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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2. MONTREAL, NOVEMBER, 1843. NO. 11.

There are several excellent English Agricultural books and periodicals at the rooms of the Lower Canada Agricultural Society, in Montreal, from which selections might be made, translated into the French language, and circulated throughout the country, and to the local schools, with great advantage, we conceive, to the cause of Agricultural improvement. There are also many excellent French works. Of course, these selections should be made carefully, and with practical experience of the subject, as there are few foreign works on Agriculture from which selections can be made, without considerable modifications and explanations, to suit our different climate and circumstances. To copy any of these works, literally, however excellent instructions they contain, would be likely to lead our farmers into error, in many cases, and act as a discouragement to improvement, instead of encouragement. Doubtless, there is only one method of ploughing well, but the same form of ridges that would answer well in another country, would not be suitable here. There is only one mode of draining well, but the modes practiced in the temperate climates of Europe cannot be generally adopted here, without considerable modification, particularly as regards the depth of drains, and the careful construction of those that are covered. Sowing, planting, and harrowing may be done here as in England, so far as the mode of executing the work is concerned; but we cannot sow grain in drills without having our soil sufficiently pulverized by repeated ploughings. The mode of harvesting grain crops might be the same here as in England, where the crops are clean and free from much grass and weeds; but where this is not the case, the Canadian mode of allowing the crop to remain a few days in the swarth, after cutting, before it is bound up, is the best, in ordinary seasons, as it allows the grass and weeds to wither and dry, and the grain will keep better, subsequently, when housed. In other countries, they stack most of the grain; and even, if there does happen to be any grass or weeds in the crop, which is seldom the case, the ends of the sheaf being exposed to the air, it is not likely to produce injury to the grain, as it would when put up in large quantities in a barn. The saving of hay must be conducted differently here from what it is in the old countries. It does not require so much exposure, or anything like the same time in curing. The management of cattle and sheep must also be different, and the food raised for their keep and fattening —turnips being the grand crop made use of for fattening in the British Isles. Here, we never can cultivate them advantageously to the same extent for that purpose, from the excessive rigour of our winter. There are many other circumstances which we might ennumerate, that require to be perfectly understood, in order to make selections from foreign works, that shall be instructive and useful to Canadian farmers.

It appears, however, to be contrary to the object for which a library is collected, if all the information contained in this library is to remain unknown in the Society's rooms, except to the few persons who visit these rooms, and

we can safely state, that the library, even now, contains the *very best* Agricultural publications that are in print in both languages. "Book Farming" may be ridiculed, we are convinced, nevertheless, that it has been the chief means of promoting Agricultural improvement, and if we required any proof of this, we can point out the backward and unprofitable state of Agriculture amongst those who never read an Agricultural book or periodical. Every ignorant man knows no more of the art of Agriculture than what he sees practiced before him. What is "Book Farming" but the most perfect and successful practice recorded in print, for the instruction of those who have not an opportunity of seeing this practice? The Lower Canada Agricultural Society, with sufficient means, and judicious employment of those means, may produce a most important change, for the better, in the condition of the people of Canada. A commencement has been made, auspiciously, and if it does not advance successfully, it must be owing to the want of the necessary support, and indifference to the interests of Agricultural improvement tn Canada.

We copy the following from Thaer's Agriculture, and every intelligent farmer will perceive how practically correct are Mr. Thaer's ideas:—

There is not a single vegetable substance, even down to the stubble which most crops leave behind them, which does not restore some portion of mould or manure to the soil. The longer that stubble is, the greater effect does it produce; therefore where a similar quantity of manure is bestowed on the land, the soil becomes less exhausted in those districts where it is customary to have the stubble long when the crop is reaped. It is necessary, however, that this stubble should be buried without loss of time, as it appears that it only becomes decomposed when buried in the soil, but that when exposed to the air it dries up and turns to powder. In general the stubble of plants which possess long thick roots and stems deposits a larger portion of vegetable matter in the soil than the stubble of corn-fields; but that which is productive of the most beneficial effects when buried with roots and stems in the stubble of vegetables which have not borne their seeds, or become dry, and strawy, and which contains a considerable quantity of mucilaginous particles. Hence arise those ameliorating effects attributed to vetches and clover cut while green; these plants shed a portion of their leaves and stems on the soil, and thus enrich it before they are gathered, and generally put forth fresh leaves and shoots previously to bring ploughed into the soil. Nothing tends to improve land more than the turf or accumulation of herbage which is successively formed during a number of years. The thick tissue of the plants and their clusters of roots, the animal matter of the dead worms and insects, the excrements of cattle which have been pastured—these all combine to render the soil particularly fertile and capable of yielding several successive crops without the addition of fresh manure. It is quite an erroneous supposition to attribute this amendment solely to rest, since rest alone could only have been productive of a negative good. The better the condition of the soil when laid down to grass the more herbage will it be able to produce, and the more will it profit by the term of repose allowed to it; not only an account of its inactivity, but because its productive powers are much greater. The erroneous opinions which are in general entertained with regard to the effect produced on land by repose, have perhaps given rise to the prejudice in favour of, and in some degree contributed to the maintenance of the custom of only laying down these portions of land to grass which are completely exhausted, in the hope that by so doing they might be restored to their pristine fertility and activity. And it cannot be denied that repose does produce this effect, because no soil is ever so thoroughly impoverished as to be incapableof putting forth some fresh shoots and sprouts of herbage; but the improvement which results is much more backward, and its effect much weaker, than if the land had been in better condition when abandoned to Nature. The more fertile a soil is when laid down to grass, the more leaves and roots and patches of herbage does it put forth, the more worms and insects are engendered, the greater number of cattle are pastured on it, and, consequently, the greater quantity of excrements voided upon it; thus therefore, the more it abonnds in nutritive juices when first laid to grass, in the greater degree will it be benefited by the period of repose.

We bestow a more active and abundant vegetable amendment on a soil when we sow it with plants best adapted to its nature, which will furnish and attain the highest state of development; and then when they have begun to flower, either bury them by the action of the plough, or have then eaten off the ground or trodden in by cattle. This practice is of great antiquity; it was held in high estimation by the Romans, and exists at the present day in Italy. There it is said that the amelioration produced by a crop, which has been buried while green, is the very best that can be bestowed on a soil, and is capable of bestowing

upon it the utmost degree of fertility of which it is susceptible; indeed they even prefer it where there is a sufficiency of animal manure"

The foregoing article is well worthy the attention of the Canadian farmers, as it has reference to one of the greatest defects in our system of husbandry—that is—allowing our exhausted lands to repose in that state, to recover their powers of production, instead of laying them down in good heart, and with clover and grass-seeds. Thaer's observations are perfectly just, and describe exactly the general practice here that requires so much to be changed to a better system. The white lupine is the plant that is usually sown in Italy, for the purpose of being ploughed into the soil in a green state. They sow it immediately after the crop is reaped, and plough in before the winter. We do not know if the same plant could be introduced here in the same way, but when our crops would be early cut, perhaps a green crop of some sort might be had sown after a grain crop, to be ploughed in in November. But even on the lands left waste here during the summer, they might be sown, after the spring work was finished, with some sort of plant—say buck-wheat—to be ploughed in in the fall. These are ameliorations that are in our power, and if we neglect to adopt them, we do not do our duty to promote our own interest. There are many plans of amelioration in our power if we only adopt them, by which the annual production of Agriculture might be vastly augmented, and improved every way. We would not recommend any plans of improvement that were difficult to adopt, or that we were not perfectly convinced of their utility.

In consequence of having much matter remaining in type for some time, we are obliged to leave out several communications and lists of premiums which we intended to appear in this number. We shall be most happy to insert Reports of Agricultural Societies, if sent to us in time; but as this Journal is only published monthly, it is not of much interest to publish premium awards a month or more after they have appeared in all the public papers.

The following statistics of a Section of the County of Nottingham will give some idea of English farming, or rather the results obtained from it, and is well calculated to encourage us to adopt a perfect system of husbandry. The annual produce obtained from about 173,000 acres of land, in tillage, meadow and pasture, cannot amount to less than about £1,300,000, or over, being more than seven pounds ten shillings, sterling, per acre, and the capital employed being between five and six pounds the acre. This produce will, no doubt, be ample to meet all demands, for rent, taxes, and labour; although the cost of the latter is not given, but we should not imagine it would amount to over two pounds per acre, at the most. Extra manure for the tillage land may, perhaps, amount to one pound per acre more for the whole of the land. Adding to this the interest of capital, it would not amount to more than half the value of the annual produce, leaving the other half for rent, taxes, and profits to the farmer. Hence, we may understand, that with all the burdens of the English farmer, where he farms well, he realizes much higher profits than the Canadian farmer, under our present system of husbandry:—

"The hundred of Bassetlaw, in the County of Nottingham, England, of which East Radford forms the centre and the capital, contains 197,000 acres of land, of which there is occupied, by woods, wastes, roads, and rivers, 24,200 acres. There are 30,300 acres appropriated to wheat, producing annually over 1,050,000 bushels, 24,000 acres to barley, 864,000 bushels; beans and peas, 10,000 acres, 150,000 bushels. Hence, 64,000 acres, producing 2,000,000 bushels, annually, of wheat, barley, beans, and peas. There is 17,000 acres of oats, and over 3,000 acres of tares for the stock. There are 13,500 horned cattle fed, 197,000 sheep, of which near 120,000 are fattened to excellent mutton. The quantity of wool annually produced is about 500 tons; cheese, 240 tons, independent of home consumption; butter, 380,000 lbs.; hops, 164 tons; apples and pears, 1,183 tons; plums, gooseberries, &c., 150 tons; and of potatoes, 16,000 tons; and in the production of all these necessaries of life, it is calculated that not less than a million pounds sterling is annually employed by the proprietors and occupiers of the soil."

Such is English Farming.

We give the following extract from the Mark Lane Express, on the long-horned breed of neat cattle. Our own experience of this breed in the Old Country agrees perfectly with these remarks. We think it would be very desirable to introduce some of the breed in Canada, as we conceive they would be much more suitable for our purposes than the Durhams. They are particularly suitable for our cold climate, and for beef, no cattle can exceed them. If experiments be made with some of pure blood, we feel persuaded our recommendation of them will be fully sustained by the results. There cannot be a more beautiful animal than the long-horned of pure blood, both as regards form, colour and a fine mellow hide, well adapted to our rigorous winters:—

BEST COW FOR THE DAIRY.

To the question, "What sort of cow is best calculated for the dairy in the County of Derby, where cheese pays the rent?" a respected friend has favoured us with the following answer:—"The native cow of that county is the old long-horned breed; these are scarce, and are found in a few dairies near the lakes in Westmoreland, in Lancashire, Cheshire, Shropshire, Staffordshire, Derbyshire, Warwickshire, Gloucestershire, and Oxfordshire. The breed is becoming deteriorated from the owners breeding in and in, as well as in some instances the milking qualities have been sacrificed to the butcher. Ten or twelve years ago I was desirous of having these cows, and with difficulty and trouble procured them from some of the counties before named; having gone to Westmoreland, north, and the Cotswold Hills, south, for that purpose. The results from experiments are that equal quantities of long-horned cow's milk and that of short-horned being mixed with rennet for curd, the long-horned milk yielded 23 per cent. excess in weight over and above the short-horns. The curd is of a richer quality; the milk is sweeter and richer to the taste. Parties have been repeatedly tried, but could always distinguish each by the taste, and these were children. I found the beef of an old long-horned cow very superior; the cream is richer, but I have not been able to discover much difference to the eye, equal quantities being put in glass tubes. They are longer in attaining full growth than the short-horns, but feed easier, *i. e.*, fatten quicker and upon inferior food. In grazing, they eat grass which the others reject; they stand the weather of our hills better, and are more certain in calving. The short-horns give more at first after having calved, but the long-horns hold it longer without *trucking*. One of mine gives now 13 quarts each meal, and she held on to 11, until she went dry last year. The long-horns are longer in attaining their full milk, but farmers have had them in full milk up to 17 or 18 years of age. With regard to weight when fat, a cow of mine weighed 13¼ score per quarter, *i. e.*, 32½ stone). She was not so fat as she might have been; had only eaten very bad new hay, which was ill got in, in the rain, and some turnips. I have invariably sent my cheese to the great fairs at Derby, held at Lady-day and Michaelmas; sold it publicly, and always got the highest price, and from 8 to 10 per cent. above the average. The hides are heavier, and much more valuable. More long-horns can be kept upon the same acreage of land."

There is perhaps no subject which requires to be so much pressed upon the attention of the people as that of *Agricultural Education*. We have already brought this before our readers, but we fear its importance is not sufficiently felt; and this is not surprising. The Canadian farmer is utterly ignorant of his position; and he generally teaches his son to take it as his great aim, not to learn how to plough, to mow and to reap, but to find a place behind the counter, or to become a member of one of the *learned* professions, the members of which, by the way, are now so numerous that the *professors* have plenty of time to *study*. We make no excuse to our readers for laying before them the following extracts:—

Three-fourths of our productive labor is the contribution of agriculture. This is, as it were, the body, while the other avocations may be likened to the members; to which this gives health, strength, and character. If this flourishes, the state prospers; and the shock which withers its prospects, is simultaneously felt, with the force of the electric spark. Look to the old continent, and cast your eye over the new one. Where agriculture is in a high state of improvement, commerce and the arts flourish; and civil and religious freedom all seem to abound in proportion to the intelligence and industry which distinguish its agricultural population.

We must sow the seed before we can gather the harvest. We must plant the tree if we would enjoy the fruits. We must invest our capital ere we can receive the interest. And we must instruct our youth, if we would profit by the labours of their manhood. That the agriculture of one country, of one county, of one district, and one farm, is rendered far more productive than that of another country, county, district, or farm, *by the superior intelligence, skill and industry of*

those who till its soil, is a truth which needs no proof.

It will not be said, I trust, that manual labor is incompatible with mental improvement. The exercise which labor gives is as essential to the development and energy of the mind, as it is to the health and muscular strength of the body. It stimulates the head to plan, and the hands to execute.

Mr. Jefferson has said, and said truly, that great cities are great political *sores* upon the body politic. And history, as well as experience, admonish us, that the tendency of professional and commercial wealth is to generate that extravagance in the style of living, and those artificial distinctions in society, which, if not incompatible with, are often dangerous to civil liberty. We must rely upon the virtue of the country, and upon the steady habits and intelligence of its yeomanry, to counteract this influence.

The augmentation of wealth, which is produced by a prosperous agriculture, is most equally diffused among the people, the most permanent, the least affected by political commotions, and consequently the most favorable to independence. Wealth, from an improved husbandry and tillage of the soil, is of slow acquisition, and necessarily implies habits established by long practice—and a decided and permanent national character. Manufactures and commerce are more sudden and rapid in their growth, more dependent on extrinsic circumstances, and without prosperous agriculture are liable to those variations that are attended with individual ruin and much uncertainty in the national revenue.

