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THE

CANADIAN AGRICULTURAL JOURNAL.

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AGRICULTURAL REPORT FOR JULY.

The month of July has been very changeable in temperature, from extreme heat to cold, and from the 15th to the end it was very wet, and unfavourable for hay making. The consequence is, that much hay must have been injured. At the commencement of July there was a prospect of a very short crop of hay, but the frequent showers during the month improved the meadows considerably, though we believe the produce will still be much below an average. The grain crops have been greatly improved by the moist weather, and are generally most luxuriant where the soil was not worn out. As usual, a great quantity of weeds are growing in the crops, particularly wild mustard, and thistles. The wheat crop appears very promising to the eye, but the early sown part, we believe, has suffered considerably by the fly. The last days of July would be very likely to produce the disease of rust in wheat, where it is not of a variety that is not subject to rust. We cannot say, however, how far the crop is affected by this disease; being obliged to sow wheat much later than formerly, in order to escape the ravages of the fly, the crop is much more liable to rust, as it is in a green and luxuriant state about this period, when we so frequently have moist weather.

The fly and rust have made wheat-growing in Canada rather a precarious affair; though we believe that varieties of wheat might be obtained, that would be proof, to a great degree, against both these plagues. Barley is generally a good crop. In some instances, the extremely warm weather may have brought it to maturity too quickly, and prevented the grain filling so well, as it would if the temperature was more moderate, but the crop on the whole is abundant, and safely housed. The crop of oats is good, where it has received any reasonable care in the cultivation, but we fear that the extremely dry and warm weather we have had lately, will not allow it to perfect the grain. Oats will do best when the season is rather moist, and the temperature moderate. Indian Corn has greatly improved within the last few days, and may yet be a good crop. Potatoes were looking well up to the 1st of August, but we believe that in many fields the rot has commenced in the tuber as it did last year, and we fear a large portion of the crop will be lost by this unaccountable disease. We see it recommended in exchange papers, to cut off the tops or vines, when they are first observed to be decaying, and it may have a good effect, but we have no experience of the matter, as our crop has no symptoms of decay. The crops should be left in the ground as long as possible, as they will keep better there than housed. We have planted potatoes this year in a different manner from the usual practice, and we shall report the result when we take up the crop. Early planting and having the manure mixed in the soil previous to planting, we think would be a good method, and also the application of lime and salt. The pastures are very much dried up within the last few days by excessive heat and drought. The land will be so very hard now, from this cause, that it will be almost impossible to plough until there is a great fall of rain. The prospect of the farmer, as regards the wheat and barley crops is good, and if the weather continues favourable, a large quantity of wheat will be produced in Canada East this year. This is what we require, and what will alone place the farmer in prosperous circumstances, and give the country generally the means of paying for her imports.

Cote St. Paul, *August* 26, 1845.

ELECTRO-AGRICULTURE.

TO THE EDITOR OF THE SALISBURY AND WINCHESTER JOURNAL.

SIR,—Sincerely thanking you for the insertion of my communication of the 1st instant, I beg to observe, in further reference to electro-agriculture, that, before we can expect the general adoption of a thing so new to the consideration of many, and so unlikely in the estimation of others, as electricity must be for the purpose now under consideration, it may not be out of place to say a few words explanatory. The electric fluid, then (the lightning of the clouds), is found to pervade nature generally; and there are abundant reasons for believing it to be a prime agent in all her various operations. The public

are already aware that experiments have been made, and others are now being tried, to collect and concentrate the electricity of the atmosphere, with the view to stimulate vegetable growth in a greater degree than it proceeds in the ordinary course of nature. Following in the wake of the foregoing theory, I have taken the liberty to suggest the application of galvanism (thus named after its discoverer, Galvani) for the same purpose, either separately or in connection with atmospheric electricity, to which it is very similar in the effects it produces. The galvanic fluid is produced by placing two dissimilar metals in close contact with each other. Copper and zinc are generally chosen for the purpose. Any number of pairs of plates of those metals, properly arranged, constitute a galvanic battery, its power depending on the number of pairs of plates used, independently of their size. Such a simple contrivance is the prime moving cause of the electric telegraph, which, next to thought, travels with the greatest velocity—not less than 300,000 miles in a second. It is the same fluid that is now suggested to be employed in the field and in the garden, for the purposes before referred to; and I beg at once to describe a simple form of galvanic battery, called Volta's pile. Considering one lug of ground fully sufficient for an experiment, I will limit the size of the battery accordingly. Take 100 plates of copper, 2½ inches square, and the same number of zinc plates of the same size; also of the same size, an equal number of pieces of old woollen cloth. Then provide a strong wooden box, well pitched in the inside, open at top, wide and long enough to contain the pieces of metal when packed closely into it edgeways, in the following manner: place at one end a copper plate, then a zinc one close to it, then a piece of cloth, then copper and zinc, as before, continuing these alternations throughout; then, with a wedge, fix the pairs of metal closely to each other in the box. To the first copper plate solder a copper wire, No. 18, six feet in length; do the same by the last zinc plate; then with from 30 to 40 yards of the same kind of wire surround and cross in two or three directions the plot of ground, binding one end of the surrounding wire to that which is soldered to the copper plate, and the other end to that of the zinc plate: this will complete the galvanic circuit. Pour into the box salt and water, so as to make it three-parts full, and leave a portion of the metallic plates dry: the battery will then be in action, sending through the wires a current of the galvanic fluid, which is supposed to influence whatever is placed within the circuit of the wire. Such a battery will keep in action for a considerable time; and in order to renew its energy it is only necessary to separate the plates and clean them with sand and water, replacing them as before. To judge of the declining power of the battery, place the hand, moistened, between the points of the wire fixed to the copper plate and the end of the surrounding wire attached to it. Let this be done at first, when an acute sensation will be felt, as well to remove scepticism in regard to galvanic power as to enable the experimenter the better to judge of the condition of the apparatus. This battery is probably sufficient for a field of several acres; but I consider it necessary to bring to bear on a small spot of ground a large quantity of electric influence, in order to test it thoroughly and in a decidedly marked manner. To combine atmospheric electricity with galvanism, it is only necessary to raise a high pole, extending beyond the end of which, and attached to it, must be a pointed copper wire, the lower end soldered or firmly bound to the surrounding wire proceeding from the zinc end of the battery. The wire should be kept from the pole by being passed through some piece of window-glass or glass tubing, or some old silk, and the whole fastened to some projecting pieces of wood. These things are non-conductors of the electric fluid, and the whole of the conditions must be strictly attended to. As there are other methods of applying galvanism to the before-mentioned purposes, at a much less amount of cost, I beg to defer the consideration of them for another communication. Apologising for the length to which the present has unavoidably extended. I remain, Sir, your obedient servant. RICHARD WING.

Fordingbridge, May 13, 1845.

MANUFACTURE OF FLOUR.

The great secret of manufacturing good flour is in knowing how to reduce it to such a degree of fineness as will render it fit to make good bread—to separate it entirely from the bran, and to cool it so effectually before it is packed, that time will not render it sour, or putrid. It was long before men discovered the art of reducing grain into flour, and it was longer before the discovery was brought to anything approaching to perfection. Pliny informs us that barley was the only species of grain at first used for food, and that even after the method of reducing it to flour had been discovered, it was long before mankind learned the art of converting it into cakes. At present all *kinds of grain are reduced to flour with equal* facility, and extensively used as food by the inhabitants of those countries to which they are peculiar, but the art of manufacturing good flour of wheat, seems to be still a secret even in countries where that species of grain is the common product of the soil. We have often heard the farmers of this District say that the Bay of Quinte flour is ground *too fine!* But this we believe to be impossible, if the stones with which it be ground are in proper order. If they are not, it would be equally as *impossible to make good flour*, no matter how coarse it may be ground Let us explain.—The face of the stones must be put into such order that they will first *cut the grain* into pieces, and then *pass it between them in such a* manner that none can escape without being ground to a *certain uniform* degree of fineness. The action of the stones upon grain is like that of scissors upon cloth; but if the stones be dull, or the furrows too shallow, the wheat instead of being cut will be bruised—the bran will be ground up with the flour, and the vital principle or *gluten* so essential in the making of good bread, will be wholly destroyed. When the stones *are sharp*, fewer revolutions are required to grind a given quantity of wheat, less friction is produced and consequently *less heat*, and where the furrows are of a sufficient depth, and have proper draught, they admit a current of air sufficient to keep the flour cool during the process of grinding. The great evil then lies *not in grinding the flour too fine*, but in grinding it too fine with *dull stones*. In bruising the wheat instead of cutting it, and in heating the flour to such a degree by the increased friction, occasioned by the superabundant revolutions of the stones; that its constituent properties are entirely changed.

The wheat on passing in between the stones is subject to the action of two forces, the one called *centrifugal* which forces it from the centre to the verge, and the other called *centripetal*, which constantly solicits it towards the centre. These combined forces give no additional power to the machinery, nor have they any real power in themselves but in grinding good flour, a great deal depends upon a thorough knowledge of the laws by which they are governed. One great principle of the laws of central force is, that "equal bodies describing equal circles have equal central forces," but the farther the wheat is removed from the centre of the stone the less will it be acted upon by this propelling power. Hence it is necessary that the draught of the furrows in millstones should increase as the central force decreases and *vice versa*. The draught must be in exact proportion to the size and velocity of the stone, and the furrows must cross each other near the centre, at a much greater angle than near the verge, because the *centrifugal* force towards the former is much greater than towards the latter, and the motion which this force gives the flour has a tendency to move it outward and will be in inverse proportion to the diameter of the stones. It is essentially necessary that the *foregoing laws be observed* because the centrifugal force of the flour will vary according to the square root of the velocity of the stone. However if an error be committed in laying out the furrows, it may be corrected by deepening them. The less the draught, the deeper must be the furrow, and *vice versa*, otherwise some of the flour will be ground, or bruised too fine, and some will escape being ground at all. Evans says that the furrows of a stone should cross each other near the centre at an angle of 75 degrees and near the verge at an angle

of 23. The intermediate space varying proportionally between those two numbers.

If the stones be prepared in this way and the feed be properly regulated, there will be no danger of making *dead flour*, no matter how fine it may be ground. It may however be *killed* by being packed too warm, but we must make this the subject of another article. The following extract from "Evans on grinding" will be found to the point:—

"As to the most proper degree of fineness for flour, millers differ in their opinion; but a great majority, and many of the most experienced, and of the best judgment, agree in this; that if the flour be made very fine, it will be killed, (as it is termed,) so that it will not rise or ferment so well in baking; but I have heard many good millers give it as their opinion, that flour cannot be made too fine, if ground with sharp, clean stones, provided they be not suffered to rub against each other; and some of those millers do actually reduce almost all the meal they get out of the wheat into superfine flour; by which means they have but two kinds; namely superfine flour, and horse feed; which is what is left after the flour is made, and is not fit to make even the coarsest kind of ship-bread.

To test the properties of the finest flour, I contrived to catch so much of the dust of that which was floating about in the mill as made a large loaf of bread, which was raised with the same yeast, and baked in the same oven with other loaves that were made out of the most lively meal; the loaf made of the dust of the flour was equally light, and as good, if not better, than any of the others; it was more moist, and pleasant to the taste, though made of flour that, from its fineness, felt like oil.

