taken the liberty of soliciting such information as you or some of your numerous and intelligent correspondents may deem necessary for guiding a novice like myself in preparing for and carrying on to completion an erection of this material.

There are I am told many country residences of this description in the country to the north of Toronto, but it has not happened that I have had an opportunity of either seeing any of them or of becoming acquainted with the mode of construction, although I have been credibly informed that they possess some advantages over those of the ordinary burnt bricks; that they can be erected at a much *less expense*; are *warmer in winter* and *cooler in summer*, &c.

I should be glad to be informed of the usual *size* of those unburnt bricks; whether they can be laid in the wall as well with *mortar made of the same material as the bricks* (viz. clay) as with *lime mortar*; and as I should be desirous, in case I should build, of plastering the *outside* with suitable waterproof plaster, I should like to know whether there is any difficulty or risk in insuring such plaster to *stick firmly*, so that its durability may be relied upon.

When putting on the plaster outside or inside, would it be advisable to first sprinkle the walls with water, in order to slightly *moisten* them; or, would the plaster stick as well or better by being applied to the *dry surface* of the bricks?

Would the bricks be any better for having *chopped straw*, or othersimilar material, mixed in the clay when making?

I should take it as a favor to receive information, through the medium of your valuable

journal, on these several points referred to, and such additional directions as may be considered essential for such an undertaking.

As this section of the Province is progressing rapidly in general improvements (and would improve very soon in a much greater ratio but for the scarcity of *laborers*), I have reason to believe that many farmers and others would erect dwellings of these unburnt bricks, should their declared *cheapness, comfort, and durability*, become an established fact.

I am, Sir, your most obd't serv't,

JOHN KNOWLSON.

REMARKS.—We shall be glad to hear from such of our readers as can, from experience, answer our correspondent's enquiries. Our impression is, that these buildings have not given satisfaction in the vicinity of Toronto.

NEW VOLUME OF THE AMERICAN HERD BOOK.

MR. ALLEN'S CIRCULAR.

DEAR SIR,—During the past year, I have been enquired of, by several Short Horn Cattle breeders, when I intended to issue a second volume of the American Herd Book. My reply has been, "Not until the Short Horn breeders would come forward in sufficient number to patronize the work, by furnishing the pedigrees of their stock, and to buy the book to an extent sufficient to warrant the expense of its publication." The first volume of the American Herd Book, which I published in 1846, is still indebted to me in the cost of the book itself, throwing in the time and labor I spent upon it.

At the late "National Cattle Show," held at Springfield, Ohio, a large number of Short Horn breeders were assembled, from ten or twelve States, and the Canadas. The subject of a continuance of the publication of an American Herd Book was fully discussed by them. It was agreed that, with so large a number of Short Horn Cattle as are now owned and bred in the United States, and the Canadas, a Herd Book, devoted to the registry of AMERICAN Cattle, was imperatively demanded. The expense and trouble of transmitting their pedigrees to England, and the purchase of the voluminous English Herd Book, now costing at least one hundred dollars, is no longer necessary; and that as the breeding of pure Short Horn blood must depend much upon having a domestic record at hand,

where the requisite information can be obtained, and that of a reliable character, a Herd Book is indispensable.

In pursuance of the unanimous request of the gentlemen engaged in breeding Short Horns, above alluded to, together with many individual solicitations, which I have received from other breeders during the past year, I have concluded to issue this, my prospectus for a second volume of "The American Herd Book," and to request you, if you feel an interest in the work, to inform me at your earliest convenience, whether you will aid in its publication by sending a record of your animals for registry, and to designate the number of volumes of the book you will take. The size of the work will, of course, depend upon the number of animals registered, which, if this opportunity is embraced by the breeders generally, will be several hundred pages octavo, and illustrated with portraits of such animals, properly engraved, as the owners may be desirous to have inserted, they furnishing the cuts for the purpose.

I shall also give an account of all the recent importations into the United States. A copy of the Catalogue of each separate herd will be given, whenever they can be obtained, together with the account of their sales, the prices at which they were sold, purchasers' names, &c. In short, every matter of interest in relation to them, so far as it can be obtained, will be given.

All papers relative to such information will be thankfully received, sent to my *Post Office* address at Black Rock, New York.

As it is necessary that I get to work by the first March next, you will oblige me by replying immediately, and informing me whether you will have your cattle recorded, and if so, what the probable number will be, and the number of volumes you will take. The recording fee for each animal will be fifty cents; the price of the book five dollars. The recording fees will be expected to be remitted in advance, when the pedigrees of the cattle are forwarded, and the book paid for on delivery.

If, by any casualty, the book should not be issued, the advance money will be promptly refunded.

That there may be as little uncertainty as possible, I wish that the reply to this may be as prompt as convenient, that I may know whether I shall be justified in undertaking the work; if so, I will give you notice of the fact as early as

the first of February, 1855, on receiving which, your pedigrees and insertion fees will be required to be sent immediately.

Very respectfully yours,

LEWIS F. ALLEN.

Buffalo, Black Rock Post Office,
N. Y., Dec. 1854.

P.S.—As I cannot be presumed to know the name and address of every Short Horn breeder in the country, you will oblige me by sending one of these circulars to every breeder with whom you are acquainted, or to whom you have sold "Herd Book" animals, and give me a list of others, that I may send them a circular, so as to give as extensive information as possible on the subject.

L. F. A.

MUCH HONEY FROM A LITTLE.

Those who wish to increase the quantity of their honey, and also improve its flavor, can do so by following LONGTRETHER's directions, as follows;

"Dissolve two pounds of the purest white sugar in as much hot water as will be just necessary to reduce it to a syrup; take one pound of the nicest white, clover honey, (any other light-colored honey of good flavor will answer,) and after warming it, add it to the sugar syrup, and stir the contents. When cool, this compound will be pronounced by the best judges of honey, to be one of the most luscious articles which they ever tasted, and will be, by almost every one, preferred to the unmixed honey. Refined loaf sugar is a perfectly pure and inodorous sweet, and one pound of honey will communicate the honey flavor to twice that quantity of sugar; while the new article will be destitute of that smarting taste which honey alone so often has, and will be found perfectly to agree with those who cannot eat the clear honey with impunity. If those engaged in the artificial manufacture of honey never brought anything worse than this to market the purchaser would have no reason to complain. As, however, the compound can be furnished much cheaper than the pure honey, many may prefer to purchase the material and to mix them themselves. If desired, any kind of flavor may be given to the manufactured article; thus it may be made to resemble in fragrance, the classic honey of Mount Hymettus, by adding to it the aroma of the lemon balm, or wild thyme; or it may have the flavor of the orange groves, or the delicate fragrance of beds of rose washed with dew."