There is something in the very nature of rural callings so congenial to the development of perfection in character, that, other circumstances being equal, we may ever look to them for patriotism the most genuine, and the most in consonance with the happiness of mankind.

In ancient times, the sacred plough employ'd
The kings and awful fathers of mankind:
And some, with whom compar'd your insect tribes
Are but the beings of a summer's day,
Have held the scale of empire, rul'd the storm
Of mighty war; then, with unwearied hand,
Disdaining little delicacies, seized
The plough, and greatly independent, lived.

In relation to the great and interesting subject of education, agriculture is the matrix which is to give the desired mould. Impart to our youth a taste for rural scenes, and bring them up in familiarity and conformity with a country life, and a character is formed the most compatible with our free institutions, and the most calculated to insure individual happiness.—Wherever Providence has opened a field for the cultivation of the human intellect, thither he enjoins us to conduct our youth. Agriculture presents this field; one that invites varied and extended information, and deep investigation, and pleasing and useful science. With the exception of a few of the most learned professions, no pursuit can compare with it, for subjects of diversified and profound research. What useful branch of knowledge sits not with grace upon a farmer? What fact in the whole range of the natural sciences may not be not only interesting but of practical utility to the farmer.

We copy the following from the Irish Agriculturist, which will show the efforts that are being made in France to give practical instruction in the art of Agriculture. It will be necessary in every country, to give all possible attention to agriculture, in order to be able to provide *food for* a constantly augmenting population, particularly when two of our principal crops, wheat and potatoes, are so liable to injury or total destruction, at the moment they are nearly fit for our use. Some years ago, wheat was a never-failing crop in Canada, but now, owing to the fly, we are obliged to sow late in the spring, and hence expose the crop to the danger of rusting, and other casualties, that cause the growing of wheat to be a precarious business, particularly in Eastern Canada. Potatoes are become so uncertain that it is a great risk for farmers to plant many of them in future. From all these circumstances, it is manifestly our duty to provide our youth with the means of acquiring a thorough knowledge of the science and art of Agriculture.

When farmers are properly instructed they are the better qualified to meet the difficulties they may have to encounter in the practice of husbandry. Upon Model Farms, experiments may be tried, by having all the work properly executed to produce good crops of whatever kind; and although there should not be any extravagant expenditure of labour or capital, yet, there should be as much of both as would be necessary to prepare the land, and do all other works to insure good crops.

In a late number of *The Constitutional*, a French paper, a long report is presented by the Minister of Agriculture and Commerce (and by the way we do not see why there should not be a Minister or Board of Agriculture in this country) of a project

of the organization of agricultural instruction, on a very extensive scale indeed. Some attempts had been made, by former French Governments, to commence an undertaking of the kind referred to, but they had not proceeded to any extent, and it is curious to see it now taken up on such an apparently enlarged and systematic plan, in the present unsettled political state of the country. The project is divided by the minister into three branches. The first will be composed of about 360 farm schools, being one for each of the rural *arrondissemens* in the kingdom. These are to be the schools of primary agricultural instruction; the number of pupils in each is proposed to be from thirty to thirty-three, and the period of their continuance in the establishment, to be three years, by which arrangement there will be annually prepared and spread over the country, as small farmers, or farm stewards, or drafted off to the schools of the next division which will afford a higher degree of information, from 2,900 to 3,600 competent and well instructed persons. This great number of schools cannot, it is stated, be all at once formed, but one hundred, in addition to twenty-five now in operation, are proposed to be immediately established, and fifty more annually, by which means, in about six years, every rural *arrondissemen* in France—a division we might describe as somewhat corresponding with our baronies--will be provided with its farm school. An account is given of the intended management of these institutions. The pupils who are to be from sixteen to eighteen years of age, are to be the laborers—the actual cultivators of the soil. They are to be under the superintendence of a director, who oversees and appoints the work, and explains to them in the most simple and intelligible manner, the facts which are brought before their eyes by the operations which they execute. There is also an operative manager—an able workman—who teaches the pupils the use of the different implements of husbandry, and the best methods of performing every kind of rural labour. There is next an accountant, who communicates to them the information which his name indicates, as well as the principles of surveying; a veterinary surgeon to teach his important art; and a gardener, who gives to all the pupils in the school a general knowledge of his business, but to two or three in particular, such instruction as may qualify them to adopt that profession exclusively. Many observations are made with respect to the internal arrangement and management of these schools, and the advantages which may reasonably be expected to accrue to the agriculture of France from their establishment; and great as the proposed number is, it is even advised, that they shall be increased if found insufficient for the ready instruction of all the cultivators of the soil.

After these and on a higher scale are to be the district schools, which are proposed to be at present only twenty in number. Advanced students to the number of forty, subject to the payment of a certain yearly sum, will be admitted into each, after an examination into the amount of their knowledge; and to which number will be added twenty free pupils from the farm or primary schools, as a reward for distinguished talents and aptitude. These are to be great establishments of instruction, with farms of nearly three hundred acres attached to each, and provided with the most enlarged means. From the persons educated here, the directors of the farm schools will be obtained, and a class of men competent to conduct agricultural operations on a great scale, either for themselves or others. The staff of directors and teachers is of corresponding magnitude; indeed, we would say, in this country, the number is too great, and that there is an unnecessary subdivision of labor. Thus, there is a professor or director of rural economy and theoretical agriculture; another of practical agriculture; and another of arboriculture and botany, besides two of accessory sciences. There is also an overseer of the pupils, and different practical teachers, among whom is one called the Master Irrigator, whose office seems to be, in France, considered of more importance than in our more humid climate. It is also proposed to annex to each of these great schools,--first, a manufactory consuming the produce of the soil and special to the district; also a school in the North, a beet sugar manufactory; to one in the East, a distillery; and the same in other places, according to the agricultural manufacture which may prevail: and second, workshops for the fabrication of agricultural vehicles and implements, as well as for smith-work, and from which skilled operatives will issue, to diffuse a knowledge of these useful arts over the country. The details, as in the case of the primary schools, are entered into with some minuteness, but we are still left in ignorance of certain matters we should like to be made acquainted with. Thus, we would desire to be informed, how the sum of 60,000 francs (about £2,400) is proposed to be required yearly, under the head of *Frais de Culture*, or expenses of culture, on a farm of one hundred and twenty hectares, or two hundred and ninety Statute acres; while, at the same time, the profits of the land and of the workshops is put down at 65,000 francs, little more than the same amount. The measure, it is to be understood, is only projected, and it is probable, that, in practice, it would differ considerably from calculations on paper.

In addition to these two systems of instruction, it is proposed, in the third place, to form, in the vicinity of the capital—and the gardens and grounds of Versailles are pointed out as suitable for the purpose—a great national agricultural institute. The entire details of this establishment are not given, being still incomplete. One of its objects will be to grant diplomas of qualification to agricultural inspectors and professors; and the institute will be organised, it is stated, like the

faculty of law or medicine, receiving extern students, and affording the highest scientific instruction. Practical instruction will not be wanting here, also, the splendid grounds of Versailles, the property of the State, being entirely fitted to accomplish that object immediately, and in the highest degree; experimental cultivation; forestry; the most beautiful horticultural establishment in Europe; a school of irrigation; the most efficient means for improving the breed of animals and other objects, as subsidiary or indispensable to science, are all to be embraced in this great establishment.

OBSERVATIONS ON MANURES, AND THE SOILS AND CROPS THEY ARE BEST SUITED TO.

Sir,—Finding that the truly useful "Farmers' Almanac," published by you, has become the daily directory—I had almost said the guiding star, of all the really-working farmers in this neighbourhood, I trust you will excuse the liberty I take in suggesting what I think would render that excellent work of still more value to those persons who have wisely taken it for their guide.

I am confident you must regret with me the great want of scientific knowledge amongst the class of persons to whom I allude, and, therefore, the more simple the language is, in which instruction may be conveyed to them, the better. It is for this reason I would beg to suggest, that, in your next Almanac, a list of manures be given, with the names of the crops they are fittest for, and soils they are best suited to, without going at all into the scientific reasons why they are so, or entering on the analysis of either. This, I feel, would be an extremely useful list, as it would not only teach the illiterate farmer the use of each manure, but would likewise tell him the soil and the crop it was best suited to. Something in the following way—

General Observations on Manures, with the Soils and Crops they are best suited to.

The first object to which a farmer ought to pay attention on taking a farm, is the nature of its soil, what state it is in, and what are the most proper manures for its improvement; and, accordingly, to prepare sufficient mounds of such manures in succession, as will enable him to have every year a proper quantity for all his grounds, both arable, pasture, and meadow, without the necessity of buying any.

It must be remembered there are but five primitive earths which enter into the composition of soils, namely, silex or sand, argil or clay, calcar or lime, magnesia or soapy earth, and moor or bog earth. No one of these would, by itself, be fit for cultivation, and it is, therefore, the first duty of the farmer, on his determining to bring any field into tillage, to see in which of these earths it most preponderates, and form his composts of all or most of the others accordingly, by which means he will bring into the soil *that* which it most requires, at the least possible expense.

For instance, calcareous earth, or, in other words, limestone soil, contains large quantities of fixed air, and seems to be the principal matrix of all earthly productions, whether vegetable, animal, or mineral, without which no vegetables will grow, and must, therefore, make a part of every soil proper for cultivation; yet, when pure, it will not by itself be productive of anything, unless mixed with clay, or some such material, as it wants alkali.

So it is with argillaceous earth or clay, which is in itself barren, although it is of the greatest importance to all vegetables, not only by its quality of retaining water, but also by its containing the alkali necessary to the formation of all plants.

Silex or sand, in the same way, contains in itself very little that is productive of vegetable life, but, having an affinity to alkali, is of great use in correcting that of argillaceous or clay soils, when mixed with them.

Magnesia contains an oily substance, composed of fixed air and water, which is the basis of the essential oil of vegetables, and is, therefore, of service in the improvement of all clay lands, and limestone soils.

From these considerations it is evident that a soil, to be productive of vegetable life, must be a compound of all those primitive or native earths; and the best land for cultivation will contain about *four* parts of argil or clay, *three* of siliceous earth or sand, *two* of calcar or lime, and *one* of magnesia or soapy earth.

Moory soils are generally composed of decayed roots of vegetables, without a sufficient quantity of earth to bind them. The best manure, therefore, for such soils, is a compost of equal quantities of lime and clay, which have been frequently mixed.

It must always be borne in mind, never to apply any one of those earths, as manure, to a similar kind of soil, as it not only does no good, but may cause much mischief, by adding to that quality of which the soil has already too much. For instance, never put lime on a limestone soil, clay on clay, sand on sand, or bog-stuff on bog; for, while they will materially improve each other, they will be of no use on a soil similar to themselves.

Lime is best suited to old lands containing much decaying vegetable matter, and to moory fields for the same reason. It is also extremely useful to clay soils, which it renders loose and friable; it is an excellent manure for wheat, grass of all kinds, peas, beans, vetches, &c.; but lime should never be mixed with either stable or cow-house manure, as they destroy the effect of each other.

Marl acts in a similar manner to lime on all soils, but in a much smaller way, as it is to the lime it contains it owes its principal fertilizing

quality. Clay Marl is best for sandy, and sand marl for clayey soils.

Phosphate of lime or bone earth, which is the chief ingredient in bones, in bran, &c., &c., silicate of lime, which abounds in wheat, straw, and sulphate of lime, which is gypsum, alabaster, or plaster of Paris, are all good manures for clover, lucerne, grass lands, peas, beans, &c., &c., and are highly improving to clays and boggy lands.

Stable manure ferments rapidly, and is greatly injured by excessive fermentation; it is, therefore, much better to mix it with cow manure, which ferments more slowly, and continues to give out nourishment for a longer time, but is less forcing than horse-dung. These manures answer best for potatoes and turnips; but if applied in too fresh a state to carrots or parsnips, it causes them to fork.

Street manure, or the scrapings of roads, is more appropriate to clay lands on account of the sand and lime it contains. It forms a good top-dressing for meadow land, and is a better manure for turnips than for potatees, as it generally contains a rich, light soil.

Liquid manure, which runs from the stables, cow-houses, and manure pits, should never be let go to loss. It is much used in Belgium for their flax crop; is extremely beneficial to all crops, and on all soils, especially so for grass on light lands. Dry bog-stuff saturated with it forms a good manure for every kind of crop it can be applied to, and is fully equal to stable manure.

Night-soil, though much neglected in this country, is a most valuable manure, and forms the basis of most of the patent concentrated manures we buy. It is particularly suited to turnips on dry lands.

Bones are excellent manure for turnips, carrots, parsnips, potatoes, barley, wheat, clover, and grass lands.

Rape-dust or rape-cake is a valuable manure for turnips on heavy land, but like all oily fertilizers its effects will last but one year!

Soot is chiefly used as a top-dressing for grass lands, but soot and salt, mixed in equal quantities frequently turned, and kept in a dry place for a few months, form one of the best manures for onions, carrots, parsnips, turnips, &c., and is likewise an excellent top-dressing for wheat.

Salt one measure, and lime two measures, well mixed and kept dry for some months, is also a good top-dressing for grain.

Sea-weed, which contains both salt and oil, is best when used on lands far from the sea, and is better for potatoes than any other crop.

Ashes of all kinds contain gypsum, and are therefore good for potatoes, clover, lucerne, &c.

And so on, as your better judgment and experience may dictate.

Yours, &c.

JAMES FRENCH.

Frenchgrove, Tuam, August 4, 1848.

DOUBLE AND TREBLE CROPPING.

ENGLISHMEN THE BEST FRIENDS OF THE IRISH LABOURER.

To the Horticultural Editor.

SIR.—In the month of June this year (railway travelling being so cheap) I determined on seeing the extensive market gardens in the neighbourhood of London, many of which contain 100 and 200 acres. I had often heard that the parish of Fulham was the most celebrated for good culture and splendid produce, and that the labour was principally performed by Irishmen, with the spade, which I found to be the case. Having left Dublin, by steamer, to Liverpool, I found myself in the parish of Fulham in 26 hours from the time I started, the expense being about forty shillings, paying cab-hire from Eustonsquare to Fulham. Being provided with letters of introduction, I lost no time (when I got a night's rest) in delivering one which I had to the Messrs. Daniel and Henry Fitch, who rent about 100 acres, all of which is double and treble cropped. I not only advise Irishmen to see this ground, but also Englishmen; both could learn much. I found growing here *eighteen* acres of white cos lettuce, which had been lined out in February and March, the seed being sown in the autumn, in frames; many of the lettuce were three and four pounds weight. This sight positively startled me. There were twenty acres of cauliflowers, the finest that can be imagined, some of which were sold wholesale, in Covent Garden Market, at sixpence and eightpence each. Ten acres of asparagus beds just done cutting, and a crop of French beans coming up on the beds. On another piece of ground, of five acres, I found a treble crop, consisting of lettuce, French beans, and pickling cucumbers. The cabbage crop was nearly sold off. The only sort of cabbage grown here is the Fulham (a variety of York), and a hardy, fine kind of greens, called collards, very like early York cabbage, which is grown extensively for winter use. I also found four acres of sea-kale, the seed of which was sown in April; the plants were so fine and strong that they were intended to be taken up and forced on made beds, with early frame potatoes, radishes, horn carrots, &c.