I conclude, therefore, that it is not the degree of fineness that destroys the life of the flour, but the degree of heat, produced by the too great pressure applied in grinding; and that flour may be reduced to the greatest degree of fineness, without injuring the quality, provided it be done with sharp, clean stones, and with little pressure."

The foregoing extract is from the pen of a *practical miller*—a man well acquainted with the most improved methods of grinding—yes, of grinding on scientific principles, and one whose researches and discoveries form the basis of all improvements introduced into the mills of the United States. Let our Millers try the experiment of *sharp stones* and *little pressure* for a season; let them cool the flour effectually, before it be packed, and above all, let them be *exceedingly careful* not to allow their brand to be placed on a barrel of flour which will not pass inspection. Let these things be carefully observed, and the Bay of Quinte flour will soon rank as high in the Montreal Market as the Gananoque, or any other flour manufactured in Canada.

On the other hand, the farmers must throw aside that niggardly disposition—that false and dangerous opinion, which impels them from mill to mill, in search of the *greatest quantity* of flour out of a *given quantity of wheat*. They must turn their attention strictly to the *quality*—let that be the object of their search, and having found a mill where a good article is manufactured, and where there is honour and resolution enough to leave a bad article without a *brand*, let them support that mill and none other.

SHADE TREES.

It was Lord Bacon, we believe, who said that "a tree in full leaf was a more majestic object than a king in his coronation robes," and as he was a man competent in every respect to form a correct opinion of the matter, he may undoubtedly be considered right. We, untilled plebeian farmers, whose optics have never expanded at the sight of a throne or a crown, or looked on that animated piece of clay called a King, can perhaps form but a faint idea of the splendors of royalty, but we do know there is nothing in nature that combines more grace and beauty, than the wide spreading foliage of a majestic tree in the leafy month of June. Gentle or simple, savage or civilized, all men, unless those in whom every trace of taste and sentiment is extinct, look on trees, whether in their native forests, or growing under the culturing hand of man, with a feeling of admiration and delight.—The freedom and ease with which their tapering and beautifully proportioned columns spring into the air—the regularity and finely adjusted curves of their arching branches—the broad and overshadowing roof formed by the intermingling masses of foliage, form a whole to which the most costly piles of human architecture are mean, and which constitutes a temple worthy of His worship who designed and created such examples of surpassing beauty.

We have long considered it as wonderful, that while this feeling of admiration of trees is so universal, it should have had so little influence in inducing men to assist nature in arranging and perpetuating this beauty. We seem to take a pleasure in destroying the last remnants of our once mighty forests, and as if their destiny was connected with that of the red man who once dwelt beneath their branches, with one hand we are pushing him beyond the bounds of civilization, and with the other dashing to the earth the dark woods that furnished him shelter and food. We lay the axe to the root of our magnificent forest monarchs with as little reluctance as if they were the growth of a year, and seem to forget that we in an hour can undo what nature requires centuries to perform; we seem to imagine that the world will end with ourselves, and that there will be no coming generations to require timber and fuel, and objects of grandeur and beauty to admire.—That such a feeling should prevail among those who, like most of the farmers in our new countries, have been taught to consider the trees which covered their farms a nuisance, and the destroying of them a blessing, is not so passing strange; but that men, whose life has been spent in villages or cities, should, when domiciliated in the country, be so willing to cut down, and so unwilling to plant, is truly wonderful.

A man would almost as soon plead guilty to insanity, as confess to a non-perception of the beauties of spring, or a want of pleasure in highly cultivated grounds, shady avenues, or leafy whispering groves; yet because a woodland, or an avenue, or a cool shady walk, will not, like Jonah's gourd, spring up in a night, every one deems himself privileged to defer planting trees; and hence our naked dwellings and unprotected fields—our villages without coverts or shrubbery, and our cities with their ranges of brick and stone, but with their streets and squares unplanted and unornamented. There is a mistaken notion prevalent on the time it will take a tree to become useful or ornamental. There are few young men who, if they would plant a tree, or a number of trees, would not live to take a pleasure in the work of their own hands, and find in the beauty they have imparted to their premises, if not in the increased amplitude of their purses, a full compensation.

It is to individuals that we must look for such examples in improving our tastes, and promoting our most rational pleasures—to men who look forward to benefits beyond to day, and who, if good is but done, are content to be forgotten. The hand that planted the elms of the Mall at Boston is now dust, but the stranger and the citizen, the educated man and the beautiful woman, are alike there, to enjoy the pleasure individual spirit and enterprise combined with patriotic forethought has furnished them.—We can only regret that such examples are not more common, and that benefits so permanent are not oftener conferred on the public.—*American Farmer.*

TRANSPLANTING TREES.

(*From "Chambers's Information for the People."*)

Trees may be lifted from one place to another, or transplanted. The art of accomplishing this exceedingly delicate operation in tree culture, was some years ago brought to perfection by the late Sir Henry Steuart, of Allanton, whose treatise is the best authority on the subject. The transplanting of a full-grown tree has, in all ages, been deemed next to impossible; and when it was attempted, the operator thought it necessary to cut off a great number of the branches (and consequently the leaves), from an idea that, if suffered to remain, they would require

more sap than the roots could supply in their new situation. Of course, just in as far as they deprived the tree of its branches, or, we may rather say, of its leaves, they deprived it of the principal organ of its existence, and it invariably decayed to a corresponding degree. The lopping was like a cutting-off of the lungs in a human being; and it would be as absurd to expect a man in that state to be healthy and strong, as it was to hope for vigour in the stripped member of the forest.

Sir Henry Steuart, having studied the internal structure of trees, began, a good many years ago, to practice the art of transplanting on what he justly calls the preservative principle; that is, without mutilating either roots or branches, as was universally practised till his time. His seat, Allanton House, is situated on an irregular slope, on the right bank of the River Calder, which is a tributary of the Clyde. The neighbouring ground, though diversified, has no very picturesque natural points; but he contrived, by the removal of large trees, and forming an artificial lake and river, to realize in some measure the miracle of bringing new and picturesque scenery into actual existence, in an almost-endless variety of combination.

The following are the rules to be attended to in the planting of trees. The best season for transplanting is certainly during the months of October and November; for though trees may be transplanted in any of the winter months when the weather is mild and moist, they never do so well as when removed in the first-mentioned months. Taking up a tree requires as much care as replanting it; the spade and the pick-mattock are both necessary to raise the roots from their seats; and as the most tender fibres are the most active and useful, the greatest care should be taken to preserve them entire. Neither should these delicate fibres be exposed to a dry or frosty air; they should be kept moist and shaded till again put into the ground. The root should be placed no deeper in the new place than it was in the old; and all the ramifications laid in their natural positions, and embedded in the finest of the earth.

Trees may be transplanted from the age of one up to ten, or even twenty or more years; but when they are from four to six years from the seed, they are, both from age and bulk, in the best condition to be removed successfully. In planting with the onehanded tool, the smallest sized plants must be used; for pitting, plants from two to three feet high may be chosen; and on digged, ploughed, or trenched ground, the young trees may be from two to six feet high, in which case the tallest may need propping against the south-west winds.

When single trees are to be planted upon a lawn, a space of from four to six feet must be stripped off the turf, and rolled back; the soil within should be deeply broken up and excavated, to receive the full spread of the roots. A heap of richer loam or compost is laid in the centre, on which the tree is placed, and the roots are covered with the same, and watered, to consolidate the earth about the fibres. The other soil is then thrown on, and the turf returned to its place and beaten down firmly. Single trees should be staked; and if on a pasture, a cradle should be requisite to defend them from the browsing or rubbing of cattle.

Much has been written on the subject of transplanting large trees, and many successful exploits of this kind have been performed both in past and present times. Shady groves have been formed in the short space of a few months: proving that, with care, skill, and physical force properly directed, any tree of moderate size, say from twenty to forty feet high, may be transplanted with safety and success. One precaution very much facilitates the execution: it is that of digging a circular trench at a proper distance, say six feet, round the trunk, and deep enough to be below, and to cut through all the roots except three or four of the largest, which are left at equal distances to act as spurs for the better security of the tree when placed in its new situation. The trench, after the stumps of the roots are cut smoothly off, is filled with prepared compost for a new fringe of roots to strike into, and after one or two years the tree is in a condition for removal. In doing this, a deeper trench is made on the outside of the first, into which the mould from among the roots is drawn, until the whole is loosened from the soil; the spur roots are also followed out and laid bare. In replanting, much depends on laying out the roots, and firmly embedding them in moistened earth, and also adding a pretty heavy covering of soil round the stem, to keep the tree steady against wind.

Every tree about to be planted requires a little pruning: broken roots should be removed, and the head may require thinning. The branches should be equally balanced; and if any one appears to be a rival to the stem, it should be cut off close; so those rising with two stems should be deprived of the weakest. These remarks only apply to deciduous species: the pines and firs need no thinning when transplanted, unless some of the lower spray is dead.

CERTAIN TESTS OF A THRIVING POPULATION.

Dr. Twiss has published four lectures on this subject, in compliance with the conditions of the Oxford Political Economy Professorship. The following are extracts:—

Test by Corn.—"Let us take, for instance, the article of grain, in the first place. Mr C. Smith, in his tracts on the Corn-trade, estimated, the population of England and Wales in 1760 at, 6,000,000, which is sufficiently near the truth for our present inquiry. The entire consumption of grain at that time he estimated to be 7,550,350 quarters; of which 3,750,000 quarters were wheat, and of the remainder, 1,026,125 consisted of barley, 999,000 of rye, and, 1,791,225 of oats.

"The change which has taken place in the species of grain used for bread in England since the period referred to by Mr. Smith is notorious. Rye has almost ceased to be employed. The same remark might almost be applied to barley; and oat-meal and oat-cake are not consumed to anything like the extent as in the previous century.—Almost every individual now uses wheaten bread; and in some of our manufacturing towns the inferior sorts even of wheaten flour have been rejected by all except the most indigent classes.

"The total average produce of grain in England and Wales has been estimated, within the last ten years, at 29,450,000 quarters; of which 12,450,000 quarters consist of wheat, (M'Culloch's "Statistics of the British Empire," i. 529.) It would thus appear, that whilst the population of England and Wales has doubled, the consumption of wheat, as well as of other grain, has nearly quadrupled; for the home producer is unable to supply the demand of the consumers, and an annual average of at least 500,000 quarters of wheat may be added to the total quantity produced at home, on account of foreign importations."

Test by Butcher's Meat.—In a similar manner, in regard to butcher's meat, if we take the market of the metropolis, we shall find the number of cattle and sheep annually sold at Smithfield has doubled within the last century, whilst the weight of the carcass has also more than doubled in that interval. In the early part of the last century, (1710), according to an estimate made by Dr. Davenant, the nett weight of the cattle sold at Smithfield averaged not more than 370 pounds, whilst calves averaged about 50 pounds, and sheep 28 pounds. In 1800 the nett weight of cattle was estimated at 800 pounds, of the calves at 140 pounds, of the sheep at 80 pounds.

Again, in 1742, we find, 79,601 head of cattle, 503,260 sheep, to be the numbers sold at Smithfield; in 1842, the numbers had increased to 175,317 cattle, 1,438,960 sheep. According to the calculation which Mr. M'Culloch adopted for the amount in 1830, when he set down 154,434,850 pounds for the supply of butcher's meat required in London, if we assume the population to have then amounted to 1,450,000 exclusively of some suburban districts, we should find the average annual consumption of each individual to be very nearly 107 lbs.