HOW TO ASCERTAIN THE DISTANCE OF A THUNDERSTORM.—Place the finger on the pulse, and the moment the flash of lightning is seen, commence counting the beats. If you feel six pulsations before you hear the thunder, the storm is one mile away; if twelve pulsations, it is two miles, and so on.

THE MONTHS--FEBRUARY.

This month among the ancient Romans was the last of the year, in which they were accustomed to offer to the Gods expiatory sacrifices as an atonement for their year's transgressions. These oblations were called *Februalia*, from which was probably derived the present name of the month. The Saxons called it *Sprout-Kale*, from the circumstance of the cabbage tribe in the moderate climate of the British Islands, beginning to sprout during this month. It was afterwards changed to *Sol-Monath*, or *Sun-Month*; indicating the increasing influence of that luminary in awakening from the slumbers of winter both animals and plants.

This month has been variously represented by the painter, as a man habited in a dark or sky colored garment, holding in his hand the astronomical sign of *Pisces*, or the fishes. Among the Saxons it was pictured as a vine-dresser, engaged in the important act of pruning, as this needful operation is usually performed on the grape and fruit trees generally, at this season. In other pictures February is represented as a man clad in a white robe, with a wreath of snow drops around his head; indicating the continuance of stern winter's reign, with the cheering signs of approaching Spring.

Candlemas occurs at the commencement of this month, and is an ancient feast of the Church, in commemoration of the Purification of the Blessed Virgin. In England, this festival is still regarded by many of the older inhabitants, as a sort of seasonal epoch, by which they regulate some of their agricultural and domestic operations. This is only one of many instances which might be adduced, showing how our ancestors were guided in their rural pursuits by the ecclesiastical, as well as the natural year. At this festival a multitude of candles was used in the churches, during the celebration of public worship; (hence the name,) and the mode-t, delicate snowdrop, often peeping through the snow at this early season was designated, in the language of poetry and hope, as "our lady, or fair maid of February," and "Purification Flower." Mrs. Barbauld thus graphically describes this early messenger of Spring:—

Already now the snow-drop dares appear,
The first, pale blossom of the untimely year;
As Flora's breath by some transforming power,
Had changed an icicle into a flower,
Its name and hue the scantless plant retains,
And winter lingers in its icy veins.

St. Valentine's day bids fair to go down the stream of time with unabated popularity, and few young people need to be reminded of the precise period when it occurs. In England, the belief is still common that the pairing of birds takes place on this day; and how many amorous associations are connected with its observances! Birds in that climate begin to build and sing; several flowers and shrubs are opening their tender and modest petals, and the heart is thrilled with delight at these evidences of the welcome advent of spring. How few there are, who, after many years tossing on the waves of this troublesome world, can recall their early associations of the phenomena and observances of this season of hope, but with mingled feelings of pleasure and regret!

Shrove Tuesday quickly follows, and amidst the wreck of change, still maintains in the popular mind some of its ancient characteristics. It is said to have derived its name from the old Saxon word, *shrive*, signifying confession; in reference to an ancient and long abiding practice of the Church, as preparatory to a profitable observance of the season of Lent. A bell was rung in the Parish church on the morning of Shrove Tuesday to summon the people to their religious duties; a custom yet observed in a few of the quiet, rural places of old England, where the progress of modern changes in the feelings and habits of the people, is comparatively slow. After confession they were permitted to participate in recreations and festive amusements; but as meat was forbidden, pan-cakes or fritters were made and allowed as a substitute; hence the name of "pan-cake bell," and "pan-cake Tuesday," of which many of our readers, even in this "new world," continue to preserve some cherished memories and gratifying associations.

Our forefathers lived in a ruder age and exercised a larger faith than seems compatible with the spirit and tendencies of the present. Yet it fairly admits of a question, whether some of the characteristics of a simpler form of civilization were not better adapted to the promotion of social happiness and good neighbourly feeling; to health of body and real peace of mind; than the unceasing, feverish pursuit of wealth, and the undivided worship of mammon, which so painfully distinguish our own advanced times. The holidays and social gatherings, so common to "merrie England" in the olden times, were, it should be remembered, to a large extent, regulated by the ecclesiastical

year, and consequently associated with the more prominent points and duties of the deeply cherished faith of those early ages. It is true that in a ruder age such observances were too frequently marked by noisy and intemperate gratification, which unhappily has not departed either in form or spirit, from society in these modern days. In the present age, and on this North American continent in particular, the great social want among the masses is steadily recurring periods of leisure and recreation, so essential to the mental, moral and physical health of the countless number of workers in the crowded hive of this needy and busy world. It is only the consciousness of the Divine command, and the expediency, or rather perhaps, the physical necessity of a weekly cessation from daily toil, that the observance and hallowing influences of the Sabbath are perpetuated; a day too frequently recurring for avarice and cupidity, *willingly* to spare from the service of mammon. Manly and healthful sports and pastimes, while expressive of national character are intimately connected with the rational enjoyment and social and moral progress of a people. The frequent periodical fairs and markets of England are to the farmers and commercial men not merely scenes or opportunities for transacting business, but also occasions of friendly greetings and social intercourse. And it is much to be desired, both in a purely business as well as social point of view, that such opportunities should be made available to the people of this country. A beginning in some places has already commenced; and it is gratifying to observe any signs of a change, when the movement is in the right direction.