There are one hundred and fifty frames for growing early cucumbers—each frame with three lights—three feet wide. Everything is in first-rate order—not one barrowful of weeds to be found on the hundred acres.

The orchard is planted with every good sort of apples and pears, gooseberries, red currants, plums, &c. Peaches, grapes, and strawberries are not grown in this parish by the market gardeners.

I was conducted over this farm-garden by Mr. Daniel Fitch, one of the most intelligent and communicative men that I ever met with, who told me that they expended, in labour, manure, &c., £25 annually on every acre in their posses-

sion, and that most of their labourers were *Irishmen*, who were paid fifteen shillings weekly in summer, 12s. shillings weekly in the short days: the Irishwomen 8s. weekly. They had at that time 57 Irishwomen receiving these wages. The amount of their labour-book, on the last Saturday night (27th May), was £68 4s. 7d., and out of that sum, Sir, your countrymen and women got upwards of £60. I never felt myself so much in Ireland as I did here: every man and woman that we spoke to had a broad, Cork accent.

The second great garden which I visited was Mr. C. Bagley's, Sands-end, Fulham. The ground rented by this gentleman is over 100 acres, and cropped in a very superior manner. Here I observed five acres of green globe artichokes, with cauliflowers planted between: there were about twenty-five acres of splendid cauliflowers, and many acres of asparagus and white cos lettuce. The men, who are mostly Irish, were employed getting cauliflowers for market; they were loading two waggons, on each of which they put 300 dozen cauliflowers. Here, again, I met a splendid sight—no less than five acres of moss roses in flower: four men cutting them, and six Irishwomen bunching the same for market. The county Cork men and women were here in every part of the ground. Having seen the great employment given to the Irish by those gentleman—for gentlemen they truly are—do they, I thought, ever pay any poor-rates towards the relief of the Irish? I asked that question of two or three persons; the reply was, "Yes, and they pay it more cheerfully than some of their own great countrymen, who never employ one of them."

My next visit was to the grounds of Mr. Robert Matyear, part of which run by Rose Bank, the seat of the Marquis of Londonderry. Here the culture is the same, in every respect, as before described, by numbers of Irish labourers. The cropping of all this parish is very similar; the largest landholders, besides those named, are, Mr. George Bagley, about 150 acres; Mr. Alexander Dancer, Mr. George Matyear, with numbers of small growers, cultivating 5, 10, and 20 acres, every one of them employing more or less Irishmen and women. The wages are the same all over the parish; no employer that I spoke with considered it too much: they said it did no more than get them *grub* enough, and pay rent.

I made inquiry as to whether the Irishmen were good workmen; the answer in all cases was, "No, they are not, until they are with us some time; they come to us half-starved, and are not able to do a day's work, and are not paid the same rate as the Irishman who has been some time with us: when he gets a good supply of grub, then he begins to work." Then I said, "You put them to all kind of work." "No, we never let them drive our horses: they are bad horse-masters, and have no mercy or patience if a horse sulks." If these Irishmen would only work at home as I have seen them do in the parish of Fulham, Ireland would be a better home for them; but let me be understood, that I would not ask them to give an Irish gentleman or farmer the amount of Fulham labour for their Irish price.—Yours, &c, M. R. *New-street, August* 22, 1848.

P. S.—In the parish of Fulham, I think, there are between 30 and 40 acres of moss roses, the flowers of which are all sold in Covent Garden Market. This is the parish to see what men can do with the spade; they throw the Dutch and Belgians completely in the shade.

Bean Culture.—I have pursued the following plan of growing garden beans this year with great success. They were set in rows 26 inches apart, and as much as 12 inches in the row from seed to seed. The plants were kept down to 2 feet in height or less by topping, and all tillers removed. Thus treated they got abundance of air, and the produce was very large—ten rows of 30 feet long, giving 4½ bushels of pods. One plant or stem yielded 26 pods; many others from 15 to 20. In four rows out of the 10 the plants were allowed to retain their side branches and to grow higher, but these did not produce so well as the others, otherwise I should have five bushels from my plot of ground. Besides the large produce thus obtained, another advantage was gained, that of early maturity. I may add also that I have an excellent crop of parsnips on the same ground, which were sown at the same time with and between the rows of the beans, and which, now that the latter are cleared away, are looking quite as well as others sown by themselves in rows 18 inches apart.—*Rev. T. M. Taylor, Knutsford, Cheshire.*

Protrusion of the Uterus.—The part protruding should be first well cleaned with some warm water and a sponge; but be careful to rub as little as possible, so as not to excite inflammation. Smear the part over with oil, and also let the hand of the operator be well oiled, and return the part with as little delay as possible, having first placed it in its natural position. Next have ready a cushion to place against the part, which must be connected with a girth or collar placed round her neck, and another put round the body behind the shoulders. These two collars should be fastened by straps together to prevent them slipping either way. To these collars must be fastened the cushions at both sides and along the back; through the back or upper strap make a hole through which to pass the tail. If necessary, another can be carried between the legs and fastened to the collar in front. The heifer should be freely bled, but administer no purgative medicine or anything that may have a tendency to act on the urinary organs. Let her be kept quiet and her diet sparing, giving no succulent herbage but a little warm bran mashes and gruel with a little sweet hay. If necessary, bleed again, and wash the vagina with a solution of alum in water once a day.

FRENCH AGRICULTURAL STATISTICS.

The quality as well as the quantity of agricultural productions has been greatly deteriorated in France, by the minute subdivison of land. By the returns, taken a few years ago, it appears that the average weight of wheat through France was 61lbs. per bushel, whereas the present weight is 56lbs. Now, in England, the reverse has taken place. The oats, in general, are extremely bad. Corresponding deteriorations appear in number and quality of live stock, according as the farms are large or small. In the N. W. and N. E. divisions, where, as we have seen, the average amount of land, to each landholder is largest, there were, by the most recent returns published, details which shew generally that in the N. a greater portion of valuable live stock is to be found than in the two S. regions conjoined. In the S., indeed, there were, in 1839, eight times more mules, many more asses and miserable sheep, and nearly three-fold *goats*, and a third more of oxen; but the N. moiety of France maintains 316 head of cattle, while the S. has but 270, for every 1,000 inhabitants; and though the number of bulls and oxen is less numerous in the N. than in the S. division, there is a much larger porportions of cows and calves in the former. And to counterbalance the numerical superiority of oxen (for labour) in the S. division, there are in the N. more than three times the number of horses, mares, and foals collectively; yet, though there are nearly three millions of horses in the country, she imports annually 37,000 for her army, from the deficiency in quality of the native race for cavalry service. There are but 32 millions of sheep in France, and they are generally wretched animals, and weigh, on an average, but 30lbs. each. Where flocks used to abound, there are now none; a few starved couples here and there, tied together, and kept for the sake of the wool by the peasantry, are the representatives of their race. The number of pigs is nearly equal in the N. and S. divisions, taken together, but much greater in either of the N. divisions, compared with the S.E. division, individually. But the total number in continental France is less than five millions; and they are generally a miserable breed, worse, if possible, than the genuine Irish pig, thirty or forty years ago. Comparing, then, the N. of France, where subdivision prevails in a lesser degree, with the S., where it prevails more, we may say that the N. is more rich in cows, calves, horses, mares, and foals; whereas the S. is more rich in bulls, oxen, rams, wethers, ewes, lambs, swine, goats, mules, and asses. But number and quality should be considered, to form an accurate judgment; for a great number of animals, of inferior races, may not be equivalent to a smaller number, of more valuable kinds. We examine the prices, and we find the average price of a bull to be 84fr. in France—80fr. in the N. and 84 in the S.; that of a ox, 153fr. in France—149fr. in the N., and 159fr. in the S.; of a cow, 89fr. in France—92fr. in the N., and 82fr. in the S.; and we find that the price of a bull is less than that of a cow; whereas, if breeding were understood, the value of a bull would be eight or ten times more than that of a cow. In Normandy, however, there are many very splendid cattle; and some of the little cows or Brittany are exported to England every summer, and sold as Alderneys. The average price of a wether sheep, in France, is 4fr. 45 cent.; in the N., 5fr. 95 cent.; in the S., 3fr. The price of horses varies very considerably.

It is refreshing to glance at Mr M'Queen's statistics of the British empire, after the foregoing statements, and compare them with the French return. In the British empire there are, according to M'Queen, 2,250,000 horses—value, £67,050,000. In France, 2,801,667—value about £9,000,000, or one-fifth of the value of the horses used in British and Irish agriculture alone. The number of horned cattle inthe British Empire is about 15,000,000—value £216,000,000. The number in France, 9,883,950—value £13,000,000. The number of pigs, of all ages, in the British empire, is calculated, by the same authority, to be 18,000,000; which, taking one-third at £2 each, and than the remainder at 10s. each, gives a total value of £11,875,000; whereas the total value of the swine in France is less than £5,000,000.

Of these facts M. Rubichon is very sensible. He says,—"In England, the differences in quality have no limitations; for if there are such calves or lambs, which sell for a trifle when they are dropped, there are others which sell for a 100 francs. Agriculture in England is so organised, especially within twenty years, that farmers are continually substituting those of high value for those of inferior worth. While the other European agriculturists are at a stand in this respect, or rather allow their live stock to deteriorate, it is easy to foresee that, twenty

years hence, the wealth of each country in Europe will have so decreased, and that of England so increased, that there will be no more comparison to make."

Even our 18,000,000 of pigs might be increased, by the general introduction of green crops and garden husbandry into Ireland and the Highlands of Scotland. In the latter part of the empire, the rearing of pigs, until within a recent period, was greatly neglected, as the natives had a sort of religious prejudice against the use of pork. A gentleman, well known to the writer, when reasoning with an old Highland peasant on the absurdity of this prejudice, was answered,—"It may a' be very true, Sir, but I cannot thole to eat ony thing that the deil has been in." By the exertions, however, of the proprietors, this prejudice is fast wearing away, and the revenue now derived by the export of swine from the Highlands of Scotland is becoming a very considerable item in her productions. The wife of the old man who objected to eat pork, having been persuaded to keep one for other people to buy and eat it, declared, after selling the animal, that pigs were fine animals, and better "nor a coo." She had received £4 for a pig that had only cost her 7s. the year before, and had been fed on offal, on which other animals would have starved.

Great Britain, compared with France, has made wonderful advances in every department of agriculture, yet still there is a vast deal to be done, because, as in France pre-eminently, there is yet with us a great breadth of soil to be drained and deeply ploughed and subsoiled, by which the productions of all kinds will be vastly increased. In France, such improvements cannot take place, unless its whole system, as to the subdivision of land by inheritance, be altered. The ground cannot be left without a crop by a poor man for a time sufficient to drain and otherwise amend the condition of the soil, as an English farmer can afford to do. The Frenchman lives from hand to mouth. Though he wastes seed, and is pennywise in not applying labour in hoeing and weeding, he will not alter his wretched system, nor, indeed, has he the practical models before him which stimulate the British husbandman of low degree. There are very few French country gentlemen to shew him a good example,—they congregate in towns,—and such is the national dislike of the gentry to the solitude of a country life, that one of the authors under our review seems to take it for granted, that none but corporations of ecclesiastics, as of old, could carry on a system of uniform and effective rural improvements on the soil. He attaches great importance to the past labours and skilful practice of monks, disassociated from social life, and we believe that he would willingly revive them. Unqestionably, the superior education of the Churchmen of old, among the multitude of ignorant men, had a prodigious influence in advancing agriculture in France, as in Great Britain and Ireland; and whether it was that their greater knowledge led them to select their lands well, or to cultivate them well, we cannot decide, but it is a fact, that old Church lands are the best, and that any intelligent man, having the choice between two farms, without seeing either of them, would select that which commences with the Celtic *kil*—burial-place—in preference to that which begins with *bal*—townland,—if those words happened to designate the two farms.

The work shews that the great amount of food which gives support to the people is the produce of gardens. The Minister of the Interior cites this as indicative of the advance of agriculture; but M. Rubichon maintains, that it proves that Frenchmen are retrograding to the food of cattle—*legumes secs* and salads are miserable food for men, in his estimation. So they would be, but for the quantity of bread consumed with them. From want of domestic animals, however, and consequently from the want of animal food, milk, and butter, the peasant population in the S.E. region more particularly, is reduced to a state of degradation similar to that of the most wretched of the Irish peasantry and Scotch Highlanders. Yet, what a lesson may be derived by these poor people regarding the value of a garden! In the portion of France to which we have last referred, where subdivision is extreme, every allotment is in fact a garden. Yet the Frenchman contrives to extract from such patches the means of subsistence for himself and his family.

The prejudices of the old are, however, so difficult to be overcome, that it is with the young only our labours will be really effective. Here the schoolmaster comes to our aid; but a schoolmaster different from the class yet introduced generally among our rural population. Even in Scotland, where schoolmasters of a superior kind are to be found, ignorance and prejudice prevail all over the Highlands, with a great aversion to innovation and change of

system, as much so in garden husbandry as in field culture. Where gardens are to be found in the Highlands, their produce is but Riga kale and early potatoes; no French beans, no onions, no peas, no beans, no early cabbages, no carrots, not even a turnip. So is it, also, throughout Ireland generally, among the common farmers and peasantry. And how are such prejudices and omissions to be overcome? By the introduction of industrial schools, in which the young of both sexes may be taught to compound a midden, and to make drains, and learn the use of draining; taught also to sow the land, at the proper periods, too; instructed in the mode of growing, pruning, and training fruit trees, and led to the knowledge of the various products of the soil, and allowed to partake of the fruits which they raise. The female pupils in those industrial schools should learn to cook and prepare a meal, something more than the mere boiling of a potato. They should be taught the value of the refuse of a garden in feeding a cow or a pig. They should learn to sew, and make their fathers' and brothers' shirts. In our Highlands, the great majority of country girls are deficient in this branch of female education. The curing of bacon, making of hog's puddings and sausages, is another accomplishment which they should learn; for it is not enough for them to know how to keep a hog, and to mark and accelerate the advance which it makes in flesh. Without such general education, for the rural population of the empire, we cannot expect to keep in advance of France, and other countries of the Continent, where agriculture may now be backward; because an impulse will assuredly be given to them, as it has been recently to Scotland, where those grand preliminaries, draining and subsoiling, are now objects of extreme attention.