The returns obtained by the Statistical Society of Manchester, as to the cattle sold in the markets of that town, furnish an annual consumption of not less than 105 pounds of butcher's meat for each inhabitant. In Paris, on the other hand, the quantity has been estimated by M. Chabrol

at from 85 to 86 pounds per head; and in Brussels it is supposed to average 89 pounds. We thus find that the consumption of animal food in the towns of England far exceeds that of foreign cities; and as the consumption has gone on steadily increasing, we are warranted in concluding that the labour of the English people is not only more efficient as compared with that of other nations, but is daily acquiring greater efficiency, if the present be contrasted with previous results.

The following curious fact of speculative science applied to trade is from the appendix, and has been furnished to Dr. Twiss by Mr. Dixon, the eminent land-surveyor at Oxford.

"The present mode of calculating the probable yield of wheat of a given district for the coming harvest is as follows:—About the time the wheat is blooming, generally about the beginning of June, a person will go round with a gauge secreted in a hollow cane, which forms a triangle when opened, and represents a certain portion of an acre of ground. This is placed over various portions of the standing crop in the best and worst parts of the field; the number of ears of wheat comprised within this triangle is counted, and the probable quality of the grain is taken into calculation according as the spring has been wet or dry. On the former supposition the grain is likely to shrink; on the latter, to harden and come out plump. It may be observed, that if there has been a good general rain during the last ten days of April and the first ten days of May, on the average, no more wet is required for wheat. An expert gauger will form a very accurate estimate of the probable produce of a given district by this method.

THE INDIAN RUBBER TREE.

A correspondent of an American paper, writing from the Brazils, gives the following interesting particulars of the process of tapping the Indian rubber or caoutchouc tree, and of manufacturing the gum into shoes and other things:—"The caoutchouc tree grows, in general, to the height of 40 or 50 feet without branches; then, branching, runs up 15 feet higher. The leaf is about six inches long, thin, and shaped like that of a peach-tree. The trees show their working by the number of knots or bunches made by tapping; and a singular fact is that, like a cow, when most tapped they give most milk or sap. As the time of operating is early day, before sunrise we were on hand. The blacks are first sent through the forest, armed with a quantity of soft clay and a small pickaxe. On coming to one of the trees, a portion of the soft clay is formed into a cup and stuck to the trunk. The black then striking his pick over the cup, the sap oozes out slowly, a tree giving daily about a gill. The tapper continues in this way, tapping perhaps 50 trees, when he returns, and with a jar, passing over the same ground, empties his cups. So by seven o'clock the blacks came in with their jars ready for working. The sap at this stage resembles milk in appearance, and somewhat in taste. It is also frequently drunk with perfect safety. If left standing now, it will curdle like milk, disengaging a watery substance like whey. Shoemakers now arrange themselves to form the gum. Seated in the shade, with a large pan of milk on one side, and on the other a flagon, in which is burned a nut peculiar to this country, emitting a dense smoke, the operator having his last or form held by a long stick or handle, previously besmeared with soft clay (in order to slip off the shoe when finished), holds it over the pan, and pouring on the milk until it is covered, sets the coating in the smoke, then giving it a second coat, repeats the smoking, and so on with a third and fourth, until the shoe is of the required thickness, averaging from six to twelve coats. When finished, the shoes on the forms are placed in the sun the remainder of the day to drip. Next day, if required, they may be figured, being so soft that any impression will be indelibly received. The natives are very dexterous in this work. With a quill and a sharp-pointed stick they will produce finely lined leaves and flowers, such as you may have seen on the shoes, in an incredibly short space of time. After remaining on the forms two or three days, the shoes are cut open on the top, allowing the last to slip out. They are then tied together and slung on poles ready for the market. There pedlars and Jews trade for them with the country people; and in lots of 1,000 or more they are again sold to the merchants, who have them stuffed with straw and packed in boxes to export, in which state they are received in the United States. In the same manner any shape may be manufactured. Thus toys are made over clay forms. After drying, the clay is broken and extracted.—Bottles, &c., in the same way. According as the gum grows older, it becomes darker in colour and more tough. The number of caoutchouc trees in the province is countless. In some parts whole forests of them exist, and they are frequently cut down for firewood. Although the trees exist in Mexico and the East Indies, there appears to be no importation into the United States from these places.—The reason, I suppose, must be the want of prolificness found in them here. The caoutchouc tree may be worked all the year: but generally in the wet seasons they have rest, owing to the flooded state of the woods; and the milk being watery, it requires more to manufacture the same article than in the dry season."

America could support nine hundred and thirty millions of people without being so densely populated as Europe now is. The population of Europe is about 203,000,000, of America 54,000,000.

MALT FOR FEEDING CATTLE.

Mr. J. Steed, of Baldock, suggests the following method of preparing malt for this purpose, so as to secure the revenue against fraud:—Every farmer or other person desirous of using malt for fattening cattle, should send with every ten quarters of barley to be malted, five hundred weight of oil cake; the oil cake to be first broken, and then, when the malt is dried off, let the oil cake and malt be *ground together*, at the malting where it is made, under the inspection of the Excise, before it is taken away; the oil cake being thus completely mixed with the malt, is a certain preventive of the malt being used for the purpose of brewing. I propose that one, two, three, or more maltings, a number of which have been for several years unoccupied in most malting towns, be licensed at one pound each (yearly,) for the above purpose, and a mill connected with each malting for grinding such malt and oil cake; and no malting now used for the making of malt, where the present duty is charged, should be allowed for the other specified purpose, and *vice versâ*. Oats might also be malted in the same manner. Thousands of quarters of barley grown last year were much too inferior to allow the present duty on malt to be paid on it; consequently, it was of very little benefit to the farmer; and, from the present prospect of the ensuing crop, it appears evident we may have above an average; if so, the prices must be extremely low. The above plan, I am convinced, will improve the price five shillings per quarter on all descriptions of barley, and this will be the greatest boon which can be offered the community, without in the least injuring the revenue. Thousands of acres of land now out of cultivation would be occupied, and thousands of labourers would find employ, the unions greatly relieved from paupers, and tens of thousands of hard cash circulated in this country, instead of being sent out for the purchase of foreign oil cake, and enable us to compete with the present tariff respecting the importation of fat cattle.

WHAT WILL A TON OF GUANO PRODUCE?

The above query is a very important one, and one that has been often put. We give the result of a careful computation, furnished by a gentleman to whose theoretical and practical knowledge of agriculture our readers have oftimes been indebted. We may mention at the same time that the soil of his farm was originally (what prevails over a great portion of this county) a cold, stiff, clay loam, of about 6 inches depth, incumbent on a subsoil of hard red till, worth, about ten years ago, from 15s. to 20s. an acre; but now, through the influence of thorough draining, subsoil-ploughing, and careful cultivation and management, worth about £2 10s. per acre:—

TURNIPS.

4 cwt. of guano per acre will produce of turnips .. .. 25 tons			
1 ton of guano will therefore produce of turnips .. .. 125 tons			
125 tons of turnips will produce 31 tons of dung, which, at the rate of 2s. 8d. per ton, will bring	£ 4	2	0
125 tons of turnips will give 1,500 lbs. of beef, at 6d., amounting to	37	10	0
Produce of 1 ton of guano	£41	12	0

POTATOES.

5 cwt. of guano will produce of potatoes, per acre . .. . 10 tons			
1 ton of guano will therefore produce .. .. 40 tons			
40 tons of potatoes, at 25s., will give ..	£50	0	0
Produce of potatoes	50	0	0
Produce of turnips	41	12	0
Balance in favour of potatoes . ..	£ 8	8	0

Sufficient to purchase another ton of guano.

But to show the value of guano in its true light, and on a broader view, we will suppose that there are few farmers in this country who do not grow their 5 acres of green crops. To effect this with dung alone it will require (at 40 yards to the acre) 200 cubic yards, which most farmers can manage to raise on the homestead. 5 acres of turnips, at 25 tons to the acre, will give 125 tons, yielding as above £41 12s. The same manure distributed over 10 acres, along with 1 ton of guano (20 yards dung and 2 cwt. guano per acre,) at a cost of £10, will yield double the quantity of turnips, which, turned into beef and manure, will yield, at the same ratio, £83 4s. The profit arising from the ton of guano, after deducting £10 for its price (Peruvian,) is £31 12s. This is the profit from one crop only on 5 acres. The farmer who grows 50 (and they are not a few,) will see his advantage in increasing his green crops by the use of guano, dissolved bones, and other extraneous manures which science has brought to view; and we have sufficient experience to justify us in the assertion that it is not the first crop alone that is benefited, but the whole rotation.—*Ayrshire Agriculturist.*

THE DUKE OF RICHMOND'S DRAINAGE BILL.

We are enabled to place before our readers the "Report from the Select Committee of the House of Lords, on the Charging of Estates for Drainage," to which we alluded last week. We have also a copy of the Bill baised upon this report, brought in by his Grace the Duke of Richmond, and read a first time on Friday, June 27, before us. We trust it will meet with that due consideration which a subject of such deep importance to the landowner, the labourer, and the country demands. The object of this Bill is to extend the nature of the improvements contemplated in the act commonly called Mr. Pusey's Act, to enlarge the field of operation, and to simplify the machinery and reduce the expense of the proceedings under the Act. As regards the nature of the improvements, to effect which money may be borrowed, they extend to "any permanent improvements in the lands to which such person shall be so entitled, or any part thereof by draining the same with tiles, stones, or other durable materials, or by warping, irrigation, or embankment in a permanent manner, or by erecting thereon any buildings of a permanent kind, incidental or consequential to such draining, warping, irrigation, or embanking, or immediately connected therewith." The field of operation is enlarged, by bringing in other estates than those named in Mr. Pusey's Act, and is defined as follows:—"That any person whom it shall be made to appear is seised of or entitled at law or in equity to the land proposed to be drained or otherwise improved as aforesaid, in possession, as tenant in fee simple or in fee tail, general or special, or as tenant by courtesy, and also any person who shall be entitled under any will or settlement, or any other deed or instrument (except a grant or lease reserving rent or an agreement in writing for such grant or lease) for his own life, or the life of any other person, or for years determinable on such life, and also every feoffee or trustee of any such land, or of any such estate or interest therein as aforesaid, for charitable or other purposes, and all ecclesiastical and other corporations, aggregate or sole, shall be deemed a proprietor of such land for the purposes of this act."—The Bill also contains the following provision:—"Provided always, that no person shall be deemed a proprietor for the purposes of this act for or by reason of any estate vested in him which shall have been created by way of mortgage or for the purpose of securing the payment of any sum of money, unless such person shall be in actual possession or in receipt of the rents and profits, but that the person who should be deemed a proprietor for the purpose of this act if such estate by way of mortgage or for securing any money had not been created shall, notwithstanding such mortgage or security, be deemed such proprietor as aforesaid.