Although in England, February is more or less distinguished by unmistakable signs of the advent of Spring, in this country it is essentially a winter month, allowing of but little out-of-door occupation, and it is usually attended by heavy snow-storms and severe cold. The domesticated animals require all the attention which the farmer can bestow; warm housing, ample and regular feeding, with strict attention to ventilation and cleanliness, constitute the principal desiderata of this very important and not less interesting department of rural economy. Tusser who farmed and wrote near 300 years ago, observes in his February's husbandry:—

Good provender laboring horses would have,
Good hay and good plenty plough oxen do crave,
To haul out thy muck, and to plough up thy ground,
Or else it may hinder thee many a pound.

Who abuseth his cattle and starves them for meat,
By eating or ploughing his gain is not great;
When he that with labor can use them aright,
Hath gain to his comfort and cattle in plight.

The threshing and marketing of grain forms a principal employment of the farmer at this season; and much mechanical ingenuity has been displayed in constructing machines for separating the grain thoroughly and economically. A really good threshing mill, built on approved mechanical principles is among the most valuable machines of modern agriculture, affording one among many instances that might be happily adduced, of the important aid rendered by mechanical philosophy to the pursuits of the Husbandman. Still in a poetical point of view, we cannot afford wholly to lose the employment of the flail. The appearance and sound of the thresher is peculiarly characteristic of rustic life at this season; and the use of that primitive implement, even among ourselves, may yet be occasionally and economically continued during the inclement months of our protracted winters. Cattle eat more readily newly threshed straw, and by threshing smaller quantities by hand, the chaff and offal may be thoroughly consumed. How expressive are the words of Bloomfield, in his *Farmer's Boy*:—

Though, night approaching, birds for rest prepare,
Still the flail echoes through the frosty air,
Nor stops till deepened shades of darkness come,
Sending at length, the weary laborer home.

Winter has been denominated *the Sleep of Nature*, and its characteristic phenomena well accord with this expressive figure of speech. It is the termination of the past and the hopeful precursor of the future; in fact a sort of transition period, for restoring strength and devising new achievements to be won on the wide field of human thought and enterprise. Nature is now indeed in a state of tranquil repose. Most of the feathered tribe have left us for more genial climes; a profound silence reigns in the woods, and the landscape is enveloped in a pure covering of white. Insects and many animals are close and safe in their winter quarters, in a state of torpidity, and consequently insensible to the cold and pitiless storm raging around. How admirable are the arrangements of the wise and beneficent Creator, all tending to the safety and enjoyment of his innumerable creatures!

"Tired nature's sweet restorer, balmy sleep."

Operates not merely as a passive agent in recruiting strength, mental and physical, after care-worn. The vital organs continue the action of their usual functions, asleep as well as

awake, although in a modified degree; and the slumberer awakes in the morning, refreshed and invigorated, and becomes fitted for the duties of the coming day. Equally so is it with nature; the sleep or quiescence of winter is only preparing her on the return of increasing light and warmth, to burst forth into renewed life and beauty at the approach of spring. Nature knows nothing of absolute death; or in other words, neither mind nor matter admit of annihilation. What seems destruction is really only change, the process being often too subtle for physical sense to trace or even detect. Results, however, prove the uniformity and permanency of the natural laws; and that under the care of a creative Providence, "While the earth remaineth, seed-time and harvest, heat and cold, summer and winter shall not cease."

"He marks the bounds which winter may not pass,
And blunts his pointed fury; in its care,
Russet and rude folds up the tender germ
Uninjured, with inimitable art;
And, ere one flowery season fades and dies,
Designs the blooming wonders of the next."

DEPTH OF DRAINS.

It seems that general opinion has not yet settled on any particular depth as most proper for drains. In England, where the subject has attracted much attention, no rule has been agreed on. At a late meeting of the London Farmers' Club, a lecture was given on drainage, by Mr. Denton, in which a uniform depth of four feet was contended for, though the lecturer admitted that some persons, whom he regarded as "high authorities," had successfully drained stiff clays at from twenty to thirty inches deep.

Mr. R. Baker cited a case where a hard, chalky clay had been drained several years ago, by cutting ditches twenty to thirty inches deep, and filling them with wood and a little straw at top. On such compact soil the drains remained open after the materials had decayed.

Mr. B. Webster was convinced by experience, that on retentive clay subsoils not surcharged with under-water, a depth of three feet, at moderate distances, was more efficacious than a greater depth.

Mr. Thomas said, having drained at various depths, he had invariably found that where the soil was of a tenacious consistency, drains three feet deep kept the land perfectly dry, and left at

harvest-time a continued and unbroken level of corn crop; so that practiced husbandmen could not tell where springs were or where they were not. In a little field of five acres, the drains were four feet deep and forty feet apart; but what was the result? In that field he had never grown more than three quarters of corn per acre, and three-fourths of the land was often under water. He had now had the land gathered up into its old form, and was about to have drains made three feet deep. It might be true that certain roots extended to a depth of eight or nine feet; but it was not on that account to be supposed that the land would repay the cost of drainage of proportionate depth.

Mr. W. Bennet, viewing the question practically, was of the opinion that the truth lay between the two extremes. The result of his own experience was, that in an open porous soil, with a good outfall, they could hardly go too deep; but this did not apply to strong tenacious soils.

Mr. Stokes said he had seen a good deal of draining done in Nottinghamshire and Leicestershire, and was decidedly of opinion that four-feet draining was the most effectual that could be adopted, provided the drains were not placed too far apart.

Mr. Wood quite admitted that four-feet drainage was superior in itself to drainage of less depth; but, after calculating the difference of cost as between three feet and four feet, he had arrived at the conclusion that the former answered the purpose best.

The Chairman said, having been himself for many years connected with draining, and having done a great deal on the farm which he occupied, he could not refrain from giving a faint outline of his experience. With regard to stiff, tenacious clays—he meant those clays which contained no stone, which were not at all calcareous, and which, if a dish were made of them in the shape of a bowl, would hold water in the same way that a bowl did—his experience led him to the conclusion that the best way of draining such clays was to make the drains three feet deep, and eighteen feet apart.