Our two French authors, whom nothing important seems to have escaped, remark that Mr. Smith has "perfected a system of draining known from time immemorial," and some of the consequences are, that cattle which formerly were fattened at pasture, at the rate of from 100 to 120lbs. in the course of a year, will, on the drained land, increase from 100 to 150lbs. in eight months; and wheat, which formerly yielded but tenfold for the seed, now produces thirty and fortyfold, under Mr. Smith's system. On another occasion we shall, perhaps, review the second volume of this most interesting work. For the present we conclude with this gratifying prophecy of our future progress:

"It is now that the discoveries of Bakewell are in full operation. There are in Great Britain many hundred farmers who, emulating each other, apply and limit their industry to the breeding and improvement of bulls and rams, for the purpose of hiring them out to other farmers to increase their stock. The ox and the sheep constitute the most considerable portion of the wealth of a country, not only by their number and weight, but by the quantity of fat and the quality of manure which they produce. The richest country is, therefore, that which produces the greatest amount of fat food. And we have already seen that Great Britain, at this day, produces four times more fat now than she did fifty years ago; and fifty years hence she will produce four times more than now, if she does not exceed this ratio.—*Journal of the Highland Society.*

Men Celebrated for Farming,—A correspondent of yours speaks of the valuable writings on drilling, &c., by a Mr. Close. This was the Rev. Mr. Close, of Hordle-House, in Hampshire; he was an excellent farmer, and contributed valuable papers to the Annals published by the Bath and West of England Agricultural Society. W. Falconer, M.D., F.R.S., was another writer of some able articles to the same Society. He is now dead, also, but their writings survive them. The late Mr. Robinson, of Lady Kirk, Roxburghshire, was another who carried on a large experiments; the large yards and offices are still to be seen overrun with weeds, and neglected,—the name is extinct. Mr. Curwen, of Skous, was another celebrated agriculturist.—In those days, none of these found imitators; farming was regarded, in those dark and bigoted times, with doubt and distrust. Then came Coke, of Norfolk—a name well known; Lord Spencer, famed as a breeder; and now, in these days, Mechi, Davis, and Lawes,—this last a writer of some of the most scientific and practical memoirs on raising crops of corn and roots. Huxtable and Sir Richard Simeon, in the Isle of Wight, contest the palm for stall and shed feeding; and the Rev. Mr. Osborne labours for the improvement of the condition of the labourers,—a holy task; and one to whom the country is indebted for his public writings and private philanthropy. Such men are ornaments to this great country.—*X. Y. Z., Hants, in Gardeners' Chronicle.*

A Run into Bohemia.—A Dairy Distillery.—Touching the farming of the country, we had no opportunity of seeing anything o the internal economy of a Saxon farm-house; but our friend, Dr. Krause, was kind enough to take us to see a dairy farm, which is worth a passing observation. It is one of the Royal estates, and is situate on the left bank of the Elbe, a little below the city. It is the completest thing of the kind we have ever seen. The estate consists of about nine hundred Saxon acres, seven hundred of which are tillage, and two hundred meadow land. The dairy stock consists of two hundred milch cows, but, taking oxen, calves, and bulls, the average number on the farm is generally about four hundred animals in all. Fifty oxen and eighteen horses are required for the work of the farm. The cow-house forms a very substantial square building, extending round a court-yard, nearly an English acre in extent. The interior of the buildings is lofty, and the floor sloping, so that the liquid manure is conveyed rapidly away. The roof is supported by long columns of stone pillars, and a flagged pavement gives a dry and clean passage round the entire building. One wing is appropriated to a piggery. It is of the same substantial character—there were but fifty pigs in it, when we were there; but it is capable of holding a much larger number. The sties are substantial compartments of stone walls, five feet high, and the drainage is so effective, that we never found a pigsty so free from smell. But there was a thorough draught though it by open windows placed above the walls of the sties. This allowed of a perfect circulation of air, without exposing the precious lives of the dear animals to the baleful influence of draughts—the pigs never complain of catching cold, or having rheumatism. There were shutters also to the windows—a precaution which the rigorous Winter of Saxony may render necessary. The cow-house, as well as the piggery, were equally well ventilated. To this establishment, Dresden was much indebted for its daily milk. But there is another branch of it which deserves notice, and that is the *distillery*. The soil of the farm is suitable for potatoes, which flourish in it. There are four hundred and fifty bushels of potatoes washed, boiled, and mashed daily, and mixed with malt. The mash is carried by machinery into an upper room, to be cooled. It is then conveyed to a lower chamber, where it is left three or four days for fermentation, and after the spirit has been extracted from it, the refuse is given to the cattle. This part of the establishment is under the direction of a scientific distiller, Herr Ferdinand Krabes. The machinery and apparatus are of the very best description, and by the process adopted, 97 per cent. of spirit is got out of a given quantity of material, which formerly yielded only 80 per cent. This amount was first suggested as obtainable, by the chemist, Falkman; and Herr Ferdinand Krabes had recently been honoured with a prize from some scientific society, for having realized in practice the obtaining of so high a per centage. This intelligent gentleman gave us a lucid statement of the efforts made to get the devil, alcohol, out of the innocent potato, and the beneficent grain. He enlarged on the quantity of spirit produced by this process. The farm pays 11,000 dollars rent, and the product of the distillery, 14,000 dollars yearly in duties. The proprietor is a gentleman named Portius, who began as a simple cow-keeper, and has reared this great establishment by his own industry, talent, and integrity. For the encouragement of the desponding, we will relate an anecdote which we heard of his beginnings. His friends had lent him two thousand dollars—the season failed, and he was well nigh ruined. Seeing their money gone, his confidence forsook him. He feared to face them, and was almost ready to terminate his earthly speculations in a cowardly, but most conclusive manner. His wife, however, counselled him to renewed exertions—she admonished him against the rash deed, and reminded him that there was a God above the seasons. He listened to her advice, and here he is. Moral—apply it according to conscience, dear constant reader. The cattle in these sheds never go out. We saw a stout young bull, which had passed the whole term of his life within the walls. His first frisky manifestations of the bovine joys arose beneath this roof, and his last bellow is doomed, probably, to die away within its purlieus. The cows were chiefly of the Holstein breed, and the machinery was from Berlin. The corn was ground by machinery, which was worked by *a bullock tread mill*. This tread-mill was a circular inclined plane, the floor of which was crossed pieces of wood, which gave the beasts a stepping place, the inclination was very slight, and as the bullocks walked upwards, the floor moved down. We have omitted to state, that the number of people employed, is sixty constantly, and above three hundred in harvest time.

THE CULTIVATION OF THE ELDER TREE.

In the June number of the *Farmers' Herald*, your correspondent *Agriotes* asks for information respecting the elder tree, perhaps a few extracts from an Essay by the Rev. James Farquharson, in the *Transactions of the Highland and Agricultural Society of Scotland*, "On the cultivation of *Sambucus Nigra* or common elder for hedges," will be of use to him.

I have cultivated this tree since the year 1816, on a small scale, it is true, in respect to the number of trees, which has not in whole exceeded three or four hundred, but in ways sufficiently varied to give me opportunity for observing many of its habits and capabilities.

I planted in 1816, about fifty cuttings of the tree parallel to and about eight feet from a tall thorn hedge, which had become open at the bottom, to grow up a supplemental shelter to one side of a garden; the larger part of these struck root and attained in three years a height of eight or nine feet, being in good soil and kept constantly clear of weeds. Part, however, failed to vegetate, and this circumstance taught me to form a small nursery for such plants as I might afterwards use, in which they might root and grow for some time before they were finally set in their places. Such a nursery was accordingly established, from which the deficiencies in the sheltering hedge were filled up, and a considerable number of trees planted out for screens and shelter round various other parts of the garden.

Having learned from this experience the great rapidity with which the elder at first grows, which greatly surpasses that of any other tree in common cultivation, and having also noticed the certainty with which it holds in its new situation when transplanted in the spring with roots, I conceived the plan of forming a hedge of it, fencible from the first against sheep, for the purpose of enclosing three sides of a small garden in front of a wall adapted for fruit trees, and in a situation where it would not be liable to the depredations of any other animal. Accordingly in 1824, I formed a small nursery of elder cuttings, planted in rows, two feet apart and ten inches from plant to plant, in this the young trees were allowed to grow till March, 1828. They had then attained a height of seven or eight feet, and were four inches in circumference near the ground, and being deemed sufficiently strong to resist Leicester sheep, a hedge was formed of them at two sides of the small garden, in the following manner:—A small trench of sufficient size to admit the root freely was dug, from which the earth was thrown in equal parts to both sides. The trees from the nursery, cut down to lengths of three and half feet, were placed in this as close together as was deemed sufficient effectually to exclude the sheep and the earth was returned from both sides about the roots, and beaten hard down to keep the tree steady in their places. Not one of these trees failed to vegetate immediately. They sent up yearly numerous shoots from near their tops; but as it was not deemed necessary to have the hedge higher than three and a half feet, these were clipped off with the shears. The stems continued healthy, and increased slowly in girth, and the hedge answered its intended purpose.

The remaining side of the small garden is exposed to the north-west, and it was desirable to have a better shelter against that quarter. At this period the screening elder tree in front of the tall thorn-hedge, planted in 1816, had become no longer necessary, a shelter there having been obtained from some new buildings outside the larger garden. These trees had now attained a height of about twelve feet, and were generally eight or nine inches in circumference. They were now transplanted to the north-west side of the small garden, being set in a trench of sufficient size for the roots as the smaller were on the other sides, and their tops were cut down to nine feet in height. About thirty-five trees were planted in a length of ten yards. The success in this operation was most decisive, all the trees having vegetated immediately. They formed from the beginning a most powerful hedge, that would have been effective against vicious black cattle, and still continue in their place an ornamental hedge, sending out yearly a profusion of blossoms, and at the same time answering every common purpose of fencing and shelter.

More might be written about the nature of the elder tree if desirable.—*P. M.*

Every intelligent farmer will be guided in the choice of land rather by the quality of the soil than by the extent of the property; for the want of fertility can seldom be compensated by an increased number of acres. There are farms which are absolutely worth nothing, and which, when everything is taken into account, never repay the expenses of cultivation; and, consequently for the growth of corn, a thousand acres of such land are not worth so much as a single acre of good land. The greater the general fertility of a country, the less is the value of the bad land it contains; for, the produce or the yearly value of the richer land, will diminish the value of the poorer land in the neighbourhood. Where the produce of the fertile portion of the land satisfies every want, the soils which are less productive can scarcely be cultivated to advantage. If, on the contrary, the mere fertile lands do not produce a sufficient supply for the usual consumption of the district, the cultivation of the others will become more profitable and consequently, inferior land will be more valuable in a poor country than in one which is highly productive. Next to the arable portion of the farms, the meadow land should come into serious consideration. A due proportion of meadow and arable land has hitherto been considered as an essential requisite in a good farm; and that a quantity of land, although com-

posed of the richest and best soil, would be defective if it was not accompanied by a sufficient extent of meadow ground. This opinion is founded on the acknowledged fact that without a sufficient supply of green food no good tillage can exist, and also on an acknowledged axiom, that without meadows there can be no forage; yet, when it shall be generally known that by cultivating the various grasses, and by alternately using the different portions of the land, as arable land and as artificial meadows, three or four times as much nourishment can be obtained for the cattle as on the same extent of natural meadows, the deficiency of natural meadow land will no longer be regarded as a defect in a farm, the soil of which is tolerably fertile, and in which the rotation of crops is at the disposal of the farmer. Orchards and fruit-gardens require particular attention in point of climate and soil most suitable for fruit.

In some countries, a good crop may be reckoned in every two years, while in others it can scarcely be obtained once in nine years. In the former there may be large plantations of fruit trees, and their average produce will indicate with sufficient exactness the value that should be put on them. In the latter case, the value of plantations of fruit trees, will greatly depend upon their situation and aspect, their being protected from hurtful winds, and the trees being of a choice kind and good quality; under such circumstances an orchard may be particularly valuable even in a climate otherwise unfavourable to fruit trees — *Thaer's Agriculture.*

Lord Penrhyn's Poultry-House.—The following account of Lord Penrhyn's poultry house is extracted from "*The Poultry-yard,*" by Peter Boswell. "The most magnificent poultry place, perhaps, that ever has been built, is that of Lord Penrhyn's at Winnington, in Cheshire. It consists of a handsome regular front, extending about 140 feet, at each extremity of which is a neat pavilion, with a large arched window. These pavilions are united to the centre of the designs by a colonnade of small cast iron pillars, painted white, which support a cornice, and a slate roof, covering a paved walk, and a variety of different conveniencies for the poultry, for keeping eggs, corn, and the like. The doors into these are all of lattice work, also painted white, and the framing green. In the middle of the front are four handsome stone colums, and four pilasters, supporting likewise a cornice and a slate roof, under which and between the columns is a beautiful mosaic iron gate; on one side of this gate is an elegant little parlour, beautifully papered and furnished; and at the other end of the colonnade a very neat kitchen, so excessively clean and in such high order that it is delightful to view. The front is the diameter or chord of a large semicircular court behind, round which there is also a colonnade and a great variety of conveniences for poultry. This court is neatly paved, and a circular pond and pump are in the middle of it. The whole fronts towards a rich little paddock, in which the poultry have the liberty to walk about between meals. At one o'clock a bell rings, and the beautiful gate is open. The poultry being then mostly walking in the paddock, and knowing by the sound of the bell that their repast is ready for them, fly and run from all quarters, and rush in at the gate, every one striving which can get the first share in the scramble. There are about 600 poultry of different kinds in the place; and although so large a number, the semicircular court is kept so very neat and clean that not a speck of dung is to be seen. This poultry place is built of brick, except the pillars and cornices, the lintels and jambs of the doors and the windows; but the bricks are not seen, being all covered with a remarkably fine kind of slate from his lordship's estate in Wales. These slates are close jointed, and fastened with screw nails or small spars fitted in the nick; they are afterwards painted, and fine white sand thrown on while the paint is wet, which gives the whole the appearance of the most beautiful free-stone.

The Kerry Breed of Cows.—I here give an account of the Kerry cows, as far as a short experience of the qualities of four of that breed, and the accounts I had previously heard of them, justifiy me in offering an opinion. The yield of milk I consider to be quite equal in quality and quantity to that of an average Alderney, which sort I have kept, and the Kerry possesses several advantages over that breed. In the first place a Kerry is very much cheaper to buy; 2ndly, it is much cheaper to keep, and with less risk, being much hardier in constitution, and capable of thriving on rough and scanty pastures; 3rdly, the meat is very much better, as the carcase of an old Alderney is little more than skin and bone; 4thly, the calf, if by a bull of a larger breed, such as a short-horn, is equal in size to that of an Alderney.—*T. T. C.*

Parsnips.—This is also well worthy of attention, and calculated to be of great advantage in the manner alluded to. It should not be deprived of the merits due to it; but I am sorry to say, it is not extensively enough cultivated to be properly valued. Our housekeepers in the south and west are not sufficiently acquainted with the system in the north of Ireland of making soups and other luxuries for their families, or they would consider the absence of both the carrot and parsnip a great defect in the cooking department. No farmer should want the parsnip, and a small piece of ground would give a large quantity of good, wholesome food; the soil may be equal to that intended for the carrot, and should be managed similar to it. The quantity of seed required is about eight pounds per acre, and the proper time for sowing is the month of March.—Yours, &c., P. O'C., *August* 9, 1848

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, NOVEMBER, 1848.