Then as regards the simplifying the machinery and reducing the expenses. Every proprietor wishing to avail himself of the benefits of the act may petition the Court of Chancery, setting forth the improvements he wishes to effect, such petition to be delivered to the master next in rotation, "*without any usual application to or order of the Court;*" thereby avoiding much delay and expense.—The master having satisfied himself, by the assistance of some competent surveyor, to be appointed or approved of by him—and there is no objection to the surveyor of the petitioner—that the annual value of the lands will be improved, may make his report, which report, unless special application be made to the Court, shall at the end of fourteen days be confirmed. It is also enacted that "such charges shall have priority over other charges except tithe commutation, rent charges, and any quit or chief rents incident to tenure." Interest at the rate of five per cent. to be paid on money so charged, "the principal sum charged to be paid off by equal annual instalments, such instalments not to be less than twelve, nor more than eighteen, in the case of drainage, warping, irrigation, or embankment; and not less than fifteen, nor more than twenty-five, in the case of buildings." Such are the leading outlines of this most important measure; it remains only that the members of the Legislature should be so convinced of its value as to pass it into a law, and that proprietors of land be advised of the advantages which they may derive under its privileges. Upon the general question we subjoin some excellent remarks from Mr. Newman's work on draining, which we alluded to last week, and which we again commend to the careful perusal of all who are interested in land, whether as owners or occupiers:—

"An effectual drainage may in truth be considered to the landed proprietor a new created source of wealth, improving the land from 10 to 20 per cent. (on an average, say 15 per cent., although I have shown a much greater increase), and, as before observed, such wealth is principally produced by manual labour, which, while it enriches the proprietor, offers to the labourer a similar advantage, giving him beneficial employment whereby he may earn his livelihood, rendering himself and family happy. The tenant will also participate in the benefit, having a greater security in the investment of his capital, by the removal of the stagnant water which to him often proves a serious loss. In wet seasons, the land being continually saturated tends to weaken and destroy, to a serious extent, the vegetable quality of the soil so essential for production. When the spring arrives, and nature is teeming forth with all its vigour, how perceptible are its baneful effects! the very essence of the productive soil carried away by the furrows, which were made to convey the surface water.—Indeed, how often is it observable after a field has been well manured, that a great portion of the valuable properties run off by the same course! Land, when drained, assumes a very different appearance after a season of rain: when the earth has absorbed sufficient moisture, the surplus water

gradually filters through the subsoil, leaving all those valuable properties in the soil by which the young plants are nourished and brought to perfection; and, as early sowing in the spring is very advantageous, land which has been drained will be in a state to receive the seed two or three weeks earlier; the corn will consequently progress, covering the surface so as to withstand the burning rays of the sun, which often prove too powerful for late sown corn. Draining also renders the land much easier of tillage, by which a considerable saving is effected in horse labour with the plough and harrow.

"It is important to know, also, that the land is so materially improved, that green crops may be grown with greater facility, and thereby produce fat beef and mutton. Considerable advantage will likewise result from the reduction of furrows, which I have shown will only be necessary in the same proportion as drains; consequently the original furrows may be converted into a productive soil. The same benefit will accrue to pasture, giving the grazier the desirable opportunity of feeding beasts on land which, in its natural state, would be unsafe to feed sheep upon, in consequence of their liability to rot.

"Land so improved by drainage will carry stock at least two months extra in the year, and the herbage will likewise be much improved; it will also be gratifying to know that, by an increase in the produce of the soil, there will be a perpetual increase in the demand for labour: the climate will also be much improved by an effectual drainage—the natural results must be the improvement in the health of the inhabitants in such districts, and especially that of the labourers who are more exposed to the unhealthy influence of damp and fog, and the effluvia of stagnant water, pregnant with agues, fevers, and other diseases. With such impressions, I have frequently made the following comparison on viewing a field effectually drained and a field undrained; the one looking healthy and vigorous, like a person with a good constitution, enabled to encounter change of weather, however unfavourable—the other carrying an unhealthy appearance, a different cast of countenance, and chilled with the wet, producing an appearance similar to a person fast approximating to a consumption. To a certain extent, this simile will apply to land which is continually wet, and which becomes so compressed with the weight of water, that it is rendered incapable of admitting that free intercourse with the air which is so necessary to promote vegetable life; such land will also suffer to a greater extent in a season of drought, being robbed of its fructifying powers. The growing crops, on land of this description, in the month of May, will too frequently prove this fact, when compared with a well drained field, on which the crops look promising and in a healthy state, like the land on which it is growing, where no exhaustion has been effected by water, and where the pores, which may be designated the lungs, are in a high state of perfection to receive the free intercourse of atmospheric influence."

The Canadian Agricultural Journal.

MONTREAL, AUGUST 1, 1845.

We hear continually the backward state of agriculture in Canada deplored, and all hope of the possibility of its amelioration despaired of, and by individuals who know that no effectual measures have ever been adopted, either by themselves or others, that could ever have a chance of producing the required improvement. This is an unjust condemnation of the Canadian farmers of French origin. In the British isles, farmers had a hundredfold better opportunities of understanding perfectly the art of agriculture than in Canada, and in the former countries, every effort is being made to encourage and instruct the farmers, while here nothing has been done that the most sanguine could expect would produce the required improvement. There is nothing in the French Canadian farmer's character that would unfit him for becoming perfect in the practice of his business, according to the most approved system of agriculture. They are generally as industrious and ingenious as the old country farmers, and many of them are good farmers, and keep their buildings and fences in the very best condition. We do not excuse the defective system of agriculture that is in general practice, but upon the grounds that no effective means has been tried to produce a better system. Money has been granted by the Legislature for the encouragement of agricultural improvement, but we take upon us to say, it never has been so expended as to produce general improvement where it was most required.

In a country like this, it may be considered almost an absurdity to reward farmers for pursuing the most approved and profitable system of agriculture, when those farmers practice this system, because they know by experience that it is the best and most profitable for them. No improved system of agriculture should be encouraged, unless it is the most profitable, and if it is known to be so by those who practice it, surely it requires no further reward than the profit which they are sure to obtain by their superior skill and other advantages in their business. We wish to put this matter in a plain common-sense way before the public. The improvement of agriculture is desirable *only* because then it would be profitable, otherwise it is not to be desired. If then, those who practice a good system of husbandry, do so because they find it most profitable, why should they require other reward? We argue that, under these circumstances, the public money granted for the encouragement of agricultural improvement is mis-applied, when not altogether expended to instruct and encourage those who most require instruction, and who never had opportunities of practically learning the art of agriculture. We do not propose that the money should be given in any case, except when there is a manifest and meritorious exertion on the part of Canadian farmers to introduce decided improvement in their system of agriculture, where there is clearly a

disposition to learn, and adopt in practice, improvements that are required. Let the funds placed at the disposal of agricultural societies be liberally and patriotically offered to encourage improvement on this principle, and we answer for it, that we shall soon see most favourable results. Let every farmer who had the advantage of being born, and learning his business in the British Isles, prove to his less fortunate brother farmers, that he has such confidence in the perfection of his knowledge in the art and practice of agriculture, that he will forego all other reward but that which the return of his superior skill and management will give him. This sort of confidence would have a most beneficial influence in recommending improvement when necessary, because it would show that a skilful farmer always found, in the superior produce of his land and labour, a sufficient encouragement and reward without seeking for any public money, that was only granted to induce ignorant and inexperienced farmers to try improved systems of husbandry. We should hope, that when the benefit of improved husbandry is generally understood, there will not be any necessity for grants of public money to offer encouragement to men to do what they must be convinced it would be for their advantage to do. Let us, by all means, endeavour to instruct and encourage the ignorant, and apply funds liberally to do this; but certainly it is not necessary that we should expend money in teaching and encouraging those who are already taught, and who find ample reward in the practice of what they have learned, and who would be highly offended were you to question or doubt either of these facts. We trust this article will be read in the same spirit in which we have written it. We wish only to submit this subject in an honest and candid manner, to the public. If we are mistaken in our views, and any better means can be devised, for promoting the general improvement of agriculture, we shall rejoice at it. Let us only see that the intention of the Legislature, in granting public money to encourage the improvement of agriculture, is judiciously and fully followed out, to produce improvement where it is manifestly most required, and we shall heartily congratulate the country upon the results that will be sure to follow. If the public money is expended as heretofore, we say, without hesitation, that it will be a useless expenditure, and so far from encouraging improvement where most required, it will, we believe, have a contrary tendency. Offer instruction and encouragement to the most remote farmers in the country, prove its necessity to them, and convince them of the advantage and profit of improvement, and this will be doing good.

The new law for the establishment of Local and Municipal authorities in Lower Canada, is well calculated to produce improvements that are required in the country, and if the councils that are elected under this law, act judiciously and ingeniously, at the same time be determined that the law shall not be a dead letter in their hands, the people of Lower Canada will derive great advantages from it. We do not see how the people could expect a more full power of self government. They may provide a certain support for education, and for required local improvements, and they may as well directly tax themselves for these purposes as to go to the roundabout way of paying taxes to the government, and then be at the trouble of applying for it again, and perhaps not obtain it; and if obtained, restrictions attached that are frequently extremely inconvenient Good schools, roads, bridges, and a perfect drainage of the land, are most essential to the prosperity of the country, and if we do not have these in future, it will be the fault of the people, and not of the law. The law is now sufficient if the people will act upon it. No taxation can be so just and equitable, as that raised by the people's own authority, and expended under their own management, for their own benefit. We are aware of the strong objection of the Canadian farmer to taxation, in any, and every shape, and for whatever purpose. They never had, however, an opportunity of trying the experiment of the law to which we refer, and if they had, we believe their objection to local assessment for local purposes, would no longer have existence. We would earnestly urge upon the people, to give the law a fair trial. If competent men are elected, that have the confidence of the people, we see no obstacle to the law working well and beneficially for the country. If the Parish Councils do their duty, much time and trouble will be saved to the Provincial Legislature, who had, hitherto, to hear the petitions, and Legislate for the most trifling matters, that can now be very well managed by the Parish Councils. We hope the good sense of the Canadian people will overcome all prejudice which may be entertained against a law which certainly can be of no benefit, unless a re-

quisite amount of taxation is levied under its authority. They should recollect that it is for the education of their children, and the improvement of their roads, and that their money is raised and expended in their own parish, under their superintendence. If they obtained aid for these purposes heretofore from the public revenue, they may be sure that they had to contribute indirectly to that revenue, and probably without obtaining benefit in proportion to what they did pay. It is the inhabitants of a country who must pay all the revenue raised in it, and the more directly it is raised and expended, under the peoples own control, the better, unquestionably it should be for them.

Municipal laws will not be properly understood until they are for some time in operation, but when the people become perfectly acquainted with them, and the good they are calculated to produce, they will have reason to be well satisfied with their privileges, and learn to make a judicious use of them. We know that a dread of taxation is the chief objection that exists to the Municipal Laws. But this is not a sound objection against a certain amount of assessment that would be necessary for education, and making and keeping in repair the public roads.