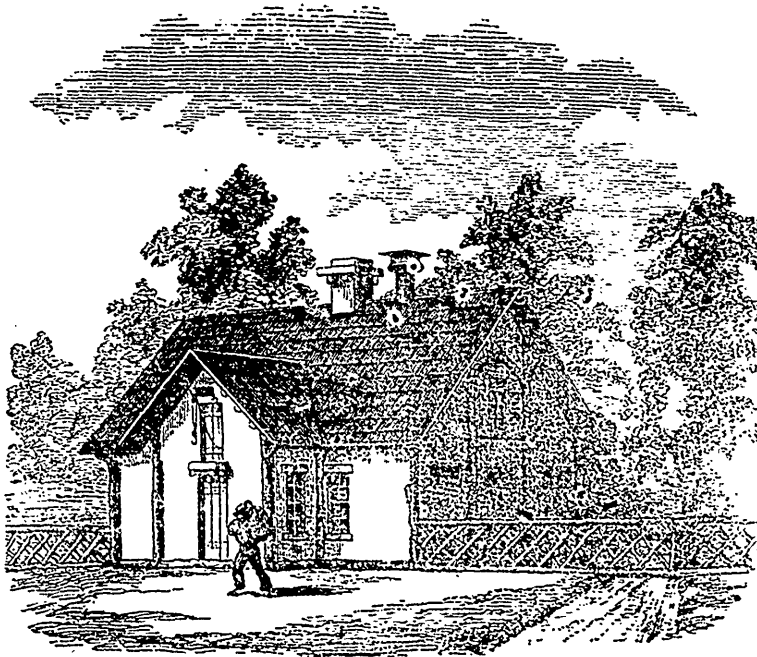
✍️ **DURHAM STOCK.**—We would beg to direct the attention of our readers to Mr. Fisher's advertisement in another column, relating to young Durham Bulls, which he has for sale.

A PIGGERY.

The hog is an important item of our agricultural economy, and his production and proper treatment is a valuable study to all who rear him as a creature either of profit or convenience. In the western and southern states, a mild climate permits him to be easily reared and fed off for market, with little heed to shelter or protection; while in Canada, he requires care and covering

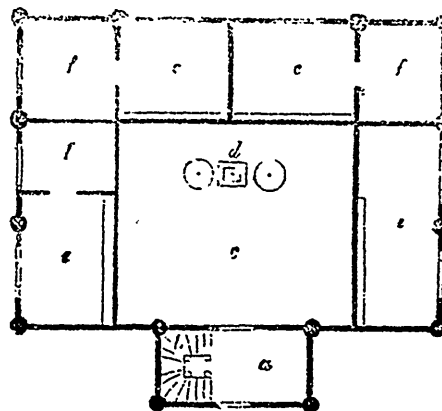
during winter. In all places the hog is an unruly, mischievous creature, and has no business in any other place than where he can be controlled, and kept at a moment's call.

His proper place is in the sty, particularly when feeding for pork. We give in this number the plan of a piggery such as may be economical in construction, and convenient in its arrangement, both for the swine itself, and him who has charge of him.



PIGGERY.

0347634.070 15 50 30 40



GROUND PLAN.

The design here given, is for a building, 36 feet long, and 24 feet wide, with twelve-foot posts; the lower, or living room for the swine, 9 feet high, and a storage chamber above, for the grain and other food required for his keeping. The roof has a pitch of 40° from a horizontal spreading over the sides and gables at least 20 inches, and coarsely bracketed. The entrance

front projects 6 feet from the main building, by 12 feet in length. Over its main door, in the gable, is a door with a hoisting beam and tackle above it, to take in the grain, and a floor over the whole area receives it. A window is in each gable end. A ventilator passes up through this chamber and the roof, to let off the steam from the cooking vats below, and the foul air emitted by the swine, by the side of which is the furnace chimney, giving it on the whole, as respectable an appearance as a pigsty need pretend to.

INTERIOR ARRANGEMENT.

At the left of the entrance is a flight of stairs, (b,) leading to the chamber above. On the right is a small area, (a,) with a window to light it. A door from this leads into the main room, (c,) where stands a chimney, (d,) with a furnace to receive the fuel for cooking the food, for which are two kettles, or boilers, with wooden vats, on the top, if the extent of food demands them; these are secured with broad wooden covers, to keep in the steam when cooking. An iron valve is placed in the back flue of the furnace, which may fall upon either side, to shut off the fire from either of the kettles, around which the fire may revolve; or, the valve may stand in a perpendicular position, at will, if both kettles be heated at the same time. But, as the most economical mode is to cook one kettle while the other is in process of feeding out, and *vice versa*, scarcely more than one at a time will be required in use. Over each kettle is a sliding door, with a short spout to slide the food into them, when wanted. If necessary, and it can be conveniently done, a well may be sunk under this room, and a pump inserted at a convenient place; or if equally convenient, a pipe may bring the water in from a neighbouring stream or spring. On three sides of this room are feeding pens, (e,) and sleeping partitions, (f,) for the swine. These several apartments are accommodated with doors, which open into separate yards on the sides and in rear, or a large one for the entire family as may be desired.

CONSTRUCTION.

The frame of this building is of strong timber, and stout for its size. The sills should be 8 inches square, the corner posts of the same size, and the intermediate posts 8x6 inches in diameter. In the centre of these posts, grooves should be made, 2 inches wide and deep, to receive the plank sides which should be 2 inches thick, and let in from the level of the chamber by a flush cutting for that purpose, out of the

grooves inside, thus using no nails or spikes, and holding the planks tight in their place, that they may not be rooted out or rubbed off by the hogs, and the inner projection of the main posts left to serve as rubbing posts for them—for no creature so loves to rub his sides, when fattening, as a hog, and this very natural and praiseworthy propensity should be indulged. These planks, like the posts, should, particularly the lower ones, be of *hard* wood, that they not be eaten off. Above the chamber floor, thinner planks may be used, but all should be well jointed, that they may lie snug, and shut out the weather. The center post in the floor plan of the engraving is omitted, by mistake; but it should stand there like the others. Inside posts at the corners, and in the sides of the partitions, like the outside ones, should be also placed and grooved to receive the planking, four and a half feet high, and their upper ends be secured by tenons into mortices in the beams overhead. The troughs should then, if possible, be made of *cast iron*, or, in default of that, the hardest of white oak plank, strongly spiked unto the floor and sides; and the building may then be called hog proof—for a more unquiet, destructive creature, to a building in which he is confined, does not live, than the hog. The slide or spout to conduct the swill and other feed from the feeding room into the trough, should be inserted through the partition planks, with a steep *slant* the whole length of the trough, that the feed may be readily thrown into any or all parts of it. This slide should be of two-inch white-oak plank, and bound along the bottom by a strip of hoop-iron, to prevent the pigs from eating it off—a habit they are prone to; then, firmly spiked down to the partition planks, and through the ends, to the adjoining studs, and the affair is complete. The timber and lumber used must be sound and strong; and then, properly put together, it may defy their most destructive ingenuity. Of the separate uses to which the various apartments may be put, nothing need be said, as the circumstances of every farmer will best govern them.