From every quarter we hear complaints of bad times, and we are sorry to say, no remedy has been proposed, although we believe our circumstances are capable of remedy, if properly applied. We have many times endeavoured to prove, that the only source of permanent and general prosperity for the inhabitants of the Province must be its Agriculture; and while that is suffered to remain in a languishing condition, a prosperous condition of the country is impossible. Our principal City, Montreal, exhibits all the appearance of wealth, judging by its houses, streets, wharves, &c., but even within the city bounds, there are considerable portions of the very best quality of land lying undrained, and nearly waste, producing either weeds or worthless herbage, that are easy to drain and cultivate to advantage. We should be sorry if strangers who visit our beautiful City were to estimate the general state of our Agriculture by the sample of lands in the immediate neighbourhood of Montreal, where one would suppose there was every facility and encouragement to cultivate every inch of land in garden style. We are perfectly convinced that one hundred acres of land, upon which four or five hundred pounds would be expended in useful improvements, stock and implements, would yield a better return than the same amount of capital expended in building a house in any of our cities, and with infinitely more advantage to the country generally. The great bar hitherto, to the improvement of Agriculture, has been, that capital was attracted to building and to commerce, rather than to husbandry, and that no provision has been made for affording an agricultural education for our youth, and we are now reaping the fruits of this mistaken policy. Houses are built, and an adequate rent cannot be obtained from them—and stores and shops are opened that cannot find sufficient customers for a profitable business. The same capital judiciously expended on agriculture would be always forthcoming, and yield an annual valuable produce. It is upon the country we must depend for what will support our Cities, and our trade, and commerce, in a prosperous state, and the only certain remedy for the present bad times will be in the improvement of our agriculture, and the augmentation of its products in quantity and value. Let the Canadian people only become interested, and get a taste for improved and successful husbandry, and we shall soon see our most talented young men anxious to acquire a thorough knowledge of the science and practice of agriculture, instead of all going to the learned professions or any other employment rather than farming, as at present. It is one of the most fatal, and strange mistakes, that agriculture should not *generally* be regarded with more interest and respect, than any other business or profession in the country, when in reality it is of so vastly greater importance to us than any other. If schools and colleges were established for the education and instruction of youth in the science and practice of agriculture, they would begin to be persuaded that the matter was really of some importance, and even might be as respectable a business or profession for a young man as any other he could choose. In our humble estimation agriculture properly conducted, has a thousand recommendations to a man of good education, and well regulated mind, that no other profession or business can offer.

There is no more pleasing employment than the cultivation of the soil, and management of cattle, so that each shall produce the greatest possible quantity of food and other necessaries for the human family. The Creator has given us a most fertile soil that will return us abundant products in proportion to the skill we employ in

its cultivation, but we disregard all these real advantages, and expend our capital to build palaces in cities, while the country that should give support to these fine buildings is neglected. We maintain that agriculture is an occupation that should be particularly gratifying to all good men who must know that food and clothing are necessaries of existence to his fellow men. A large and excellent produce created annually by skilful cultivation and industry, is one of the greatest benefits a man can confer upon his country. The practice by which he obtains such favourable results, is also an advantage by its example to others. We submit these observations in the hope of attracting a due degree of attention to the long neglected subject of agricultural improvement, that is so well entitled to the support and co-operation of every true friend of Canadian prosperity.

We attended the County of Montreal Ploughing Match, which took place on the farm of Mrs. Mills, Côte St. Pierre, on the 4th of October last, and were much gratified to see so many ploughs upon the ground—thirty, we believe, of which about fifteen were held by Canadians, all of whom did their work exceedingly well so far as regards good ploughing. The Canadians, we were delighted to see, executed their work fully as well as the ploughmen of English, Irish, and Scotch origin. All were iron wing-ploughs. The results of that ploughing match clearly prove that Canadians may be instructed to plough in as perfect a manner as an Old Country man. We thought it a matter of regret that some of the wheel and wooden ploughs, in general use in the country, were not present, in order the better to determine which was the most perfect and useful implement, as it is desirable that none but the most perfect and suitable implements should be generally employed in Agriculture. There is another circumstance we beg to mention, that ploughing matches should take place occasionally on strong clay soil, in order to ascertain to certainty what horse power would be required to plough such lands *well*, in ordinary seasons. It is the opinion of many that two good horses are sufficient to plough any land in any season, but we are of a different opinion. Strong clay land, if well drained, cannot be ploughed too deep—though light sandy land may; and to plough strong soil to a sufficient depth generally requires more than two ordinary horses. We would like to see, at ploughing matches, at least a sample of all the ploughs in general use, and the usual animal force employed. This would afford a fair opportunity of testing the comparative merits, and suitableness of each, and this would be the principal benefit of ploughing matches. It is not desirable to throw out of use the implements in general use in the country, unless they are proved to be defective, and less suitable than other implements that we can obtain, and a ploughing match is the proper place to ascertain this, by practical experiments, made on light and heavy soils. The Agricultural Journal of the Society being the only one published in Lower Canada, we conceive we should not be doing our duty to the public if we did not submit our ideas upon this matter. At the great shows of the Royal English Agricultural Society, both light and strong soils are ploughed, to prove the suitableness and excellence of implements, and we cannot follow a better precedent here. It is impossible that an Agricultural Society can expend a portion of its funds more profitably for the country, than at ploughing matches, under judicious regulations. There are some regulations that are indispensable to be observed, to render ploughing matches instructive and useful; and amongst these are the following:—

That the quantity of land, to be ploughed by each competitor, should be equal and sufficient to form exactly two ridges of whatever width may be determined upon, and that these ridges, when finished, should be straight, and of uniform breadth. That the slice to be cut should be of a certain depth, and its breadth be in due proportion—say five inches deep, and

eight inches wide, or six inches deep, and nine or ten inches wide—or whatever depth and width may be determined upon to suit the soil to be ploughed. That the premium be awarded to the ploughman who shall execute the work assigned to him in the shortest time, and in the best manner, conformably to these rules.

By strict conformity to the above regulations, a field, when ploughed, has a beautiful appearance; and in the words of Mr. Finlayson: —"There is even none of man's handiworks that can please the eye more, and, at the same time, show more of its unruled accuracy, than a lawn which presents ridges of the same width, the furrow-slices running in the straight equidistant lines, and that, too, with such minute exactness as scarcely to be equalled by the gardener." Such should be the appearance of a field that had been ploughed by the best ploughmen in the country, who would have assembled to show their skill at a ploughing match; and any field ploughed by men competing for premiums, that has not this appearance, is not calculated for instruction or example. Every farmer who has to employ a ploughman in this country, knows how difficult it is to procure one who can plough upon a farm, as well as at a ploughing match, according to the rules given above. It is to give instruction for this most necessary of all works, to be executed in the practice of Agriculture, that Training Schools, and Model Farms, are so desirable to be established, where young men might be properly instructed. We hope these suggestions will be received in the friendly spirit in which they are submitted. Ploughing matches are intended to show the skilful execution of that work in every particular; also, to ascertain the description of the implement best adapted to plough various qualities of soils, and to prove what animal power is required to plough light and heavy soils to the necessary depth. With these objects admitted, there can be no difficulty in establishing the most judicious regulations for ploughing matches to make them generally beneficial.

We give a general report of the Exhibition of the Agricultural Association of Western Canada, which took place at Cobourg the first week of October last. As we expected, the Exhibition was highly creditable to the farmers of Western Canada, and regret extremely that circumstances prevented us from being at the meeting. Such Exhibitions are well calculated to promote Agricultural improvement and useful domestic manufactures. We do not think it necessary to give the names of the successful competitors, as they have already appeared in several newspapers. There appears to be one objection to the rules of awarding premiums—that is—that parties should be allowed to enter more than one animal, article, or lot, for competition, in any one class, or be awarded more than one premium in any one Class. This, we humbly conceive, to be very objectionable. The great benefit of giving premiums at such Exhibitions is to create emulation, and a desire to excel in Agricultural products, excellent animals and useful domestic manufactures, and the more general that this emulation to excel is created and encouraged the better it will be for general improvement. While any parties that may be favourably circumstanced, in regard to situation, capital and skill, are allowed to sweep away three premiums offered in the same class, it will inevitably act as a discouragement to general competition with all farmers or domestic manufacturers, who may be less favorably circumstared. We observe that in several instances, their first, second, and third premiums were awarded to the same parties, in the same class—thus shutting out all other competitors, whose lots might not be much inferior. We submit these observations for consideration. Agricultural Associations are organized for the encouragement of general improvement, and the premiums which they award to promote this object should be as general as possible in their distribution. We feel persuaded, from a long experience, that it would answer a better purpose to award three premiums offered in one class, to three

individuals or parties, than to give all to one, however great the merit in the animals or articles exhibited by one individual or party. It was one of the established Rules of the Montreal District Agricultural Society, when in existence, that no person should obtain more than one premium in any one Class.

AGRICULTURAL REPORT FOR OCTOBER.

The month of October, up to this date, was very favorable for gathering in the root crops, and for ploughing. There was scarcely any frost to do injury, and the sesaon was as dry as we could expect it at that period of the year. We have been told, that at the beginning of the month, a considerable portion of the wheat and oats was not harvested. We fear any crops that did not arrive at maturity before then, will not be of much value. However fine the month of October, it is not the proper season for ripening grain crops, and, unless in very extraordinary seasons indeed, every farmer should have his crops housed before the end of September, and if he cannot, he should not sow grain. Much of the wheat has been housed damp this year, and whatever may be said to the contrary, we are persuaded that a large portion of the crop will not yield satisfactorily, as regards either quantity or quality. It is absurd to suppose grain crops could ripen in perfection, for the last five or six weeks, with the sort of weather we have had, and we are convinced they did not do so. Wheat was continued to be sown, last spring, until the middle of June, a period that has proved to be much too late this year, though it succeeded last year. We believe it will be found safest, under our present circumstances, to sow wheat from the 20th to the 25th of May. If wheat could be sown the first ten or twelve days of April, perhaps it might escape the fly in a great measure, and this would be still better than sowing at the latter end of May. The most dangerous time of sowing is from the 10th or 15th April to the 20th of May. Wheat sown during that time is most liable to be injured by the fly. It appears, therefore, that we must venture to sow wheat early, or have a variety of three-months wheat that can be sown late, and will not be liable to rust, as much of the wheat has done this year. It is unnecessary to report of the other grain crops further than we have done in our last. The pototoe crop is much more diseased in some sections of the country than in others; some fields are said to be totally destroyed, while in other fields, the loss varies from a fourth to three-fourths of the crop. We have seen excellent looking potatoes, but how long they remain so, it is impossible to conjecture. All speculation on the potatoe disease appears to be useless, and all that now appears in our power is to select the varieties for planting that have been known to resist the disease. The driest potatoes, and those that do not attain a very large size, are the safest to plant, and these should be carefully kept during the winter, and not suffered to sprout much. If farmers will not plant them without farm-yard manure, the manure should be ploughed in this fall. We would, however, prefer other manure, and the application of lime, salt, ashes and charcoal. The lime and salt should be mixed three or four months previous to using it, in the proportion of two bushels of lime to one of salt, and this mixture to be kept under cover until the spring. Potatoes, we trust, may still be cultivated successfully, by care in selecting the most suitable varieties, applying the sort of manure that has proved least liable to produce disease, planting early, and always on dry soils. It will be necessary to be very careful in storing seed potatoes during the winter. They should be kept dry, and mixed with charcoal or other dry substance, but charcoal would be the best, as it will imbibe any moisture the potatoes give out. We have grown, this year, in the same drills, potatoes from seed that were mixed—white and red—and we found that while the white were nearly all sound, a large proportion of the red were totally rotted away. How can this result be reconciled with atmospheric

influences? All the theories we have seen published, respecting the potatoe disease, appear only calculated to bewilder the farmers, and we are persuaded that a few simple suggestions, as to the soil and cultivation most suitable, the manner to be applied, the varieties of seed least liable to disease, and the time of planting, would be more practically useful to the farmers, than to publish volumes for them of theory, that is not proved by actual experiments. We have made an experiment this year, in our garden, with kidney-potatoes, planting them in fertile soil certainly, but only applying to them, when planting, a mixture of soot, salt and lime, and there has scarcely been one of them rotten, and the stalks were left on. Carrots, turnips and mangel wurtzel, should be stored in cool root-houses, where the temperature would not be much above freezing. They will keep better in such a temperature than in a higher one. Dry sand, or dry powdered moss, are substances that may be mixed with them to advantage, to prevent them heating.

This is the last Report of the year that can have much reference to the produce of our crops this season. The question most interesting to farmers now is, what market are they likely to have for this produce? We do believe that wheat of fair sample will bring a remunerating price. Oats of good quality, fit to make meal, may also command a fair price, because there probably will be a good market for oat-meal in the British Isles, if of good quality.

Barley, we have no doubt, will still sell for a good price to make beer—that most wholesome beverage for all agriculturists, and for the poor laboring man in particular, who requires some such nutritive stimulant to enable him to perform his constant and daily labour; and we consider it a matter of regret that all laborers, who have to work constantly, cannot have a regular supply of beer at a moderate rate, and in such quantity as would not injure him more than any other portion of his subsistance. Peas, we hope, may sell for a price that will satisfy the farmer, and encourage him to grow them again. Beans and Indian corn will be consumed generally in feeding horses, cattle and swine upon the farm. The agriculturist is not covetous of exorbitant prices for his produce. No man in business is satified with a lower profit, and they are content with less remuneration for their labor and capital than any other class of the community. The result of this year, upon the whole, has not realized the very flattering prospect we had of the crops in the month of July; but nevertheless, the amount of the whole may be fully equal to the average of seasons, and perhaps over that. Now is the time to do all in our power to prepare our lands by good ploughing, draining, and manuring, for next year's crop, and every farmer is bound to do this, according to his means.

October 21st, 1848.

We hope that farmers have done all in their power, this fall, to drain their arable land sufficiently. It is vain to propose any great improvements in the cultivation or manuring of lands not sufficiently drained. We have witnessed the injury done to arable lands by stagnant water, and the want of good outlets to the drains, that might be remedied without much difficulty. We were once of opinion that open drains would, in most situations, be the most suitable here, in consequence of the covered drains being liable to be frozen in winter, and continue frozen in the spring, when their useful action would be most required. We are now of opinion, however, that covered drains, three feet deep, and over, well made with tiles and small stones, or with small stones alone, may answer exceedingly well in most situations, where they will have sufficient fall, as they require more fall than open drains. Three feet deep is the least they should be sunk below the surface, and four feet would be better. Small stones, where they can be had conveniently, will answer as well, and, we believe,

better than tiles, unless small stones are put in with tiles. Whether open or covered drains are employed, the land has to be drained, if we expect to raise good and profitable crops, and any farmer who will not drain may as well give up all idea of other improvements in arable culture, as they cannot be successful on land insufficiently drained.