We copy the following extract of a letter from a most respectable farmer in England, to the Editor of the *Mark-Lane-Express*, on the subject of over-feeding animals for Cattle-shows, and also on the size and suitableness of stock that will be most profitable for the farmer:—

"Now I believe it to be the *object* of the Royal Agricultural Society to encourage the breeding of the best description of animals; but I hope to be pardoned in observing, that in the opinion of nine-tenths of the practical men of this country, the mode adopted for the attainment of that object is founded in error, and most fallacious in practice. Take, for instance, the prizes offered for the best shearling rams, or best shearling ewes at its annual meetings; must it not be evident that, however inclined to fatten each contending animal may be, the prize is virtually given to the most skilful shepherd, or grazier—to him who shall be the most ingenious in pampering the appetite, making them an unwieldy mass of useless offal, unable to bear their bloated carcasses on the enervated muscles, still less able to propagate a species of which they are most ridiculously and ignorantly supposed to be a sample? or, if females, every year's experience gives ample evidence that not more than four or five in twenty bloated prize shearling ewes will bear any progeny at all, and those of such a pigmy, degenerate race, that the owners are frequently obliged to hide them from the eyes of the sight-seekers, who, a twelvemonth after some grand show, come far and near to see the extraordinary (*expected*) produce of the Duke of'———'s prize shearling ewes, by Mr. Prize-bearer's £30 prize shearling ram.

"Sir, there is no gainsaying these facts; among others, almost innumerable, witness the declaration of Mr. Jonas Webb, as related in his memoir, published in the *Farmer' Magazine* for March last—'In feeding my sheep for the Derby Show', says Mr. Webb, '*I over-fed* two of my best, and *killed* them before the show took place! I had refused 180 guineas for the hire of the two sheep; I also quite destroyed the usefulness of two other aged sheep by over-feeding them last year; they never, *either* of them, propagated throughout the season, which has so completely cured me of over-feeding, that I never intend exhibiting another aged ram, unless I can find out some method of feeding them which will not destroy the animals.' I have thus far digressed to show, by quoting competent authority, the utter inefficiency of the present method of obtaining that knowledge we, the tenant farmers, wish for—knowledge that will enable us to choose that description of stock which shall return most in *value*, both of wool and mutton, in proportion to the food consumed. I would, then, with all deference, suggest to the society that a certain number of cattle and sheep of the various breeds should be taken under its care for three successive years, *considering* that one year's result would not authorize the stamping the character of any breed: they would here be under the guidance, as it were, of *one* mind; so that, managed well or ill, *all* would fare alike; the skill of the feeder would not be rewarded instead of the merits of the animal; the whole process of feeding would be done with more regularity, and there would be a greater chance of obtaining an impartial report, which can scarcely be hoped for where these trials are carried out by individuals, who, in spite of themselves, are almost sure to have a predilection for one breed or another."

It has been our own conviction from experience, both here and in the old country, that moderate sized animals of every species will be found most profitable for the farmer, and in Canada particularly. Let any farmer who has the means to increase the size of his animals by good keep, do so, if so disposed; but in common fairness, let him not attempt to recommend his large sized animals to other farmers who have not the means of supporting them in the same size and condition. Every farmer may raise the size of his animals, if he wishes to do so in proportion to his keep for them, but if he purchases large animals, and keeps them on inferior provender to what they were accustomed to, or to what is necessary for them, he will be sure to have the very worst and most unprofitable stock possible.

We give another article which we copy from the same Journal, on the same subject, from a speech delivered by an eminent farmer, Mr. Hobbs, at an agricultural meeting:—

"Mr. W. F. Hobbs, as one of the judges for cattle, expressed his gratification, in coming there a second

time after the lapse of four or five years, at finding the improvement of the stock very great. There had been, he considered, a decided improvement among the cattle and sheep: but he was sorry to say, with one exception, he could not speak favourably of the horses. With respect to cattle, he begged leave to make a few observations, which he trusted would be received in a friendly manner. He recommended that in the class for bulls two premiums should be offered; and he thought if one, two, or three extra premiums were offered for young animals, it would be for the advantage of the society. In regard to the age of heifers, he recommended the rule of the Smithfield Club, which decided that heifers should be called by that name till the age of four years. With respect to breeding shorthorns, he thought animals should be selected according to the nature of the soil. In some parts of Norfolk it appeared to him that shorthorns, without artificial food, would stand no chance in competition with others. He thought smaller animals, such as Devons, would stand a much better chance of profit with practical farmers. He had been lately in a rich grass district in the county of Leicester, and there he saw shorthorns thrive better than in many districts on grass and artificial food. He was convinced, from experience, that they ought not to be led astray in selecting large animals. He thought purity of blood and symmetry were necessary qualifications, but it would be unwise to lay down general rules for the best animals. The choice of them should depend on the soil and other circumstances. He hoped to see a better description of horses for agricultural purposes on some future occasion."

This will be the experience of every man who will be so candid as to avow it. We never had more profitable cows for the dairy than moderate sized cows, and in feeding for the butcher, we have no hesitation in saying, that moderate sized cattle, and sheep, of a good kindly breed, will yield a larger return for their consumption than the largest sort of stock. We are not to judge of the usefulness of moderate sized cattle, by those we have generally in Canada, because they are not sufficiently attended to in breeding. Selection is necessary in the females, as well as the males, and also, that all male animals not required for breed should be cut or changed immediately after birth. There is not a country on earth, we believe, where the breeding of domestic animals is less attended to than in Canada; and, as a natural consequence, we have a mixed and inferior breed of cattle, sheep, and horses. If due attention was paid to these matters, we should have very different results. Agricultural Societies should take active measures to remedy this evil, and encourage a better system of breeding stock. The first thing that is necessary, however, is to encourage the better cultivation of the land, good pastures, and sufficient meadow on every farm. To drain well, plough less, and cultivate better, is the most necessary changes to be introduced; and when this change becomes general, good stock will be sure to follow; but until then, we never can have good or profitable stock, and every competent farmer knows this. These remarks refer principally to the farmer of French origin in Eastern Canada, and to any others who may think them suitable to their situation and circumstances. In conclusion, we would say to every farmer, improve your stock by careful and judicious selection, and good keep; but if you attempt it by any other means, you will never be able to effect it to any profit or advantage.

We have seen General Washington's letters on Agriculture, and we have admired his character the more, because he did appreciate the value of Agriculture to his country, and was himself one of the most extensive farmers in the United States, though decidedly the first and greatest man in the Union. We copy one of those letters, which appeared lately in the *New England Farmer*. It will be seen from this letter his approbation of the "Agricultural Survey of Great Britain," then being made by Sir John Sinclair. Washington was of opinion that an Agricultural Survey would be highly useful to the country. How different with us? We could not find a leading man in Canada who would countenance or support such a measure when we proposed it by petition to the Legislature. We might as well have suggested a survey of the moon. This is the more surprising, when we know the importance of agriculture to the country. The first step towards improvement is to ascertain the true state of what requires to be improved. The remedy may then be made plain, which it cannot without enquiry:—

PHILADELPHIA, *July 20th*, 1794.

Sir,—* * I have read with peculiar pleasure and approbation the work you patronize, so much to your own honour and the utility of the public. [He refers to Sinclair's Agricultural Survey of Great Britain.]

I am so much pleased with the plan and execution myself, as to pray you to have the goodness to direct your bookseller to continue to forward them to me, accompanied with the cost, which shall be paid to his order, or remitted so soon as the amount is made known to me. When the whole are received, I will promote, as far as in me lays, the reprinting of them here.

I know of no pursuit in which more real and important service can be rendered to any country, than by improving its agriculture—its breeds of useful animals—and other branches of a husbandman's cares; nor can I conceive any plan more conducive to this end than the one you have introduced. * *

Commons—Tithes—Tenantry, (of which we feel nothing in this country,) are in the list of impediments, I perceive, to perfection in English farming, and taxes are heavy deductions from the profits thereof. Of these we

have none, or so light as hardly to be felt. Your stile of agriculture, it must be confessed, is in a stile superior, and of course much more expensive than ours, but when the balance at the end of the year is struck, by deducting the taxes, poor rates, and incidental charges of every kind, from the produce of the land in the two countries, no doubt can remain in which scale it is to be found.

It will be some time, I fear, before an Agricultural Society, with Congressional aids, will be established in this country; we must walk, as other countries have done, before we can run. Smaller societies must prepare the way for greater, but with the lights before us, I hope we shall not be so slow in maturation as older nations have been.

Our domestic animals, as well as our agriculture, are inferior to yours in point of size, but this does not proceed from any defect in the stamina of them, but to deficient care in providing for their support; experience having abundantly evinced that where our pastures are as well improved as the soil and climate will admit,—where a competent store of wholesome provender is laid up, and proper care used in serving it, that our horses, black cattle, sheep, &c., are not inferior to the best of their respective kinds which have been imported from England. Nor is the wool of our sheep inferior to that of the *common* sort with you, as a proof:—after the Peace of Paris, in 1783, and my return to the occupations of a farmer, I paid particular attention to my breed of sheep, (of which I usually kept about seven or eight hundred. By this attention, at the shearing of 1789, the fleeces yielded me the average quantity of 5¼lbs. of wool, a fleece of which, promiscuously taken, I sent to Mr. Arthur Young, who put it, for examination, into the hands of manufacturers. These pronounced it to be equal in quality to the Kentish wool. In this same year, *i. e.* 1789, I was again called from my home, and have not had it my power since to pay any attention to my farm, the consequence of which is, that my sheep, at the last shearing, yielded me not more than 2¼lbs. This is not a single instance of the difference between care and neglect. Nor is the difference between good and bad management confined to that species of stock; for we find that good pastures and proper attention can, and does, fill our markets with beef of 7, 8 and more hundred weight the four quarters, whereas from 450 to 500, (especially in the States south of this, where less attention has hitherto been paid to grass,) may be found about the average weight. * * *

With great respect and esteem, &c.,

Go. Washington.

Sir John Sinclair, Baronet.

BRIEF HINTS FOR AUTUMN.

The pressure of work which farmers are obliged to attend to through haying and harvesting, often causes them to neglect the extirpation of weeds at this time, when they are about going to seed. This should be carefully avoided.

After the second hoeing of corn, the weeds among the crop, of which there always springs up more or less, are suffered to have undisturbed possession, and the ground becomes completely seeded with them by another year. A little seasonable labour would prevent this evil. We observed a piece of ground which was kept clear of weeds last year, and another which was but imperfectly cleared of them; the consequence was, that the crop this season (field beet) which grew on the latter piece, was literally hid with a dense growth of weeds, while the other was comparatively free.

Canada thistles must in no instance whatever be allowed to ripen their seed.

Thistles, mullcins, burdocks, &c., in pasture and fence corners must be destroyed without fail.

Root crops, as ruta baga, and mangel wurtzel, are liable to be too much neglected after one or two hoeings; they should be kept all the season perfectly free from weeds, and the benefit they derive from this, and from stirring the earth around them, amply repays the expense of the labour.

With a little pains, it is as cheap to raise a good crop, as a crop of noxious weeds; and seed now selected should be therefore as perfectly freed from foul stuff as possible. If clean wheat is always sowed, we may expect on clean ground a clean crop; but land will become more and more infested with weeds so long as we sow the seeds with the grain.

Chess being almost universally the worst weed among wheat, no pains should be spared to separate it. It may be done by means of brine, first made strong, and then weakened till the wheat will just sink in it, when the chess, being lighter, floats, and is skimmed from the surface. A basket should be used, to let the brine run off the more freely. The wheat should then be spread on a barn floor, two or three inches thick, and about one fifteenth part of air slacked lime sifted over it and well stirred.—This assists the drying, and destroys the smut.

A good fanning mill will clear most of the chess from wheat by passing it through a few times.