One, to three hundred dollars, according to price of material and labor, will build this piggery, besides fitting it up with furnace and boilers. It may be contracted or enlarged in size as necessity may direct; but no one with six to twenty porkers in his fattening pens, a year, will regret the expense of building a convenient appurtenance of this kind to his establishment.

L. F. Allen, from whose book we have copied the foregoing plan, makes the following remarks:

"A word may be pardoned, in relation to the too universal practice of permitting swine to prowl along the highways, and in the yards and lanes of the farm house. There is nothing so slovenly, wasteful, and destructive to one's thrift, and so demoralizing, in a small way, as is this practice. What so revolting to one, of the least tidy nature whatever, as a villanous brute, with a litter of filthy pigs at her heels, and the slimy ooze of a mud-puddle reeking and dripping from their sides? See the daubs of mud marking every fence-post, far and near, along the highway, or wherever they run! A burrow is rooted up at every shady point, a nuisance at every corner you turn, and their abominable snouts into everything that is filthy, or obscene—a living curse to all that is decent about them. An Ishmaelite among the farm stock, they are shunned and hated by every living thing, when at large. But, put the creature in his pen, with a ring in his nose, if permitted to go into the adjoining yard, and comfortably fed, your pig, if of a civilized breed, is a quiet, inoffensive—indeed, gentlemanly sort of animal; and as such, he is entitled to our toleration—regard, we cannot say; for in all the pages of our reading, we learn no creditable history, or any virtuous sympathies in a hog."

THE OSAGE ORANGE.

HEDGE PLANTS.—The osage orange, which has been recommended by a number of writers as a plant well fitted for hedges, is a native of the south-western States. It grows in great abundance in a wild state in Arkansas, where it takes more the form of a tree than a shrub, growing to the height of thirty or forty feet, with a wide spreading head. For which reason it is evidently unfitted for a hedge except by constant severe trimming. It has been found hardy enough to stand the winters as far north as where the Isabella grape is found to ripen its fruit. It grows well in the latitude of Detroit. It grows rapidly, the frost only affecting the young shoots which have to be trimmed off in the spring. Plants are easily grown from seeds, and are very hardy. A quart of seed will produce a thousand plants. Put them in the ground in October, and transplant a year from the next spring. The principal objections to the osage orange are that it grows too vigorously, especially in rich ground, and that after the first five or six years it will take too much labor to keep it trimmed and within bounds. It is also a most greedy absorber of all the nutriment in the soil within reach of its long roots. It is the opinion of many farmers that hedges are not economical in this country. This shrub will grow in Canada West, we believe.

GRAIN BREAKERS.

A correspondent writes us as follows:—"In this part of the country many of our people are situated at inconvenient distances from mills; if you or any of your readers, through the *Agriculturist*, could inform us what kind of Grain Breaker is the best, and where it can be procured, price, &c., worked either by hand or one or two horses, we should feel obliged."

Will such of our readers as have had experience in the use of these machines favor us with their opinions and advice? There are several kinds of these machines made in England, which work well, and have been extensively exported to the southern colonies. We have been led to form a less favorable opinion of the few which we have seen on this continent. Still that there are machines to be found that will do their work satisfactorily hardly admits of a doubt.

ALLEGED COAL AT QUEBEC.

It seems that though other diseases afflict the earth for a time and then leave it, the plague of credulity is one that never ceases to torment mankind. The hope of finding hidden treasure; the belief in the possibility of discovering riches by means of the divining rod, and all the other mysteries of under-ground adventure never appear to grow stale. Science daily proves its title to confidence, and yet people who are not scientific, will place their trust in quacks and charlatans, or in half-informed persons, who have no reputation except what they gain by sounding their own trumpets, rather than in men whose knowledge has been tested in the most unquestionable manner. Thus the race of the Dousterswivels is constantly maintained, because there are always dupes who are ready to promise treasures, if only the would-be possessors of the god-send will pay more than it is worth for finding it.—These reflections have been suggested to us by the excitement just now taking place at Quebec, on account of a pretended discovery, for the simple reason that it is no discovery at all; all that has lately been so prominently brought before the public, having been described by the Provincial Geologist, as common to the hills of Quebec many years ago. This fact no one can doubt longer, after reading the following paragraphs from the report of the geological survey of the year 1844.

1. The lowest in the neighborhood of the Chat are seen at a projecting point of land between it and the St. Anne River, where a considerable extent of strata are laid bare at the ebb of tide. The strata are highly tilted, and several dislocations occur; but it can be made out, that, based upon a strong bed of gray oolitic limestone, ten or fifteen feet thick, with a thinner one a short distance above it, consisting of flat calcareous pebbles lying on one another as if carefully packed on their sides, there reposes a mass of thin-bedded, dark-gray, yellow-weathering limestone separated by thin bands of black bituminous shale, with occasional thicker beds of the shale holding calcareo-arenaceous nodules or isolated masses, becoming very conspicuous in a considerable bed of bitumino-argillaceous shale at the top, where the nodules or patches sometimes resemble septaria, and are occasionally composed of a dull olive gray chert, weathering to a dingy red, in which the cracks or veins hold a mineral undistinguishable in its general appearance and combustible nature from good sea-coal. * *