Oatmeal.—We had an opportunity, last week, of seeing some oatmeal selling in the market, which we were told was manufactured in Montreal, and we found it was made from oats insufficiently dried, and consequently the meal was very damp, had much of the seeds mixed with it, and was altogether a sample of the article, totally unfit for exportation, or, indeed, for home consumption. We are convinced that this defect is entirely the fault of the manufacturer, as we have seen as good oatmeal here as we have ever seen. The oats cannot be properly shelled, or the rind separated perfectly, unless sufficiently dry, and consequently, the seeds and rind are ground up with the meal, and are not and cannot be separated sufficiently afterwards. If a successful trade in oatmeal is desirable for Canada, and there can be no doubt but it would be, the article must be carefully and properly manufactured. Many articles exported from this country are so carelessly prepared, that some of our produce has a bad character in Britain, when it might be otherwise, and this defect is seldom the fault of the farmer, but of the manufacturer and merchant.

We have now, in the Agricultural Library, several books from which it would be very easy to make selections that might be translated into French, and made suitable for school books for the instruction of youth in the science and art of agriculture. We might have a short simple "Agricultural Catechism," a "Book of the Farm," a "Description of Domestic Animals, and the best mode of breeding and feeding them;" "The management of the Dairy," &c. &c. These different subjects might be treated concisely and simply, for either young or old readers. The introduction of such books generally, we are persuaded, would be productive of the most happy results, particularly in creating a taste in our youth for agriculture. It is manifestly not less necessary that such books should be read by our youth than the frivolous publications that are first put into their hands for their study. It is one of the most extraordinary features of our system of rural education, that in our country schools there is scarcely a book to be found that has any relation to the science or art of agriculture, that is to be the future employment of nine-tenths of the youth educated at these schools. The whole tendency of their education is in another direction rather than towards the employment of their future lives, and the business by which they are to gain their living.

The Lower Canada Agricultural Society was organized with a view to forward improved husbandry in Eastern Canada, and although they have hitherto been unable to adopt all the measures which they proposed for the attainment of this highly important object, they have however commenced the good work, and when adequate funds are at their disposal, they will proceed to do what may be required. They claim support, upon the grounds of the pressing necessity which manifestly exists, for adopting effectual measures for promoting the improvement and prosperity of this naturally fine country.

This Journal is now brought to the 11th number, and it would be a source of great satisfaction to us, if the subscribers were to signify their satisfaction with our humble exertions to interest them, and advance the cause of agricultural improvement, by paying up their subscriptions, where they remain due. In many instances we may have been in error, but we can truly affirm, that we have done all in our power to make the Journal useful to the subscribers, and wherein we have failed, it was from

error of judgement. We were so ambitious as to wish the Journal equal to any published on the same subject in North America, and we are now so vain as to believe that it is entitled to this character, with the exception that it contains no illustrations or wood-cuts; but we hope this defect will be remedied next year. On the strictest examination of the numbers published, we trust that not one page of original matter, or selections, will be discovered that would be calculated to lead farmers into error in the practice of husbandry. We would respectfully solicit the Canadian Press to review our Journal from the commencement, and if it is found calculated to promote the object for which it is assumed to be published, it may be recommended to farmers who perhaps are not aware of its existence. As the necessity and advantage of Agricultural improvement are universally admitted, we presume it will not be thought unreasonable that we should ask the Press to do us this favour. We meddle not with parties or politics, and do not encroach upon the high privileges of the Press in any way; we therefore, trust they will take us under their powerful patronage, and recommend the cause we advocate, so far as they deem it worthy of their support. The Press is all powerful, and can well afford to take us under their protection and foster and encourage our humble efforts to promote the same object that they have in view, namely, the general prosperity of the land we live in, though we endeavour to do this by different means. We pretend to be only humble laborers, but in a good cause, and we expect the favourable patronage of the generous conductors of the Canadian Press. We study our subject and may be able to submit useful suggestions, but it is the Press that have it in their power to give weight and effect to what they may conceive to be correct in our suggestions.

TERREBONNE AGRICULTURAL SHOW.

The Autumn Show of the County of Terrebonne took place on Thursday last, at the town of Terrebonne. The day was, from the weather, on the whole, unfavourable, the roads being in very bad condition. This, as at Montreal, operated unfavourably to the exhibition, discouraging the conveyance of stock in high condition. The quality of the stock was not inferior to previous occasions, but the quantity exhibited was not large. In fact, unless the prizes are larger, there is no adequate inducement for the pains and risk of bringing fat animals many miles over country roads to the place of exhibition. Still, we think, the Show was, on the whole, favourable to the county, and particularly in pigs and sheep, would bear an advantageous comparison with any thing we have seen. After the adjuciation of the prizes, a numerous party, not fewer than sixty, dined at the hotel in the village; and under the presidency of the Chairman, Vice-Chairman, and Secretary, spent an exceedingly pleasant evening.

THE DIFFERENT SYSTEMS OF FARMING.—Is it because "deep ploughing" is considered as one of the numerous *new fangled* farming theories; or is it because all its advocates have not had the fortune, (or as I sometimes think, the misfortune,) to be brought up at the plough tail; or because, as more than one ploughman has told me, "his horses worn't *us'd to it*, nor he neither?" That it is not a *new* light, a mere Mechian theory, history plainly reveals.

Pliny tells us, the *accustomed depth* of ploughing, in the times of the ancient Romans, was *nine inches*, and, moreover, that the ploughman in those days, went *twice over* the land, not going round the head land as they now do, but returning in the furrow, thus, in all probability, scratching up a few more inches of earth. The same writer tells us, they were at great pains to make their furrows straight, and of equal breadth.

A crooked ploughman was designated a "prevaricator," a man of shallow or impaired intellect. Now, if a ploughman cuts off a slice of from four to five inches from a lea or stubble, he seems to satisfy himself, and, in too many cases, his master too. He did not dream of "the crook of gold" being buried deeper than that—he thinks the precious metal of the fields, is like the gold in the streets of London, only pavement deep; if he break up that, he feels sure the yellow grain will come. There is no implement so valuable to the farmer, as a good plough; no labourer more worthy of his hire, than a ploughman who can set out his "lands well," and "with his team a-field," make deep, clean, straight furrows; one too, that can work a peir of good horses, without wanting a boy to whistle to. To be an expert hand at ploughing, in the olden time, was accounted the highest praise; and whoever neglected his farm, or tilled it improperly, was liable to the animadversion of "the censors." If a few of the steadiest and most able ploughmen were admitted to the annual agricultural shows *and dinners*, (taking of course their own places below the salt, or to-

gether at a side table, as in days gone by,) and there permitted to witness the interest taken in every department of agriculture, by not only the worthy husband of our gracious queen, but by a goodly array of old England's noblest and best *titled and untitled men; it would do them a lasting* good, spur them on to greater efforts, induce a spirit of praiseworthy rivalry amongst themselves, make them vie with each other for the palm of victory, of "conquering the clods," and rendering still more fertile the stubborn earth; thus would once again our nation's peasantry become our country's pride.—*West Norfolk, August 1st*, 1848.

THE PROVINCIAL AGRICULTURAL ASSOCIATION.

Agriculture can boast what no other profession can, viz:—a Divine appointment.—Commerce—arts—every thing that we enjoy in the world, has grown up from it—as but the fringe upon a noble raiment, they embellish life—but agriculture supports it. The Almighty, when he condemned mankind to labour, showed his wisdom and goodness by so forming the Earth, that without such labour mankind should not continue their existence, or enjoy the conveniencies of it. This was not a *passionate curse*, but the skill of the Governor of the world, unattainable by human legislators, to make his laws execute themselves; and it is a well known fact, that those who are placed in a situation of life, to plead an exemption from this general law of their nature, feel the consequences of their mistake, by the exchange of true and agreeable pleasure, for false and imaginary, by the decay of health and spirits; impairing their fortunes and beggaring their posterity, and after all submitting to the greater disgust and fatigue of idleness.

What pure and innocent enjoyments are the lot of the plough boy, compared with those of the lad engaged in Manufacture. Behold the inhabitant of the country; he loves all around him, his grounds, his animals; his fields are daily courted by his hands. The artificer of the old country has a contracted soul, he is an egotist, he does not marr, he hates his master, his person, his labour. The husbandman is obliging, neighbourly, because it is in the very nature of his calling—there subsists between cultivators a reciprocity of services. The artificer stands unconnected; his disposition is altered as much as his health. The forsaking of a rural life spreads vice in a district, and all the country in the vicinity of Manufactures is infected with bad subjects. We appeal to experience, to the manufacturing towns of Great Britain, among others; there a few avaricious masters have literally changed a free and a worthy people, into a slavish and degenerate race of men.

The effect of Manufactures on a people, we repeat, merely tends to steal and waste the time, the strength, the youth, and existence of a multitude of active poor. These workmen are perpetually contending with the indolent rapacity of their employer. The keenness of the dispute for wages begets hatred. We have always lamented to see the Manufacturers entice men from the pure and simple life of the country, where they constantly dwelt with nature, to immure them within the walls of dismal prisons.

Cultivation is neglected for these manufactures, which enrich only a few families, where the league of rapacity is established and maintained. Morals are ruined in these workshops, where men forget their virtues, where they become unfeeling, harsh, and bad parents, because they have to struggle with the dastardly avarice of a superior.

Thus are the fields insensibly deprived of the precious class of labourers: of that class, virtuous by nature, because it has no relation, but with the earth; and the soul is always endued with a mild disposition, when the body, employed in the cheerful toils of Agriculture, breathes a wholesome air, and knows not oppresion.

The all-wise and benevolent architect has so constituted the frame of things, that duty and interest go hand in hand; labour and pleasure succeed each other like day and night; and what he has made necessary, he has made delightful. As hunger and thirst, and weariness, are the infirmities of our nature; eating, drinking, and rest, which are the removal of them, are attended by their proper gratifications; and as the cultivation of the earth was to be the laborious employment of the greater part of mankind, so more satisfaction and amusement were to attend it, than is to be found in any other way of life. The labours of the Agriculturist are accompanied with that vigour and flow of spirits, which alone make life a blessing to the possessor; and the products of it are what our constitutions are framed to like best; what is most agreeable to our taste, delightful to our eyes, and feasts our imagination. The life of the tiller of the fields

is more innocent, his meals more grateful, his sleep less disturbed, than that of any other class whatever. Men may imprison themselves in cities, in large enclosures of brick and stone; may hurry from place to place, and from one amusement to another, but happiness has fixed her seat in rural scenes.

But setting the health and strength, and beauty of the human race aside, the labours of the husbandman will rise in our esteem, if besides their agreeableness to our nature and frame, we consider them as the fruitful source of the wealth of a nation, and productive of all that is necessary to the being, and well-being of mankind. Trade and Commerce, which are esteemed the two great fountains of national wealth, cannot have an existence but on the foundation of this original and natural employment.

Trade and Commerce are nothing else but the manufacture and exchange of the products of the earth. The flax must grow before it can be worked up into cloth, the herbage must nourish the flocks whose wool is to cover and warm us.—The true riches of every state is not the extent of its domain, but the due cultivation of it; and to suppose gold and silver to be such, argues an utter ignorance of the nature of the thing. A nation may be the sole proprietor of all the gold and silver of Peru and Mexico, and yet by neglecting to cultivate its lands, and the trade arising therefrom, acquire only the bare advantage of being the carriers of other nations, depending upon them for the *necessaries* of life. The old farmer in the fable showed his knowledge of the place in which true wealth exists, by telling his sons of a treasure hid somewhere in his grounds, which would sooner or later, turn up under the plough if they would constantly use it. The hope of finding this treasure led to such a culture of the land as made them find above ground what they looked for beneath it. We could enlarge upon this subject at any length; we could show that in the first ages of the world all the wealth consisted of the produce of the ground; *Isaac's endowment* of his son was "*the fatness of the earth and plenty of corn and wine.*" *Job* is represented as one of the richest men in the world—he had 7000 sheep, 3000 camels, 500 yoke of oxen, and 500 she asses. The Egyptian King got possession of all the grain of his subjects, and consequently of all the wealth of his neighbours.

But Agriculture furnishes something besides wealth to a Nation; it gives hands also, able and willing to defend it; and is perhaps the best nursery of good soldiers in the world. Other arts and employments of life, a few only excepted, naturally tend to debase the courage and impair the strength of those who follow them; but the labours of the country brace the nerves, give health to the complexion, strength to the sinews, vigour to the constitution, inure to weather and fatigue, and keep the vital spark going by continual exercise. Such men propagate a hardy and numerous race, who people the country, enrich it with their labours, and defend it with their strength. Besides, the Agriculturists are averse to civil discord, and offensive war. They much more willingly turn their swords into ploughshares than the reverse. As soon as they have gained a property in the state, they wish its safety and will not quarrel with a government which secures them in the quiet enjoyment of their own.—Not one of the disturbances which have lately agitated Europe, had its rise in the *Country*.—This alone speaks volumes. But we have no space for further prefatory remarks.—*Cobourg Star.*

THE EXHIBITION.

On Sunday night, the weather, which had been delightful for two or three days, suddenly changed, and from that time till Tuesday we had one continuous shower. In the afternoon of Tuesday the violence of the rain abated, and during the night we had occasional showers with a high wind. Wednesday dawned very sullenly and threatened us with a continuation of bad weather, but although cloudy, cold and windy, we had no rain of consequence. A good many people came with Stock on the Friday and Saturday preceeding the week of Exhibition; these were largely added to on Monday, Tuesday and Wednesday, from all parts of the Province; but from the reports of delegates from the various localities, not one half the Stock came that would have been exhibited had the weather been reasonably fair. In consequence of the bad weather, the boats did not leave Toronto and Kingston on Tuesday, at their usual hour. It was therefore thought proper, by the Committee of Management, to postpone the hour for the close of the entry books, from 10, P. M., on Tuesday, till 12 noon on Wednesday. A great many entries were made on Monday and Tuesday, and on Wednesday morning after the arrival of the boats. Indeed up to the hour appointed for the Judges to begin their duties, the Ticket office was besieged by a vast crowd of competitors.

Notwithstanding the heavy rains, the ground was quite dry: this is attributed to the sandy

nature of the soil, and its being thoroughly drained. During the time the Judges were on the ground, which was till a late hour on Wednesday, none but competitors, and persons in charge of Stock, were admitted within the gates. During the whole day, the utmost order and regularity were observed.

On Wednesday evening the clouds broke away in the West, and the sun occasionally showed himself. All night the weather continued fair, and on *Thursday morning*, the grand day of the Exhibition, there was not a cloud to be seen. It was in fact a thorough Canadian autumn morning, "calm, clear, and purely beautiful." At seven o'clock the Ticket office (for admission to the grounds,) was besieged by hundreds of people. During the whole day the stream of visitors continued, and it was computed, from the number of Tickets sold, that 7000 were on the ground at 3 o'clock, P. M. At that hour, the *Bowmanville* Band, composed of young Mechanics, who had volunteered their services for the occasion, attended, playing with a skill that we have seldom heard surpassed, even by the well trained Military. We are sure that the public generally will bear us out in saying that better music could not have been.