No seed wheat should be considered clean, until by repeatedly spreading handfuls of it on a table, no chess can be found. There is not much of what is termed *very clean* seed that will endure this test.

Underdraining should be performed during the dry season, and those farmers who have wet spots of ground in cultivated fields should no longer delay this simple mode of rendering such land productive. Open drains should never be made but to carry off surface water. No drain for any other purpose should be much less than three feet deep, but an open one this depth must be nine feet wide to prevent the banks sliding, and this is an enormous waste of land. But a covered drain occupies no ground.—The expense of digging, from this cause is also much greater in case of open drains.

Covered drains may be filled with stone or brush. The stone may be laid so as to leave a small open channel at the bottom; or if they are quite small, and the quantity of water passing off not large, such channel is not necessary. Brush drains are filled by placing the branches of trees, freshly cut and with the leaves on, in a sloping direction in the ditch, the leaves upwards, and then covering them with earth. The spaces between the branches below allows the water to flow off. This method of filling is best in sandy ground where stones are scarce.

In cutting off underground channels of water, particularly those which ooze out of the surface of sloping ground, by means of covered drains, the mode of operation should be adapted to circumstances. The common error is to cut in at the wet spot; whereas, the proper place is a little *above*, before the current reaches the surface. The judgment and close examination alone can direct the proper course and situation for the drain in such cases.

Horses often suffer from slobbering during the latter part of the summer, especially when they feed in succulent pastures. The best remedy is drier food.

Fruit trees are frequently injured in collecting the fruit, by resting ladders against the branches, and thus bruising the bark.—Apricots, plums, and peaches, often suffer much in this way.—The remedy is to use self supporting ladders, constructed like a common ladder, with either one or two expanding legs of equal length, which serve to suppport it without any other prop.

Budding or inoculating should be performed while the stocks are growing most rapidly, or while the *cambium* or mucilaginous substance under the bark is in the greatest abundance. This cements the inserted buds and makes them adhere the better to the wood. Cherries and plums should be budded immediately, but peaches may be deferred three or four weeks later if necessary.—The general rule is, budding may be performed successfully at any time when the bark peels freely.

If the stocks are thrifty; if the bark is carefully cut and raised so as not to injure the cambium; if the buds are cut smoothly off the shoot so that they may be applied closely to the wood of the stock; if the bandages are bound so evenly that they may just maintain this close contact between the bud and stock; and if they are carefully removed as soon as they begin to indent the

growing stocks, there can be little doubt of success in budding.

"NOTHING IS BENEATH THE ATTENTION OF A GREAT MAN."

This short sentence is inscribed over the door of the small building in Holland, which was once the workshop of Peter the Great; and furnishes, more than volumes of common description and history could do, an insight into the character of the man who raised the Muscovites from the deepest barbarism to the rank of civilization, and laid the foundation of an empire, the extent of which, the world as yet seems little able to comprehend.

One of the most fatal errors to which men are subject is the disposition to treat small things with contemptuous indifference; forgetting that great things are but an aggregate of small ones, and that discoveries and events of the greatest importance to the world can be traced to things most insignificant in themselves. Nothing more truly marks an original mind and stamps its possessor as a truly great man, than the seizure of circumstances which would pass unnoticed by the great multitude, and by subjecting them to the powerful analysis of his reasoning powers, deducing inferences of the greatest practical results.

The power of the loadstone to attract iron, has been known from time immemorial; accident discovered the fact that a magnitized needle would indicate the north, but for a long time this truth was productive of no results. In the hands of Flavia Gioja of Amalfi it produced the mariner's compass, an instrument which has changed the whole course of commerce, and opened America and Australia to the rest of the world. To mention only one of the things that the use of the compass in maratime discovery, has led to—it has given the potatoe to Europe, and thus trebled the means of subsistence as well as doubled the population.

A German peasant carved letters on the back of the beech tree, and with them stamped characters on paper for the amusement of his children. Nothing more was thought of them; but from them Faust conceived and executed movable type; and printing, an art that perhaps has exercised a greater influence on the destiny of mankind than any other, thus had a beginning.

Some children, playing with the glasses of a Dutch spectacle maker, accidentally placed two so that the steeple of a church appeared much nearer, and turned bottom upwards. From this small beginning was produced the telescope; an instrument which more than any other, has enlarged the boundaries of the universe, and given to man more exalted ideas of that Being who spake all these worlds into existence.

But perhaps the example of Newton, more than any other, conclusively proves that there is in the whole circle of nature, nothing trifling to a truly great mind. Thousands had seen apples fall from the trees to the earth; yet no one had ever asked the question whether the cause that caused the apple to fall to the earth extended to the moon;—yet this question and its solution was the key that has unlocked the mechanism of the universe, and given to man powers and ideas, which could otherwise never have existed.

The great truth these examples inculcate is this—that there is nothing trifling in nature, nothing that is not worthy of attention and reflection, nothing that does not form part of the great chain of cause and effect, and consequently capable of leading to the most valuable and interesting events. There is a feeling abroad, that it forms no part of the business of the tiller of the soil to think. This is not true, and the position should be exploded at once. It is scarcely possible for a man to be more favourably situated for an observation of nature than the farmer. His business is with the soil he treads upon, with its various constituents and their ever varying proportions—with the green earth and its covering of grapes and plants, its trees and its flowers—while over-head is stretched the broad o'er-arching sky, inviting him to useful reflection, and urging him to "look through nature, up to "nature's God."

ANALYSIS OF TOP AND SUB-SOILS IN NORFOLK, ON WHICH, IN THE YEAR 1841, MORE THAN ELEVEN QUARTERS OF WHEAT PER ACRE WAS PRODUCED.

By Mr. Holmes, *Professor of Chemistry at the Agricultural Training School at Haddesdon, Herts.*

TOP SOIL. 100 grains.

Salts, &c., soluble in water at 60° Fah.

Free carbonic acid	0·058
Holding in substitution { Oxide of iron	0·008
Holding in substitution { Carbonate of lime	0·131
Sulphate of lime	0·005
Muriate and carbonate of ammonia	0·197
Chloride of sodium	0·125
Silicate of potassa	0·2
Carbonate and muriate of potass	0·42
Phosphoric acid and magnesia, of each a trace.	

Substances not soluble in water at 60° Fah.

Carbonate and oxide of iron	5·7
Carbonate of lime	2·012
Alumina	29 86
Silex	51·364
Sulphate of lime	3·461
Carbonate of magnesia	1·876
Sulpho napthate of ammonia	0·402
Vegetable and animal matter	2·56
Carbonate of potass	0·038
Phosphate of lime	1·43
Loss	0·15
	100·009

SUBSOIL, 100 grains.

Carbonate of lime	2·85
Carbonate of magnesia	0·265
Sulphate of lime	0·215
Carbonate and oxide of iron	3·721
Carbonate of potass	1·115
Silex	66·95
Alumina	17·7
Carbonate and muriate of ammonia	0 31
Phosphate of lime	0 35
Vegetable and animal matter	5·56
Muriate of soda, a trace.	
Loss	0·964
	100 000

[The scientific farmer will remark, in the composition of this soil, no peculiar substance likely, by its presence, to account for the very large produce of wheat. That it is a soil whose earthy and saline constituents are combined together in very excellent proportions, is evident; but then there are a great many soils, dispersed throughout our island, whose constituents are mixed together in equally fertile proportions, yet soils which never yielded half eleven quarters of wheat per acre. This soil has probably been clayed or marled, and it contains, the farmer will notice, a very fair proportion of the salts of ammonia and of phosphate of lime, with a notable proportion of organic matters, both in the surface and in the subsoils. It would be well to learn the rotation of crops under which this field had been cultivated for the last few years, and the dressings of earthy and organic manures which it has received.—Ed. M.L.E.]

SHEEP HUSBANDRY.

Extract of a letter from a subscriber in Maryland to the Editor of the *Genesee Farmer*:—

"While I have my pen in hand, it may not be amiss to give you a brief account of the very handsome profits which I have realized from a small flock of sheep during

the past year. When I came into possession of my farm a short time since, I found on it twenty ewes of a very indifferent breed, and of that breed not the best in age, size, or in any other respect. They were fed during the last winter on corn fodder, with the addition of turnips for a few days about the time of yeaning. After this, (the early part of March,) they received no food except what they could find for themselves in the fields. These sheep, thus treated, yielded an interest during the following summer, of 87 per cent. on the sum for which they could have been readily purchased the preceding fall, as follows:—

20 Ewes at $5	$100 00
22 Lambs at $3	66 00
50lbs. of wool at 42cts . .	21 00
	$87 00

It is maintained by some writers in Agricultural papers that the manure of this animal is a full equivalent for all the food which it consumes; but supposing this to be an exaggerated estimate, and that the manure of this number of sheep during a year would be less in value than their food by $50, still there is a nett interest of 37 per cent.

Is it not suprising, and much to our discredit too, that when such are the profits of sheep husbandry, we should import such large quantities of wool? and also that persons should leave their pleasant homes in the Northern and Middle States, for the wilderness of the "West?"

THE APPLE ORCHARD.

For the family, apples may be made to contribute alike to health, to pleasure, and to economy, and greatly to diminish the consumption of more costly food. As desert fruits, they are surpassed but by few in durability; while in the culinary department, they afford a grateful repast, baked, boiled, roasted or fried, and, to borrow terms from the Cook's book, may be served up, with rice, flour, &c., in black cap, charlottee, cheese-cakes, compotes, dumplings, fritters, festoons, floating islands, fool, flaze, glazed in jelly, marmalade, pancakes, pies, puddings, preserves, poupeton, soufflet, in water, and a la Turque. In all these forms, we believe the apple is perfectly guileless; and in most of them may be indulged in by the robust and the delicate, and by the rich and poor.

In the economy of the farm, apples are no less serviceable.—Every kind of farm stock feeds and fattens upon them. They serve as a substitute for corn in the piggery, for oats in the horse stable, and for slop in the cow-stall. They were evidently destined for the comfort of man; and because they are capable of being converted to a bad use, shall we for this reason reject the many benefits they are calculated to afford us? Because bread-corn is convertable into alcohol, is it less worthy of our care and culture as an article of food? Those alone who abuse the gift of Providence, are obnoxious to public morals.

Our orchard, although a young one, is of great value to us. The early droppings of fruit were gathered by our pigs, and they contribute much to fit them for the fattening pen; and subsequently by boiling them with small potatoes, for fattening hogs, they have enabled us to save a good proportion of our soft corn, which in ordinary years has not sufficed for finishing our pork, say 40 or 50 bushels, to deal out to our stores boats. Our orchard has enabled us to dispose of some fifty barrels of choice winter fruit, and to manufacture nearly as many barrels of cider, and it is now, in the form of apple *pomace* adding greatly to the products of our dairy. On the first of December, we began to feed the pomace to seven milch cows, and have continued to feed them with a common wheel-barrow full per diem, and the effect has been to increase the quantity of milk nearly fifty per cent. The pomace has not undergone but slight if any fermentation.

The great indifference to orchards, we have no doubt, arises from an ignorance of the many advantages which they are capable of affording to the farm, and the bad quality of which is generally cultivated. The nutritive properties of the apple depend upon the quantity of saccharine matter they contain, or the specific gravity of their juice; and the difference in flavor, and in their cooking properties, are not sufficiently regarded, and not generally known. We have probably the finest varieties of this fruit of any country in the world, which come to maturity in succession, so as to afford a supply for the family the whole year; and yet probably not one family in a thousand enjoy them; or know of the existence of the better half.—*Cultivator.*

THE BLACKBIRD.