The whole of the deposits given amount to about 1140 feet in thickness, and the distinguishing features they present are the bands of conglomerate limestone, and the bituminous mineral so much resembling coal. This is found not only in the septa of the cherty nodules which have been mentioned, but also in many small cracks across the strata, and in more parts than one of the vertical thickness. A similar mineral, in an analogous position, is found in the rocks at Point Levi and Quebec, and in the museum of the Quebec Natural History Society a block of it, procured in the neighbourhood, containing about a cubic foot, is preserved. Some have been inclined to suppose that it might indicate the proximity of workable coal, and indeed I have been asked whether a mine upon it, in a position which I have not yet seen, but where according to information received, a cart load of it has been obtained, would be likely to be successful. Now none of the material where it has come before me in situ, bears any analogy in the mode of its occurrence to workable coal. This is always found in extensively continuous beds conformable with the stratification; whereas the mineral in question occurs in cracks cutting the strata across for greater or less distances.—It is true that where faults or dislocations exist among coal seams, there is often met with running across the stratification what by Scotch miners is termed a *vise*, and by Welsh, a *leader* of coal, which in general is a thin, confused, irregular interrupted black more or less carbonaceous sheet, conducting up or down, as the case may be, in the plane of dislocation, from the termination of a coal-bed on one side to that on the other; and there is no doubt it is the result of the grinding of the terminal edges of the strata against one another, when the slip producing the dislocation occurred. Without a slip or displacement, therefore, no leader would be found, and none in any case would hold true coal matter extending beyond the distance between the separated edges of the coal-bed. Now in the case of the bituminous mineral, the cracks

in which it occurs are, in many instances, unaccompanied by any displacement of the strata, and in others, where the extent of the dislocation (that is the upthrow or downthrow, as it is called) is visible, no layer holding any of it occurs among the beds. Independent of all this, the formation in which the mineral is found, is an inferior member of a group of rocks, whose place is in all probability a very considerable distance below the position of the true workable coal-bearing measures, and we are, therefore, not warranted in expecting coal seams to exist in it. The rock is supposed to be the equivalent of a part of the Hudson River Group of the New York geologists.

But this plain straightforward story is not satisfactory to the City Council of Quebec, when they are told that the worthless shale is a coal mine. They forthwith set the treasure finder on an investigation, who tells them he can do nothing until the fine weather comes, and in the meantime begs them not to allow any one to touch the least bit of the valuable mineral, lest he should lose the trace of it, and then of course the whole would vanish after the same fashion as the doubloons, which wizards made the devil bring into the enchanted circle to their patrons; but which were never safe until every magic rite had been exactly fulfilled. We pretend to no scientific knowledge; but it requires no such knowledge, to be able to laugh at such ridiculous pretensions as these. Everybody knows that Sir R. Murchison predicted the probable discovery of the Australian gold mines from the other side of the world, so soon as he knew the character of the more obvious geological features of the country. He wanted no trace. And so it is with all kinds of minerals. The crust of the earth is composed of many distinct layers, one above the other, which are always found in the same order, though they are not always all present in the same localities. For instance, suppose we describe these deposits as 1, 2, 3, 4, 5, 6; 6 representing the upper layer, it is possible to find 1, 3, 5, 6, or 2, 4, 6, or any greater or less number of the deposits; but the order is never changed, 6 never goes to the bottom, nor one to the top. Now the reasoning to which this fact gives rise is obvious. Suppose 5 to represent the coal strata, if the surface of the earth in any one place be composed of the layer 4, or any number lower than that, we are sure no coal is there. It is known that it can only occur between layers five and six, and though it may not necessarily be there, when we have these two strata, it is very certain it cannot be present, where they or higher strata are absent.

Such in a rough way, is a description of the principles upon which geologists proceed, and they ought to be sufficiently known to every man of ordinary information to save him from being led into folly, when competent and even eminent persons, having no interest certainly against the discovery of coal, state that it does not exist.—We have a constant repetition of this cry from one end of the Province to the other, and when it is originated by a farmer or a backwood-man, who has found something like coal upon his land, we can feel no contempt for his desire to have the truth discovered; but for the people of the second largest city in the Province, officially by their Council, to write themselves down asses is something that must reflect anything but credit on the intelligence of Canada.—*Mont. Herald.*

POMOLOGICAL.—We have to thank the Hon. MARSHALL P. WILDER, of Massachusetts, President of the American Pomological Society, for a copy of the Report of the proceedings of the Society at its third Session, held in Boston, in September last. It is a pamphlet of 258 pages, and contains most valuable information, which we shall be glad to make use of in future numbers.

MARKET REVIEW.

CANADIAN, AMERICAN, ENGLISH AND FOREIGN.

We have resolved to present monthly in the *Agriculturist*, a brief review of the market prices for Agricultural produce in the principal marts of the world. As information to the farmer, such a review cannot but be interesting, and as reliable data to guide his own market operations, it must prove useful. We shall bring our statement down to the latest dates before going to press, and shall take our figures from the most reliable sources. We hope that by devoting a page or so to such a record, the value of the *Agriculturist* will be considerably increased.

TORONTO RETAIL MARKETS.

	FEBRUARY 3, 1855.	s.	d.	s.	d.
Flour—Millers' extra superfine, per bbl.	40	3	a	41	3
Farmers', per 196 lbs.	35	0	a	37	6
Wheat—Fall, per bushel, 60 lbs.	7	0	a	7	6
Spring, per bushel, 60 lbs.	0	0	a	0	0
Oatmeal, per barrel	33	9	a	40	0
Rye, per bushel, 66 lbs.	4	9	a	7	0
Barley, per bushel, 48 lbs.	4	2	a	4	6
Oats, per bushel, 34 lbs.	2	9	a	3	0
Peas, per bushel	3	9	a	4	6
Potatoes, per bushel	2	9	a	3	0
Apples, per barrel	6	3	a	8	9
Grass Seed, per bushel, 48 lbs.	5	9	a	8	9
Clover Seed, per bushel	30	0	a	32	9
Hay, per ton	100	0	a	140	0
Straw, per ton	50	0	a	60	0
Onions, per bushel	7	6	a	0	0
Butter—Lub. per lb.	0	9	a	1	0
Fresh, per lb.	1	0	a	1	3
Lard, per lb.	0	7	a	0	8
Cheese, per lb.	0	6	a	0	0
Pork, per 100 lbs.	25	0	a	30	0
Fresh, per lb.	0	5	a	0	0
Beef, per 100 lbs.	25	0	a	27	6
per lb.	0	6	a	0	7
Hams, per 100 lbs.	45	0	a	50	0
Bacon, per 100 lbs.	45	0	a	50	0
Firewood, per cord	25	0	a	30	0

REMARKS FEB. 2.—Within the last week there has been a marked decline in wheat and flour. The scarcity of money, and the prospect of peace from the negotiations now going on, are probably the cause. The quantity coming to the Toronto market is very small and transactions dull. The most common price is 7s. 6d. per bushel. Hay is plentiful but prices keep up remarkably. Well cured Timothy has sold as high as high as \$29. Pork comes in plentifully and sells briskly at \$5½ a \$6 per 100 lbs. Demand greater than supply.