From 3 till 6 we devoted to an examination of the Stock, Produce, and Articles on the Ground.

The first Pens we went to contained the Durham Cows, and a finer set of animals could not be seen. Our prize list shows that the Township of Hamilton carried the prize. This, however, will not be wondered at, as it is generally known that the Messrs. Wade spare no pains to procure supplies of the best stock from England. In Durhams particularly, they cannot be surpassed. The second prize in Durham Heifers fell to the lot of *John Wetenhall*, Esq., M. P. P., of Nelson, in the Gore District, than whom a more ardent agriculturist, or a better, does not exist. Happy are the farmers of the Gore District, in having such a Representative in Parliament; would that other constituencies, our own among the number, had sense enough to follow their excellent example. The Bulls of the Durham breed were really the most magnificent animals that we ever saw. In the show of Durham cows and two year old heifers it will be seen that Mr. R. Wade stands first; and in the best heifer calves, E. W. Thomson, V. P., first, and Mr. R. Wade, second. We could scarcely take our eyes from them; how much better, thought we, as we surveyed their fair proportions, with an eye to a good dinner, than all the romance of the "bounding deer." No wonder, thought we, that a nation fed on such magnificent food, should be the first in the world; happily is England named "John Bull."

The Devons were not half so numerous as the Durhams, but some very fine specimens were shewn by A. A. Burnham, Esq., of this town, and also by Mr. John Mason, of the same place, and by Mr. Richard Gapper, of Toronto. The Devon animals, one might think, have a literary turn, they are so deeply *red*. Apparently they have all the mildness and equability of temper of the stoics of ancient Greece. We would recommend some of our cantankerous contemporaries to procure a little of their milk.

Of *Class C, Herefords*, there were none on the ground.

Class D, Grade Cattle—There was an excellent show of the above, there being about 50 head on the ground. In the old cattle of this breed, Mr. John Belwood, of Clarke, was the only one who saved the credit of the Newcastle District, in the prize line. We however, made up for it in the younger cattle, as our prize list will show.

Fat Cattle.—There was a large show of fat cattle on the ground, and we have no doubt that the sight caused many an epicure's mouth to water. In the above, this District carried off all the prizes.

Class E, Horses.—There was a very large and splendid show of stallions, but we regret to say that the first prizes were taken by horses not owned within the District. It seems that we are behind our neighbours in a good horse to breed from, notwithstanding the praiseworthy exertions of some of our most spirited farmers. It is a very great consolation, however, to know that Mr. Walbridge of Clarke, and Mr. A. Crawford, of Cobourg, have a good young stock coming in.

Among the many splendid spans of matched carriage horses were a couple from Belleville, but being stallions the Judges would not allow them to compete. We do not know upon what precedent they grounded this proceeding; it certainly looks very queer at present. If stallions are not allowed to compete as carriage horses, at the public Exhibitions, the sooner it is known the better. We would not wish to be understood as saying that the exclusion of them was improper, but we think the reasons upon which that exclusion was founded, should be given.

Class F, Sheep.—The Leicesters were very numerous on the ground, and very good, but almost all the prizes were taken in the Gore district. Mr. R. Wade of this Township was the only one who at all upheld our character in the mutton line.

In South Downs it will be seen that Asa A. Burnham, Esq., of our town, made the best show. This is a very great honour to him, as well as to the District at large, as the show was very imposing. In Merinos our District was well represented. The Factory prices for this kind of wool have induced many importations of the breed.

Class G, Pigs.—The Pigs were numerous and very fine. All the prizes were taken in this District.

Class H, Agricultural Implements. — The show of Agricultural implements was enormous. Wooden Scotch ploughs, iron ditto, Canadian

ploughs, subsoil ploughs, harrows, fanning mills, threshers, straw cutters, smut machines, farm gates, brick making machines, &c., &c., were piled round in the greatest profusion. Arranged in this class we also noticed an immense number of articles from the United States, for many of which Diplomas were given.

Class J, Domestic Manufactures—The immense hall containing domestic manufactures was literally crammed. It contained every thing under the above heading, that the most fertile imagination could fancy.

Class J, Woollen and Flax Goods.—There were about two hundred splendid samples of woollen and flax goods shown, out of which those manufactured in the Newcastle District carried off an immense majority of the prizes. Mr. Mackechnie's Factory upheld the character which it obtained last year in Hamilton, and carried off no less than twelve prizes. Among this gentleman's prizes we noticed one for best Broad Cloth from Canadian wool. The wool was obtained from the flocks of H. Covert, Esq, of Cobourg, and J. Wallis, Esq., of Peterboro'. The quality of the Cloth was "No. 1, letter A." The show of fulled Cloth, not Factory make, was very poor indeed, none being found worthy the first prize.

Class K, Dairy Products and Sugar.—The competitors in this class were very numerous indeed; one side of the Grain and Seed Hall being wholly taken up with samples. The Judges declared that they had never seen a better display of American cheese and butter, and this will be considered a very great compliment when we inform our readers that one of the Judges was *Mr. Alleyn*, Secretary of the N. Y. State Agricultural Society.

Class L, Cabinet Ware—Of the Cabinet ware we cannot speak too highly; the centre table shown by Chartrain & Huff was a very fine piece workmanship, as was also the dining table made by Mr. Clench. The prizes for the best and second best easy chairs, and for the best six dining room chairs, were awarded to Mr. Stephens, as was also the prize for the ottoman. There was no prize for sofas or sideboards, but there were several exhibited. A sideboard by Mr. Russell was exceedingly admired.

Class M, Horticultural Products.—The display of the above was not so large as we could have wished, but the quality was extremely good. The show of greenhouse plants from the gardens of G. S. Boulton, Esq., and Messrs. Wade & Jeckell, was superb. There was a great show of vegetables also, among which we noticed an immense pumpkin from Montreal, and several from the farm of Capt. Shaw, near Toronto. We almost protest against the future show of fruit; it is such a temptation. Here we had Mr. Jeckell, Mr. Thomas, Mr. Creighton, Mr. Webb, Mr. Lovekin, &c., &c., showing us apples that would cause the undoing of a second world, while the grapes of Mr. Gray, of Toronto, would cause a Temperance society itself to become a votary of Bacchus. To decide on the fruit was certainly the most popular Judgeship going.

Class N, Seeds and Roots.—The Canada Company's prize again fell to the lot of Mr. Clarkson Freeman, of Flamboro' West. There were twenty samples shown, and all very fine. Had the show been a month earlier, the whole of the wheat shown might have been purchased and sown; as it is, the owners have to carry it home again.

An immense number of other Seeds and Roots were shown, and we are happy to say that a majority of the prizes was carried by this District.

Class O, Iron and Hollow Ware.—The display of stoves by Mr. Colton, of Brockville, was very large and very fine. He took all the prizes. Other articles of Hollow Ware were not numerous.

Class P, Ladies' Department.—The Ladies' Department was well filled, and a good deal of time and attention on the part of the Judges was requisite to arrive at a just conclusion with respect to the articles exhibited. The woollen socks, stockings, mittens, and gloves were a credit to the makers, not only for the skill displayed upon their construction, but also for the substantial comfort which they were calculated to confer

Good! we said to ourselves, as we looked over the above articles, Canadian girls are not ashamed to make, nor Canadian farmers to wear, articles of domestic manufacture. Of the embroidery we were most pleased with three chairs, one by Miss C., one by Miss L., and another by Mrs. B., of Cobourg.

Class Q, Fine Arts.—In the short space at our disposal, it is quite impossible to give even a faint idea of the works of art exhibited in this Department. We must, however, mention the excellent drawing of Miss Clench, our accomplished townswoman, and of Miss S. and Miss Riley, also of Cobourg, G. D. Wells, Peter March, Hoppner Meyer, and E. C. Bull, Esqrs., of Toronto. We also noticed, as did every one at the exhibition, the splendid portrait, in oil, of Mr. Sheriff Ruttan. It was the work of Mr. Field, at present stopping at the *North American*. This gentleman is a most excellent artist, and for faithfulness is only equalled by the daguerreotype. We earnestly recommend our townsmen to give him a call. These were all of a high order of merit, and received much applause from the spectators. Among the fine arts was exhibited a model of a new steamboat wheel, invented by R. D. Chatterton, Esq., of this town, which, in the opinion of the Judges, as well as our own, will soon supersede the old one altogether.

Class R, Pottery.—Some very fine specimens were exhibited by Mr. Brownscombe, of Hope, and Mr. Bellie, of Bowmanville.

Class S, Book-binding, Paper, &c.—Some fine specimens of Book-binding were shown by Messrs.

Scobie & Balfour, of Toronto, and Messrs Goodeve & Corrigal of Cobourg. The Bank Ledger of the latter firm was particularly well done.

In the Printing line, Scobie & Balfour got the first prize, and the *Cobourg Star* office the second.

Class T, Indian Prizes.—The Indian articles exhibited were all good of their kind. The bark canoes, particularly, were well and strongly made.

We have now taken a rapid survey of the Prize list. We would also notice the general arrangements of the Committee, were it not that we might be considered obtruding our own praises on the public, at the same time that we were lauding the Committee of Management.

THE DINNER.

On Thursday evening, precisely at 6 o'clock, the Pres't, V. P's, and Officers entered the grand dining hall, calculated to accommodate one thousand persons; immediately after, the guests were admitted, then the Judges, and the press, when the doors were thrown open. Owing to the exertions of C. H. Morgan, Esq., and the other Stewards, there was not the least confusion.

The dinner, provided by Mr. Thompson, was really splendid, and the general arrangements unsurpassable. The attendance of waiters was numerous and well-directed. Nothing, in fact, could have been better.—*Cobourg Star.*

In judging of the hardihood, propensity to fatten, and other points of cattle, practice will be the young farmer's best tutor. Yet the collected experience of one or two excellent judges, which I shall proceed to give in this note, will not, I hope, be without its value to him.

The breeds of cattle in England are remarkable for their numerous varieties, caused by the almost endless crossings of one breed with another, often producing specimens of the most mongrel description, and which are rather difficult to describe. In all these we should, in looking for the chief points of excellence, regard, as Mr. Youatt well observes, "wide and deep girth about the heart and lungs, and not only about these, but above the whole of the ribs must we have both depth and roundness, the *hooped* as well as the deep barrel is essential. The beast should also be ribbed home; there should be little space between the ribs and the hips. This is indispensable in the fattening ox, but a largeness and drooping of the belly is excusable in the cow. It leaves room for the udder, and if it is also accompanied by swelling milk veins it generally indicates her value in the dairy. This roundness and depth of the barrel, however, is most advantageous in proportion as it is found behind the point of the elbow, more than between the shoulders and legs; or low down between the legs, than upwards towards the withers, for it diminishes the heaviness before, and the comparative bulk of the coarser parts of the animal, which is always a very great consideration.

"The loins should be wide, for these are the prime parts; they should seem to extend far along the back; and although the belly should not hang down, the flanks should be round and deep; the hips large, without being ragged, round rather than wide, and present, when handled, plenty of muscle and fat. The thighs full and long, and when viewed from behind close together. The legs short, for there is almost an inseparable connection between length of leg and lightness of carcass, and shortness of leg and propensity to fatten. The bones of the legs, and of the frame generally, should be small, but not too small; small enough for the well-known accompaniment, a propensity to fatten; small enough to please the consumer, but not so small as to indicate delicacy of constitution and liability to disease. Last of all, the hide, the most important thing of all, should be thin, but not so thin as to indicate that the animal can endure no hardships, movable, mellow, but not too loose, and particularly well covered with fine and soft hair."

On the points by which live stock are judged some very excellent papers have appeared in the *Edin. Quart. Jour. of Agr.* by Mr. James Dickson, cattle-dealer, of Edinburgh. He very truly observes (vol. v. p. 159) "that the first point to be ascertained, in examining an ox, is the purity of its breed, whatever that breed may be, for that will give the degree of the disposition to fatten of the individuals of that breed. The purity of the breed may be ascertained from several marks; the colour or colours of the skin of a pure breed of cattle, whatever those colours are, are always definite. The colour of the bald skin on the nose and round the eyes, in a pure breed, is always definite, and without spots. This last is an essential point. When horns exist, they should be smooth, small, tapering, and sharp pointed, long or short according to the breed, and of a white colour throughout in some breeds, and tipped with black in others. The shape of the horn is a less essential point than the colour.

"The second *point* to be ascertained in an ox, is the form of its carcass. It is found that the nearer the section of the carcass of a fat ox, taken longitudinally vertical, transversly vertical, and horizontally, approaches to the figure of a parallelogram, the greater quantity of flesh will it carry within the same measurement. That the carcass may fill up the parallelogram as well as its rounded form is capable of filling up a right-angled figure, it should possess the following configuration:—The back should be straight from the top of the shoulder to the tail. The tail should fall perpendicularly from the line of the back. The buttocks and twist should be well filled out. The brisket should project to a line dropped from the middle of the neck. The belly should be straight longitudinally, and round laterally, and filled at the flanks. The ribs should be round and should project horizontally, and at right angles to the back. The hooks should be wide

and flat; and the rump, from the tail to the hooks, should also be filled and well filled. The quarter from the itch-bone to the hook should be long. The loin bones should be long, broad, and flat, and well filled; but the space betwixt the hooks and the short ribs should be rather short and well arched over, with a thickness of beef between the hooks. A long hollow from the hooks to the short ribs indicates a weak constitution and an indifferent thriver. From the loin to the shoulder-blade should be nearly of one breadth, and from thence it should taper a little to the front of the shoulder. The neck-vein should be well filled forward to complete the line from the neck to the brisket. The covering on the shoulder-blade should be as full out as the buttocks. The middle ribs should be well filled, to complete the line from the shoulders to the buttocks along the projection of the outside of the ribs; these constitute all the *points* which are essential to a *fat* ox.

"The first of the *points* in judging of a *lean* ox, is the nature of the *bone*. A round thick bone indicates both a slow feeder and an inferior description of flesh. A flat bone, when seen on a side view, and narrow when viewed either from behind or before the animal, indicates the opposite properties of a round bone. The whole bones in the carcass should bear a small proportion in bulk and weight to the flesh, the bones being only required as a support to the flesh. The texture of the bone should be small-grained and hard. The bones of the head should be fine and clean, and only covered with skin and muscle, and not with lumps of fat and flesh, which always give a heavy-headed dull appearance to an ox. The fore-arm and hock should be also clean and full of muscle to endure travelling. Large joints indicate bad feeders. The neck of an ox should be contrary to that of the sheep, small from the back of the head to the middle of the neck. A full, clear, and prominent eye is another *point* to be considered, because it is a nice indication of good breeding. It is always attendant on fine bone: the expression of the eye is an excellent index of many properties in the ox. A dull heavy eye clearly indicates a slow feeder. A rolling eye, showing much white, is expressive of a restless capricious disposition, which is incompatible with quiet feeding. A calm complacent expression of eye and face is strongly indicative of a sweet and patient disposition, and, of course, kindly feeding. The eye is frequently a faithful index of the state of the health. A cheerful clear eye accompanies good health: a constantly dull one proves the probable existence of some internal lingering disease; the dullness of eye, however, arising from internal disease, is quite different in character from a natural or constitutional phlegmatic dullness.