The following very curious piece of natural history has been sent us from Kirkpatrick-Juxta, by a most respectable correspondent, whom we know well, and who vouches for the particulars as facts which have come under his own observation:—We had the pleasure last night of seeing a blackbird, in the house of Mr. Robert Hunter, carpenter, Kirkpatrick-Juxta village, which of itself is a natural curiosity, and affords perhaps the most notable example of mildness of disposition and sociability of manners ever heard of in the history of birds. It was brought from a nest in a neighbouring wood last summer, in company with three others of the same family, all of which soon died, leaving our heroine alone to brook the solitary confinement of the cage. The little captive, however, gave no indication of possessing any of those musical qualifications for which it had been imprisoned, and it was finally resolved to set it at liberty. The cage-door was thrown open to afford her an opportunity of escape; but this did not seem at all congenial to her feelings, for, although she would occasionally mix among the feathered choristers of Craigieland woods, yet she seemed to prefer the society of her owner and family to that of her own species. During the whole winter she might be seen hopping about the house and picking up the crumbs with the greatest composure; and she latterly became so fond of her master as to follow him regularly to the workshop, where she strutted about in the most majestic manner, displaying the most threatening gestures when any stranger offered to interfere, taking care always to return to the house at night, where, after the usual familiarities, she retired to her cage to rest. One night in spring she was missing, but on the following day her ladyship appeared in the family circle as usual, and no more absented herself from the usual roosting-place, nor was she ever seen in company with a mate. After this she preferred sitting during the night upon the top of the cage, and about six weeks ago began to roost on the top of the cupboard, or dresser, as it is sometimes styled, where she commenced to build.—She wrought most assidnously, carrying sand and plaster, and then lined it with straw and any pieces of old cloth she could find about the house, and would sometimes be engaged amongst the children endeavouring to tear with her bill such pieces as she found on the floor. On the very day on which she completed her nest, which occupied her a fortnight, she laid the first egg, producing one each day for the four succeeding days. During the time of hatching, which continued for eighteen days, she became exceedingly fierce and irritable, wheeling round and putting herself on the defensive at the approach of any one but her owner, whom alone she considered entitled to any privileges. As soon as they were hatched, however, she assumed her usual humble and peaceful habits, her only anxiety being to procure food for the little ones.—Every morning at four o'clock she jumps into her owner's bed, dinning him with loud and incessant screams till he is obliged to rise and accompany his importunate protegé to the garden, where he digs up a few worms, which she greedily picks up and carries to her young. It is now a week since they were produced; and when we saw them last night they were doing well, the careful mother sitting with great composure on the edge of the nest, which position she holds during the night, seemingly afraid of injuring her little brood.—3rd June, 1845. —*Dumfries Herald.*

STUMP MACHINE.

To witness the operations of a Stump Machine, we visited the Beaumont Farm on Thursday, the 14th inst. To this part of the country this apparatus is quite novel,

and a great number of gentlemen, embracing all the *elite* of By-Town, were present, as were also the District Council of the Dalhousie District in a body, with H. Pinkey, Esq., at their head. There are four different modes of using this Machine, and the first we will here briefly describe.

A strong oaken beam is attached by a chain to a stump, not by the middle of the beam, but so as to act as a powerful horizontal lever, having a larger and smaller wheel at each end, and a pair of horses to work it. To this lever, and on both sides of the fulcrum, are fixed iron rings, to which chains are hooked. These chains at a short distance from the stump unite in one line of hooked rods, nine feet long each, which extend, and are fastened to the top of a pair of shears twenty-two feet high, set up perpendicularly over the stump to be operated upon. From the top of the shears a chain and hook reaches to one of the stump's roots. All being now ready, the horses are put in motion, and one of the branch chains attached to the horizontal lever is tightened while the other is slackened. The horses having made half the circumference of a circle round the fulcrum stump the slackened chain is shortened, and the horses being turned in the opposite direction the chain which was before slackened is now tightened and the opposite one slackened, and this process is followed until the stump is extracted. The Machine is simple, but powerful, and can be understood at a glance. It will be in operation during the summer at Beaumont, four miles from the town, on a plain on the bank of the Ottawa. Six men and two yoke of oxen, at a cost of £2, can clear one acre of the worst land in a day with it. There are three other modes than the one above described for using it, viz.:—by a smaller pair of shears, or with none at all, or with the fulcrum; all of which are extremely simple. Mr. Barreille has been at some pains to introduce it in the country, having went into the State of Vermont to procure a pattern and to bring two men with him from Vermont to work it, and to instruct farmers here who may be desirous of availing themselves of such an apparatus on their farms. Such an example is well worthy of commendation; and we trust the Municipal Council or the Dalhousie Agricultural Society will mark their sense of his enterprise by awarding a premium to Mr. Barreille for it. Mr. Barreille, though long known as a very popular merchant amongst us, is himself a practical farmer, having been brought up in his youth a farmer, and is enthusiastically attached to Agricultural pursuits: we note this the more particularly as he is a Canadian gentleman of a class to whom Agricultural pursuits are very erroneously ascribed as distasteful.—*Bytown Packet.*

Save your own Seeds.—Farmers are neglectful in this respect, and rely too much on the seed box of the merchant, or a supply from the seed store, when they might in most cases produce all they require at home. Begin with the earliest that ripen, and save those of good quality of all the kinds you generally need. It takes but little time and amounts to a handsome sum in saving expense. The different varieties of turnip ripen their seed early, and the seed should be saved soon. If you have more than you need, distribute your ruta baga among your neighbours; it may confer a great benefit on them, for there are some that would plant that will not be at the trouble to procure seed, and he who has raised roots once, will generally do so again.

Impure Air.—"Various as are the circumstances which lead to indigestion, the respiration of an impure air is one of the most fertile of the whole. It is scarcely possible to find, in warehouses, manufactories, and such like places, a workman or clerk free from dyspepsia, or from one or other of its symptomatic maladies. Emetics, purgatives, and tonics, furnish them with only palliative assistance—to cure them you must order a change of air, and you will seldom find your hopes frustrated. The reputation of 'country quack-Doctors,' 'water-Doctors,' 'sea-side-Doctors,' and 'bathing-place Doctors,' mainly rests on the salubrity of the places they live in, and the systematic out-door exercises to which they subject their patients. The exercise is only a part of the grand scheme of treatment, the chief object being to give the invalid as great an amount as possible of fresh air, for which purpose he is ordered to walk in the surrounding country. This recreation of all others that are continuous, brings the greatest amount of muscles into play, and increases, to the greatest amount consistent with safety, the necessity for respiration and for the rapid oxygenation of the blood. In a corresponding degree is the exercise, under the favourable circumstances, natural, depurative, and beneficial. Men who live for the best part of the year in London, breathing a smoky, impure atmosphere, eating rich food, drinking largely of wine, and having little bodily occupation, reasonably enough find themselves at last plethoric, dyspeptic or gouty. Such men, after having tried blue pills and black draughts quinine, columba, and soda water, without any satisfactory relief of the liver complaints, dyspepsia, gout or gravel, eventually betake themselves to the country, and consult some 'eminent man.'"—*Medical Times.*

Good Influence of Birds.—Birds that come around our houses, should be protected. Their influence is good on us and our children. Their hymns go up when we are silent: they never forget the song of praise and thanksgiving. It is well for us to listen to them, and be humanized by the kindly lessons they teach us. Let us not grudge them the little they take from us, but spare them for the sake of those we love best. The child who has watched for the coming of the birds, and has heard the notes of the robin near his chamber window, will feel their influence in after life, as a holy remembered thing. No tone of music shall ever fall on his ear like that thrilling song in the dim twilight of early morning. It may strike on his memory when he will need it most, and the scenes and innocence of childhood will come to him again to bear him up. Encourage this love for these things of nature, ye who would bring up your children in purity and peace. No after-teachings can give such holy feeling, and the impressions they make shall never be forgotten.—*Genesee Farmer.*

Effects of Drinking Cold Water.—Dimness of sight, syncope, spasms of the chest and stomach, staggering, imperceptible pulse, and laborious respiration. Sudden death, says Thompson, has often been observed to be produced by drinking large draughts of cold water. Indeed, this effect of cold upon those who have suffered much previous heat, thirst, and fatigue, has long been known.—Quintus Curtius, in particular, gives a very interesting account of the fatal effects which the army of Alexander the Great experienced on reaching the banks of the river Oxus, after a fatiguing march through the sterile and burning sands of the desert. Those who indulged in drinking freely of the stream died immediately; and Alexander, the historian remarks, lost more men by this means than ever he lost in battle. Numerous well-authenticated instances of sudden death from the same cause are to be found in the records of medicine.—*Medical Times.*

Experiment by Mr. Morton and Dr. Lyon Playfair.

(1.) Five sheep were fed in the open air, between the 18th of Nov., 1842, and the 9th of March, 1843, consuming 75½ gallons of Oats and 1,912 lbs. of Swedish Turnips, putting up in the time 23 lbs. of meat.

(2.) Five sheep were housed and fed in the dark, for the same period, consuming 75½ gallons of Oats, and 886 lbs. of Swedish Turnip, putting up in the time 25¾ lbs of meat.

The balance was accordingly in favour of house-feeding: 2¾ lbs. of meat being gained, 1,026 lbs. of food saved, and the whole manure reserved.

Improved method of making Bricks.—N. J. Wyeth, Cambridge, Massachusetts.—The object of this composition is, to produce bricks which will admit of driving nails into them, to avoid the necessity of introducing in walls what are known amongst mechanics as "wooden bricks." This composition consists of clay, mixed with either sawdust, charcoal, peat, or tan-bark, after it has

been used by the tanner. The proportions may be varied, but the patentee recommends three parts of clay to five parts of either of the combustibles above mentioned.—*Claim:*—"I do not claim mixing combustible materials with clay for making bricks, but I claim mixing them in such proportions as will produce bricks possessing the above named properties."

French Agriculture.—The *Presse* publishes some extracts from a work presented to the Agricultural Congress now sitting at the Palace of the Luxembourgh, by the author, M. Catineau Laroche, and entitled, "France and England compared with respect to Agricultural, Manufacturing, and Commercial Industry, and the consequences to be deduced from this comparison." It appears from this work that England, in comparison with the extent of its surface, possesses four times more cattle than France. And as it is not possible to pursue a judicious system of agriculture without manure, and as the feeding of cattle is the most productive of supplying manure, it follows that before France can compete with England in agricultural wealth, she must increase her stock of cattle, but in order to do so she must increase her pasture lands or meadows. "France," says M. Laroche, "possesses but 4,200,000 hectares of natural meadows, or only 1-16th of her cultivated soil. From this calculation it may be easily comprehended how insufficient is her supply of green food, and that it becomes absolutely necessary that she should substitute another to the triennial system at present in use." M. Laroche concludes by stating that "if the alternate system of cultivation pursued in England was introduced into France, the produce of corn would be doubled within twenty years. Fifty-five years since the produce of Great Britain was estimated by Arthur Young at three millards. At present it is estimated at 5 millards 725 millions."