We have heard lately of a practice among millers of taking farmers' wheat at the highest prices going, and paying, not in money, but receipts or due bills. We would advise our readers to eschew such a practice. They had better keep their wheat in their barns. When the country is passing through a commercial crisis it is hard to say who is solvent. We have known many heavy losses that might have been avoided by a little prudence. Wheat is as good as money and ought to bring the cash, or remain in the granary.

MONTREAL.

Review for week ending January 27.

FLOUR.—The transactions for the week have been few, and without any marked alteration in prices, which, however, have rather favored buyers; 1,600 barrels fair quality No 1 Superfine were taken at 47s 6d. On Thursday a lot of 500 barrels, without going into storage, was bought for 47s 9d per barrel, since when a few odd parcels good brands fetched 48s.

WHEAT.—No large lots in the market.

Prices for other kinds of grain and provisions almost nominal

HAMILTON, Feb. 1st.—The latest quotations in the local papers are for Wheat, 7s 6d to 7s 9d; Barley, 3s 9d to 4s; Oats, 2s 4d to 2s 9d; Beef, per 100 lbs, 25s to 35s. Pork, per 100 lbs, 25s 6d to 32s 6d; Hay \$15 to \$20 per ton.

GALT, Jan. 31st.—The local papers quote wheat at 7s 6d, Flour 20s; Oats 2-2½; Peas 3s 9d to 4s; Pork 13s to 26s per 100 lbs. Clover Seed 43s to 42s 6d per bushel.

NEW YORK MARKETS.

FLOUR AND MEAL.—Jan. 21th.—The markets opened rather lower for the low grades of State flour, but at the close was firmer, with a better demand for export and the East. With more seasonable weather, and less prospect of the resumption of river navigation, a better feeling is apparent. The better grades are in good request, but at very irregular prices. The arrivals are still liberal, but those in prospect are not so large. The sales of Western Canal are 7 200 bbls. at \$3 15½ a \$3 37½ for common to good State; \$3 62½ a \$9 for mixed to good brands Upper Lake, Michigan, Indiana, and common to good Ohio; and \$10 50 a \$12 for extra and double extra Genesee, Canadian Flour is without material change at the close although rather heavy early in the day; the demand is for the British Provinces; sales of 1,600 bbls., closing at \$9 in bond, and \$9 50 a \$9 75 duty paid.

GRAIN.—The market is without variation for Wheat; the demand is limited and the supply moderate of prime; the inquiry is mainly for milling; we have only to note a sale of 400 bushels prime white Michigan, at \$2 45, an extreme price. Rye is quiet and is nominal, at \$1 30 a 1 35. Barley and Barley Malt are inactive, and quotations would be nominal. Oats are in better supply, and in good demand, at 59 a 63½c. for State and Western, and 50 a 53 for Jersey. Corn is firm, with less offering; the demand is good for shipping and the home trade; old is quiet, at \$1 for Western, in store; the sales are 29,000 bus., at 94 a 95c for Southern mixed and new damp Jersey; 90 a 97c for Southern white; and 96c for Southern yellow.

PROVISIONS.—The market is better for Pork, the demand fair for shipping and the trade; sales of 3,000 bbls. at \$12 37 a 12 50 for old mess, \$12 25 a 12 37½ for old Prime, \$14 12½ a 14

87½ for new Mess. \$13 18½ a 13 25 for new Prime. \$14 25 a 15 25 for Western Prime Mess and \$16 for City Prime Mess; included in the sales are 1,400 bbls new mess for May and June delivery, part of not all at \$14 50, and 1,200 bbls Prime Mess mainly country, at \$14 50 for uninspected.

Latest by Telegraph.

NEW YORK, February 2.

FLOUR—Common grades, market dull and drooping; other grades unchanged. Sales, £000 bbls \$8 25 a \$9 £0 for common to good state; \$8 65 a \$9 25 for Western. Sales, 600 bbls Canadian, \$9 25 a \$9 75 duty paid.

WHEAT quiet, small sales; prime white Michigan, \$2 40.

ENGLISH MARKETS, &c.

LIVERPOOL, January 13th, 1855.

AVERAGE PRICE OF GRAIN IN ENGLAND.

Per Qt.	Wheat	Barley	Oats	Rye	Linseed	Peas	Flour
Nov. 25.....	74	735	629	314	1150	549	0 0
Dec. 2.....	74	436	1029	045	350	249	0 0
Dec. 9.....	73	035	128	446	249	549	0 0
Dec. 16.....	72	334	623	647	448	938	0 0
Dec. 23.....	72	433	827	446	047	1046	11 0
Dec. 30.....	71	431	127	1047	147	346	0 0
Aggregate Average of the Six Weeks.....	73	434	1028	446	149	048	0 0
Liverpool Average.....	73	434	1028	446	149	048	0 0
Dec. 25 1854.....	78	835	428	513	0 0	047	0 0

January 14.

The renewal of peace negotiations has already exercised a marked effect upon the Grain markets in all parts of the kingdom, causing almost an entire absence of transactions, and prices have consequently considerably declined. At Mark Lane Wheat has been unsaleable, except at a fall of 2s to 3s, Hull 4s; Newcastle 3s 6d; and Wakefield 2s per qr. All other articles declined in proportion. Our own market during the early part of the week was extremely depressed, and wheat declined 4d to 6d per bushel; Flour 1s to 2s per barrel and sack; Indian Corn 1s to 2s; and Oatmeal 1s per load lower. To-day however the tendency to decline was effectually arrested, and prices were steady. A portion of the decline on Indian Corn was recovered.