Wages of Agricultural Labourers in France.—The wages of labourers seem to be lower in France, even in proportion to the low price of provisions, than in England. The general council of the different departments fix tariffs for regulating the price at which different services shall be convertible into money. By these the prices of a day's work of a labouring man rated generally at 10d, never higher than 12½d., and sometimes as low as 7½d.; that of a horse or mule from 10d. to 12½d.; and the hire of a two-wheeled cart from 10d. to 15d. These low rates of payment render the waste of labour of men and horses, so much reproached by the Scotch to their neighbours, less astonishing in France than in England, where it is sometimes carried to a greater extent. In ploughing a man usually works three horses in Normandy, and only two men accompany the largest merchant waggons, one driving and the other sometimes asleep in front, or in the hammock below. Frequently, however, one sees strong men employed at such work as a woman, or even a child might quite as well perform; such as weeding corn with the wooden pincers used for that purpose, or herding a few geese or sheep at the road side.—*Journal of Agriculture.*

Railway Express Trains.—Returns have been made by various railway companies of the speed and weight of their express trains. The following result is taken from an average of six days selected by the companies themselves:—The Brighton averages 30 tons, performs 50 miles in 1 hour and 27 minutes, or about 34 miles per hour including stoppages, or 37 miles excluding them; the Northern and Eastern, with 27 tons for 32½ miles, averages 45 miles per hour without stoppages; the South Western, with less than 33 tons, performs 78 miles with one stoppage in 1 hour and 57 minutes, or about 40 miles per hour, or 41½ miles per hour excluding stoppages; the Birmingham, with 27¼ tons, performs 112½ miles with three stoppages in 2 hours and 55 minutes, being 38 miles per hour, or 40 miles per hour excluding stoppages; the South Eastern down train, with 35 tons, performs 67 miles including four stoppages in 2 hours and 28 minutes, or 28 miles per hour excluding stoppages; up train, not so fast, with 43 tons, at 24 miles per hour; the Great Western average trains, of not less than 76 tons, performs 194 miles with five stoppages in 4½ hours, or 42 miles per hour including stoppages, or 47 miles per hour excluding stoppages; and the train of the 4th of June kept the same time with 94 tons. If we deduct for shaking speed, &c., besides deducting the stoppages, it gives to the South Western and Birmingham 43 miles per hour rate of speed, and to the Great Western 50 miles per hour speed with 76 tons, at a less cost for locomotion.

The Passion Flower.—This flower, *Passiflora cærulea*, a native of Brazils, was introduced into England in 1699, and was called *Flos Passionis*, till altered by Linnæus. Its name was derived from the fancied resemblance of the different parts of the flower and plant to the instruments of Christ's suffering. The five stamens were compared to his five wounds; the three styles to the nails by which he was fixed to the cross; the column which elevates the germen, to the cross itself; the rays of the nectary to the crown of thorns; and the petals to the ten apostles, Judas and Peter being rejected.

Violets.—By attending to the following simple directions a bunch of violets may be had daily from November to March. About the middle of May, prepare a piece of ground by digging into it a quantity of leaf-mould; plant this with strong runners one foot apart each way; water in dry weather, and keep them clear of weeds throughout the summer; in October take them up with balls, pot them, and place them near a glass in a cold frame; the pots should be plunged in coal ashes or old tan; they will soon begin to bloom, and continue blooming through the winter; in severe weather they may be removed to the drawing-room, &c. To meet a great demand, a few pots of the Russian may occasionally be placed in a stove, but neither the Neapolitan nor double purple like stove-heat.

Novel Invention in the mode of communicating Motion to Clocks.—The public may ere long expect to experience an immense saving in furnishing themselves with that indispenable necessary—a clock—and one, too, of a superior description. For the ingenious discovery they will be indebted to Mr. Andrew Symington, watchmaker, Kettle, and to Mr. A. Temple, gardener, to O. Tyndal Bruce, Esq., Falkland. The simplicity of the principle is truly wonderful, the machinery required being nothing more than the crown wheel, and the propelling power applied to the axle of the wheel keeps the pendulum in motion, with the most perfect exactness; it requires no winding up. A model has been constructed, and the experiments have proved completely successful. It is at present going in an apartment of Falkland House, and Mr. Bruce, who generously patronised the invention, has expressed himself as to its merits in terms highly gratifying to the inventors.—*Fife Herald.*

Curious Fact.—It is singular that, among the thirty-five soverigns who have sat on the English throne since William the Norman, though each of the eleven months has witnessed the accession of one or other of them, not one has mounted the throne in the month of May. In the month of January four have come to the throne, Edward III., Edward VI., Charles II., and George IV.; in February two, James II., and William III.; in March five, Henry V., Edward IV., James I., Charles I., and Queen Anne; in April three, John, Edward V., and Henry VIII.; in June five, Richard II., Richard III., George II., William IV., and Queen Victoria; in July three, Richard I., Edward II., and Queen Mary; in August four, Henry I., Henry VI., Henry VII., and George I.; in September two, William Rufus and Henry IV.; in October four, William the Norman, Henry II., Henry III., and George III.: in November two, Edward I., and Elizabeth; and in December one, Stephen.

British Association at Cambridge.—Dr. Lankaster read a paper of Bonom's "on drawings of gigantic birds on a tomb at Memphis." It stated that in the gallery of organic remains in the British Museum are two large slabs of the red sandstone formation, on which are impressed the footsteps or tracts of birds of various sizes, apparently of the stork species. The geological specimens were obtained through the agency of Dr. Mantill, from Dr. Doane,

of Massachusetts, by whom they were discovered in a quarry near Turner's Falls. There has been also discovered by Capt. Flinders, on the south coast of New Holland, some very large nests, measuring 26 feet in circumference and 32 inches in height, resembling in dimensions some that were described by Capt. Cook, as seen by him on the north-east coast of the same island. It would appear, by some communications made to the editor of the *Athenæum*, that Professor Hitchcock, of Massachusetts, had suggested that the colossal nest belonged to the moa, or gigantic bird of New Zealand, of which several species have been determined by Professor Owen from bones sent to him from New Zealand where the race is now extinct, but possibly at the present time inhabiting the warmer climates of New Holland, in which place Capt. Cook discovered those large nests. Between the year 1821 and 1823, Mr. James Barton discovered, on the west coast on the Egyptian side of the Red Sea, opposite the peninsula of Mount Sinai, three colossal nests, within the space of a mile, which he judged to be about 15 feet in height, in one of which was found the thorax of a man, and a silver watch of Geo. Prior; and in another some pieces of woollen cloth and an old shoe: what genus or species, Mr. Burton could not determine from the accounts of the Arabs, but presumed that they had been occupied by large birds of the stork kind. The gigantic stork was the inhabitant of the Delta, and was occasionally entrapped by the inhabitants or peasantry, and brought with the wild animals, as a curiosity, to the great landholders or farmers, of the products of the Nile. Whether the Egyptian birds bear any analogy to those recorded in the pages of the Great Stone Book of Nature (the new red sandstone formation), or whether those described by Professor Owen, he was not qualified to say, nor was it the intention of that paper to discuss, but rather to bring together the facts, and associate them.

ELECTRO-AGRICULTURE.

TO THE EDITOR OF THE WIGTOWNSHIRE FREE PRESS.

Sir,—The arrangement for magneto-electric culture, to which you have already referred as in progress at Broadstone, on the principles of Dr. Forster, of Findrassie-house, will determine the full value of that mode of arrangement. The oblong square, outlined by the wires, forms the central portion of a plot of mummy wheat. It will be thus seen whether the influence extends beyond these wires, and how far, or if it be limited to the portion thus insulated; and this plot may also be compared with the adjoining one.

I have made arrangements of another description in a distinct part of Broadstone, by surrounding a plot of mummy wheat with wires, their termini being connected with the poles of a Voltaic battery composed of concentric cylinders of zinc and copper, kept in action by water, the loss by evaporation being supplied. This will maintain a continuous and uniform electric action for an indefinite period. I have also stretched across the oblong square an iron wire reposing in the magnetic meridian—*nous verrons*. I find that some of my mummy wheat has already tillered into nine and ten stems. I am, &c.,

Stranraer, May 12, 1845. J. Murray.

TO THE EDITOR OF THE REPORTER AND CHRONICLE.

Sir,—In last week's *Reporter* I observe an article respecting the power of electricity in assisting vegetation. It appears startling and new, but brings to my mind a circumstance which happened more than 60 years since, when I was a boy. If the following facts will tend to corroborate those contained in the article related to, you may give them insertion. The year 1782 was a very bad year—worse than could be remembered by any one living; 1783 was but very little better; but 1784 was one of the most abundant years ever remembered by the oldest man then living. During the whole of that summer the thunder was most dreadful, beginning every night about ten o'clock, and continuing until morning. The thunder was not accompanied with rain, which fell in the day-time. The fruit-trees bore well, and the fruit was very fine—much finer than I have seen since. As far as I know, the before-mentioned thunder was most heard in Aberdeenshire, more than further north or south. I cannot make any comments on the above truths, but hope they may give some light upon so very important a subject.—I am, Sir, yours respectfully,

William Frost

Derby, May 12, 1845.

A delicate dish.—It is said that Mr. Cushing, on being asked to dine with Mandarin Lin, discovered on the table something of which he ate exorbitantly, thinking it to be duck. Not speaking Chinese, and wishing to know what it was, he pointed to it after he had finished, saying to his host interrogatively, "Quack, quack, quack?" The mandarin, with equal brevity, replied with a shake of the head, "Bow, wow, wow!" Mr. Cushing's feelings can be imagined.

Up to the 29th of May last the total money subscribed and authorised to be raised in Great Britain and Ireland for railway and other schemes was £100,331,000; viz., in England £79,621,000, Scotland £9,858,000, and Ireland £11,350,000.

A few days ago a farmer, in the neighbourhood of Chesterfield, got up in his sleep, saddled his pony, drove his cows home, and was about to milk them, when he was awoke by his boy.

In Great Britain and Ireland, there are, according to Parliamentary returns, 2,250,000 horses, worth about £67,000,000; about 15,000,000 of black cattle, worth about £215,000,000; 50,000,000 of sheep, worth about £67,000,000; and 18,000,000 of pigs, worth about £18,270,000.

Rara avis.—Mr. Lamb, gardener to W. M. Alexander, Esq., of Southbar, has three young black-birds in his possession, reared in the same nest, two of which are quite black, and the other as white as a swan, not a foul feather being on the body.

PERFECTION IN FARMING.

If in farming my friends you would hope to succeed,
From love of old customs let your mind first be freed;
To these excellent maxims fail not to attend,
For they contain all the pith the skill'd ever penn'd.
First, then, *drain* well your land or your land will drain you,
Than this depend on it there's no maxims more true;
If from each acre of land you'd reap a large rick,
"*Muck's* the mother of money," so lay it on *thick;*
Each *weed* is a thief and should be banished the land,
Extirpate the whole breed then by hoe or by hand;
As each root doth bore downwards in search of its food,
Subsoiling you'll find will effect a great good;
Attend then my friends to the maxims I've written,
And soon you will find that perfection you've hit on. R.

—*Chat Moss, near Manchester, 22nd June*, 1845.

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WILLIAM EVANS, EDITOR AND PROPRIETOR