The following are given as current prices at latest dates Canadian readers will bear in mind that they are expressed in sterling:—*Irish Butter*, holders generally are firm, and require for Cork 100s Linnet 88s to 95, Carlow, Clonmel, and Kilkenny 96s to 100s, Sligo 90s to 98s, and Waterford 90s to 96s. Foreign in plentiful supply, with a better sale. *Bacon* has been dealt in with more freedom, and rates are now firm; Irish at 64s to 62s, according to quality, and Hambro 68s to 60. Middles wanted; Irish at 61s to 58s, and American 36s to 42s. Few buyers of *Lard*; sellers of Irish blattered at 65s to 72s, keg and firkin 56s to 61s, and American 54s to 56s. *Hams* are a slow sale, Irish at 70s to 80s, and English 96s to 104s. A quiet market for *Cheese*, Edam 43s to 55s, Gouda 40s to 48s, and American 67s to 62s. In ships' Provisions there are greater operations, with much firmness in the market. Prices rule for prime India *Beef* at 175s to 185s, Mess from 80s to 160s. *Pork*, Irish India 180s to 185s, per tierce, and Mess 95s to 105s per hl.

BELFAST.—Oats, 7s 6d to 8s 9d; wheat, red, 13s to 15s 4d; oatmeal, 14s to 14s 4d per cwt; pork, 48s to 52s 6d per 120lbs; butter, creek 10d to 10½d, lump 10d to 11d, firkin 10d to 10½d, white firkin 10½d to 11d per lb; flour, extra superfine 29s 6d, bakers' superfine 28s 6d, first 26s 6d, second 25s 6d, third 17s 6d, fourth 12s 6d per cwt; bran, 7s 3d per cwt; beef 5d to 7d; mutton, 6½d; veal, 7d; ham, 9d; bacon, 8d per lb.

GLASGOW.—Flour and Grain. Owing to the negotiations for peace, now apparently assumed by the Czar, trade continues dull, and prices declining, and to effect sales in quantity con-

siderably lower rates would have to be accepted. There are reduced in the meantime 1s per boll on wheat, and 1s 6d per boll on Flour. Lard is dull of sale. Provisions quite nominal. Rice inquired for. Tallow is quiet.

LONDON CATTLE MARKET.—Jan. 12. To-day's market was well supplied with Beasts. For all breeds we have had very native demand, at barely Monday's prices. The Supply of Sheep moderate, and the sale for them dull at unaltered currencies. Supply of Calves small and moved off slowly at barely late rates. Very little doing in pigs at former terms. Milch Cows, including small Calf, very dull, at from £14 to £19 each. Prime large Cows 4s to 4s 4d per Silbs.

CONTINENTAL.—At the Baltic ports the frost had not at last accounts interfered with business, but the supplies from the interior were very limited. Wheat generally commands high prices, and small shipments are still made for England. At Stettin good runs of red wheat realise 61s 6d to 62s per qr fob; and for spring delivery 63s to 63s 6d per qr fob are the prices. Mixed white Polish on the spot 62s to 61s per qr. Barley 32s to 33s per qr for 32 to 63lbs per bushel. At Danzig the stock of Wheat is the lowest held since 1813. Trade was dull without change in prices. Our advices from Hamburg report a very slow trade, but offers continuing moderate prices were pretty firmly maintained. Wheat on the spot was quoted as follows:—Mecklenburg, weighing about 59½lbs per bushel, at 67s 9d per qr of 480lbs; ditto, of about 61lbs per bushel, at 72s 6d per qr of 496lbs; Holstein, of about 60½lbs per bushel, at 66s per quarter of 480lbs; marks, of about 60½lbs per bushel, at 69s per qr of 480lbs. Parcels shipping from the outports somewhat easier to buy. At Antwerp the grain trade was dull, but prices of wheat are supported, and the supplies which are brought forward by the farmers are readily taken off for home consumption. The demand for white Zealand Wheat for England continues, and an advance of 1s to 1s 6d per qr has been conceded. There is much firmness in the French markets for both Wheat and Flour; both articles are slightly dearer.

A WEEK LATER!

The arrival of another Steamer as we are going to press puts us in possession of Liverpool and London Market prices to the 20th of January. The Markets had been generally dull during the week, but an improvement at Liverpool of 2d. on Wheat and 6d. per barrel on Flour is noted. At London Wheat had advanced from 1s. to 2s per quarter. Provision trade active.

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CANADIAN AGRICULTURIST,

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The *Agriculturist* is illustrated with Engravings of Cattle, Implements, Farm Houses, Farm Buildings, &c. and is the only Agricultural paper printed and published in Upper Canada. Receiving as exchanges the leading Agricultural Journals of the United States and Great Britain, the Editors are able to select and lay before their readers every thing of value that may appear in these papers.

The *Agriculturist* contains, besides Editorial and Miscellaneous matter, Reports of Farmers' Clubs, Essays, Proceedings of the Board of Agriculture, Prize List of the Agricultural Association, Information and Hints to Agricultural Societies, &c. &c. It is strictly a CANADIAN work, and should be taken in by every Farmer who desires to improve himself, or who feels any pride in the advancement of his country.

Professor BUCKLAND, of Toronto University, continues to assist as Editor

Some of the most intelligent Practical Farmers in the Province are contributors to this Journal.

The *Agriculturist* is not a second edition of the *Genesee Farmer*, nor of any other foreign publication. It is a home production, and asks no man's support under a false name. It is a true, not a spurious *Canada Farmer*.

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WM. McDougall,
Publisher, Toronto.

January, 1855.

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Nelson, 25th Jan., 1855.

P. FISHER.
2-3

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Toronto, Jan. 15, 1855.

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Dec: 16th, 1854.

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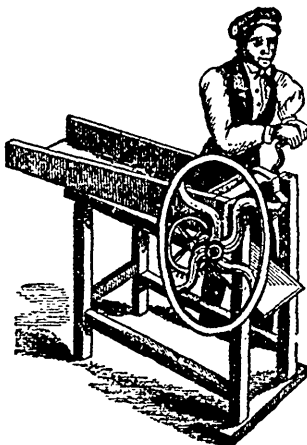
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Toronto, December, 1854.

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