"The state of the skin is the next *point* to be ascertained; the skin affords what is technically and emphatically called the *touch*—a criterion second to none in judging of the feeding properties of an ox. The touch may be good or bad, fine or harsh, or, as it is often termed, hard or mellow. A thick, firm skin, which is generally covered with a thick-set, hard, short hair, always touches hard, and indicates a bad feeder. A thin, meagre, papery skin, covered with thin silky hair, being the opposite of the one just described, does, not, however, afford a good touch. Such skin is indicative of weakness of constitution, though of good feeding properties. A perfect touch will be found with a thick loose skin, floating as it were on a layer of soft fat, yielding to the least pressure, and springing back to the finger like a piece of soft, thick, chamois leather, and covered with thick, glossy, soft hair. It is not unlike a bed of fine soft moss, and hence, such a skin is not unfrequently styled 'mossy.' A knowledge of touch can only be acquired by long practice; but after having acquired it, it is of itself a sufficient means of judging of the feeding quality of an ox, because when present, the properties of symmetrical form, fine bone, sweet disposition, and purity of blood, are the general accompaniments. These are the essential points in judging *lean* cattle, but there are other and important considerations in forming a thorough judgement of the ox. The head should be small and set on the neck as if easily carried by the animal; this shows the animal to advantage in the market. The face long from the eyes to the point of the nose. The skull broad across the eyes, contracted a little above them, but tapering considerably below them to the nose. The muzzle fine and small; the nostrils capacious; the ears large, a little erect, and transparent; the neck short and light. A droop of the neck from the top of the shoulder to the head indicates a weakness of constitution, arising frequently from breeding too near akin. The legs below the knees should be rather short than long, and clean made; stand where they apparently bear the weight of the body most easily, and wide asunder. The tail rather thick than otherwise, as that indicates a strong spine, and a good weigher. It should be provided with a large tuft of long hair. The *position* of the *flesh* is important; that part called the spare rib in Edinburgh, and the fore and middle ribs in London, the loins and the rump, or hook-bone, are of the finest quality, and are generally used for roasts and steaks; consequently the ox which carries the largest quantity of beef on these *points*, is the most valuable. Flesh of fine quality is actually of a finer texture than coarse flesh. The other desirable objects in a fat ox, are a full twist, lining the division between the hams called 'the closing,' with a thick layer of fat, a thick flank, and a full neck bend; these generally indicate internal tallow. The last points generally covered with fat, are the point of the shoulder-joint and the top of the shoulder; if these parts are, therefore, felt to be well covered, the other and better parts of the animal may be considered ripe. It is proper in judging of the weight of a fat ox, to view his gait while

walking towards you, which will, if the ox has been well fed, be accompanied with a heavy rolling tread on the ground. In this way a judge can at once come very near to its weight." (*Quart. Journ. of Agri.* vol. v. p. 167; *Farmer's Encyclo.*)

The carrot delights in deep, sandy loams, which when intended for this valuable root, can hardly be stirred too deep, either by the common or sub-soil plough, or by the fork. The best kind for field culture, are the Altringham, the long red, and the orange. It may be sown on ridges, as well as by the drill, or broadcast. The seed should not be more than a year old, and if well mixed a fortnight before sowing with about two bushels of wet sand, or fine mould, the seeds are prevented from adhering together, and they grow the better. The best time for sowing is in April, and if the drill is used, two pounds of seed per acre, is sufficient; but if sown broadcast, five pounds will be required. The young carrots may be hoed out in the same way as young turnips, and when at maturity, they may be dug up (in October), or left in the ground, and raised as they are wanted. If they are dug up, they keep very well in pits, about four feet deep covered with haulm; the produce is usually from 300 to 450 bushels per acre. Every part of this crop is excellent food for live stock, either the tops or the roots; the roots (a bushel per day sliced) mixed with chaff is excellent food for horses. For this crop the best manures are either farm-yard dung, that of pigeons, salt and soot mixed (say ten bushels of each per acre). Sea-weed, turf, or street sweepings, all turned in as deeply as possible. The produce of the white or Belgian carrots, is much greater than that of any of the varieties I have enumerated, and is pretty correctly described by the Oxfordshire Farmer's Club, as being well adapted for strong or mixed soil lands, as keeping well, and as excellent food for horses.

The vegetation of the carrot-seed is materially accelerated by steeping it in water, or still better in water in which a portion (say one pound to six quarts of water) of nitrate of potash (saltpetre) has been dissolved.

The mixture of salt with soot produces the most remarkable effects, especially when trenched into ground prepared for carrots. Mr. G. Sinclair found that when the soil, unmanured, produced twenty-three tons of carrots per acre, that the soil, fertilized with a mixture of only six bushels and a half of salt, and six and a half of soot, yielded forty tons per acre. (*My Essay on Salt*, p. 145). Mr. Belfield describes the mixture as equally beneficial for wheat. (*Ibid.* p. 45.) And Mr. Cartwright found that when the soil, without any addition, yielded per acre 157 bushels of potatoes, that, dressing the same land with a mixture of thirty bushels of soot and eight bushels of salt, made it produce per acre 240 bushels. (*Com. Board of Agr.* vol. iv. p. 376; *Johnson on Fertilizers*, p. 408; *Farmers' Encylo.*)

The advantage of moving heavy manures in a dry state and when the roads are hard, is too seldom regarded; few persons suspect that the difference to the horses is so great as it was proved to be by the trials on which the following table was constructed. This shows the average force required to draw a light four-wheeled cart weighing with its load 1000 lbs.—

Description of road.	Force of traction required to move the Carriage.
Turnpike-road—hard, dry.....	30½ lbs.
Ditto " dirty.....	39 "
Hard compact loam.....	53 "
Ordinary By-road.....	106 "
Turnpike-road, new gravelled.....	143 "
Loose sandy Road.....	204 "

If the young farmer studies the following table, by Mr. Thaer, of the chemical composition of various soils, he will easily calculate the proportion of the particular earth requisite to render the soil more fertile; to this end, it may be useful to remember that the soil of an acre of land, of the ordinary depth to which it is ploughed, weighs about 700 tons.

Clay.	Sand.	Carbonate of Lime.	Finely divided Organic Matter or Humus.	Comparative Value.	
74	10	4	11½	100	Rich alluvial soils.
81	6	4	8½	98	
79	10	4	6½	96	
40	22	36	4	90	
20	67	3	10	78	Good wheat and barley lands.
58	36	2	4	77	
56	30	12	2	75	
60	38	Very little carbonate of lime.	2	70	
48	50		2	65	
68	30		2	60	Barley land, not fit for wheat.
38	63		2	60	
33	65		2	50	
28	70		2	40	Poor land, fit only for oats or buckwheat.
23½	75		1½	30	
18½	80		1½	20	

Woollen rags are almost entirely composed of animal matter; they are found to contain a very large proportion of albumen, (a substance similar in appearance to boiled white of egg), minute portions of lime and silica, and traces of various salts. They form, therefore, an excellent manure, by slowly decomposing in the soil; and are found to remain dissolving in it, and forming soluble and elastic matters for the service of plants, when applied at the rate of 1200 weight per acre, for periods varying from two years on the heavy clay, such as those of the hop-grounds of the Weald of Kent, to three or four on the light chalky soils in the valley of the Kennet, in Berkshire. The lightness of carriage, and its readiness, as well as cleanliness of application, render it pecu-

liarly eligible as a fertilizer; it keeps too, for any length of time, until the farmer is ready to apply it to his ground, and is much more slowly decomposed and consumed than either blubber, rape-cake, train-oil, or bone-*dust*.

THE SOIL ON WHICH PLANTS GROW.

What does the soil consist of?—The soil consists of an organic or combustible, and of an inorganic or incombustible part.

How do you show this?—By heating a portion of soil to redness on a bit of sheet iron, or on the end of a knife, either in the fire or over a lamp. The soil will first turn black, showing the presence of *carbonaceous* matter, and will afterwards assume a grey brown or reddish colour, as this black organic matter burns away.

Whence is the organic part of the soil derived.—It is derived from the roots and stems of decayed plants, and from the dung and remains of animals and insects of various kinds.

Does this organic part form a large proportion of the soil?—Of peaty soils it forms sometimes three-fourths of the whole weight, but of rich and fertile soils it does not usually form more than from a twentieth to a tenth of the whole weight.

Can a soil bear good crops if it does not contain a considerable proportion of organic matter.—Not in our climate. A rich soil generally contains at least one-twentieth of its weight (5 per cent.) of organic matter.

Does the organic matter increase or diminish in the soil according to the way in which it is cultivated?—Yes. It diminishes when the land is frequently ploughed and cropped, or badly manured; and it increases when the land is planted, when it is laid down to permanent pasture, or when large doses of farm-yard manure or of peat compost are given to it.

What purpose does this organic matter serve in the soil?—It supplies the organic food which plants draw from the soil through their roots.

Do plants draw much of their organic food from the soil?—The quantity they draw from the soil varies with the kind of plant, with the kind of soil, and with the season; but it is always considerable, and is necessary to the healthy growth of the plant.

If plants always draw this organic matter from the soil, will the soil not become gradually poorer and less productive?—It will, if badly managed and constantly cropped.

Then how can you keep the supply?—By ploughing in green crops,—by growing clovers, and other plants which leave long roots in the soil,—by restoring all the hay and straw to the land in the form of manure,—or by laying down to pasture.

Whence is the inorganic part of the soil derived?—The inorganic part of the soil is derived from the crumbling down of the solid rocks.

Of what do these rocks principally consist?—They consist of more or less hardened sandstones, limestones, and clays.

Do all soils consist principally of the same substances?—Yes. All soils consist principally of sand, clay, and lime.

How would you name a soil which contained one of these substances in large quantity?—If it contained very much sand, I would call it a sandy soil; if much clay, a more or less stiff clay soil; if much lime, a *calcareous* soil.

But if the soil contained two or more of them in large proportions how would you name it?—A mixture of sand and clay with a little lime I would call a loam; if much lime was present, I would call it a calcareous loam; and if it were a clay with much lime, I would call it a calcareous clay.

What do you understand by light and heavy lands?—*Light* lands are such as contain a large proportion of sand or gravel; *heavy* lands, such as contain much clay.

Which of these two kinds of land is most easily and cheaply cultivated?—The light lands, are called often also barley or turnip soil.

Why are these lands called barley or turnip soils?—Because they have been found to be peculiarly fitted for the growth of barley and of turnip and other green crops.

Do heavy or light lands usually stand most in need of draining?—The heavy clay lands retain water most, and should therefore be generally drained first.

Do light lands not require draining?—Yes. Though dry at the surface, such soils are often wet beneath, and would pay well for draining.

To what depth would you drain your lands?—If I could get a fall I would never have my drains shallower than 30 inches.

Why would you put them so deep?—Because the deeper the dry soil is made, the deeper the roots can go in search of food.

How deep will the roots go in a favourable soil?—The roots of corn, clover, and flaw will go down three feet, and even turnip roots in an open soil will go down upwards of two feet.

Can you give me any other reason?—Yes. When my drains are so deep I can go down 20 or 22 inches with my subsoil-plough without any risk of injuring them.

Does draining serve any other purpose besides that of carrying off the water from the land?—Yes. It lets in the air to the subsoil, and allows the rain-water to sink down and wash out of it any thing which may be hurtful to the roots of plants.

Do such hurtful substances often collect in the subsoil?—Yes. Very often, and crops which look well at first, often droop or fail altogether when their roots get down to the hurtful matter.

What are many of the heaviest clays in the country laid down to permanent pasture?—Because the expense of ploughing and working these

soils is so great, that the value of the corn reaped from them is often not sufficient to pay the farmer for his trouble.

How could these heavy clay lands be rendered lighter and more cheap to work?—By draining, subsoil-ploughing, and by the addition of lime or marl when it is required.

Would the land after this treatment also give greater crops of corn?—Yes. Not only would it be more cheaply worked, but it would yield a greater number of bushels of wheat per acre than before, and would grow green crops in addition.

Would this increase be sufficient to pay the cost of draining?—Yes. The cost of draining clay lands is generally paid back in three, or, at the utmost, in five years, and the crops still continue greater than before.—*Johnston's Catechism of Chemistry and Geology.*

EFFECT OF CROPPING UPON THE SOIL.

May a soil which is naturally fertile be rendered barren by continued cropping?—Yes. If the *same kind* of cropping be carried on for a long time, the land will gradually become less and less productive.

Give me an example?—If the same field be cropped year after year with wheat or oats, it will at last become unable to grow either of these crops.

Why is this?—Because these crops draw certain substances from the soil in great abundance,—and after a number of years the soil cannot furnish these substances in sufficient quantity.

What substances does grain especially draw from the soil?—The grain of our corn crops especially exhausts the soil of *phosphoric acid* and of *magnesia.*

How would you remedy such special exhaustion?—By returning to the soil the particular substances my crops had taken out.

How would you return the phosphoric acid for instance?—I would apply bone-dust or guano or some other manure in which phosphoric acid abounds.

But with any kind of cropping, may not a fertile soil be at length made an un-productive?—Yes. If the crops are carried off the land, and what they draw from the soil is not again restored to it.

How is this explained?—Every crop takes away from the soil a certain quantity of those substances which all plants require. If you are always taking out of a purse it will at last become empty.

Then you liken exhausted land to an empty purse?—Yes. The Farmer takes his money out of the land in the form of crops, and if he is always taking out and putting nothing in, it must at last become empty or exhausted.

But if he puts something into the soil now and then, he may continue to crop without exhausting it?—Yes. If he put in *the proper substances, in the proper quantities, and at the proper time,* he may keep up the fertility of his land—perhaps for ever.

How much of every thing must the farmer put into his land to keep it in its present condition?—He must put in at least as much as he takes out.

To make his land better, how much must he put in?—He must put in more than he takes out.

But if he is to put into the land as much or more than he takes out, where is his profit to come from?—His profit consists in this, that he takes off the land what he can sell for much money, and he puts in what he can buy for comparatively little money.

How do you mean?—I mean that if I sell my oats, hay, or turnips, I get a much higher price for them than I afterwards give when I buy them back again in the form of horse or cow-dung.

Then the farmer can really afford to put as much upon his land as he takes off, and yet have a profit?—He can. He puts in what is cheap, and takes off what is dear.

What do you call the substances which the skilful farmer thus puts into his land?—They are called *manures,*—and when putting them in, the farmer is said to *manure* his soil.—*Ibid.*

In a recent communication Mr. J. Beadel, a very experienced farmer and a land agent of Witham, in Essex, (who has used a fork of an improved construction to a considerable extent), observes, when comparing the use of the fork with that of the spade:—

1st. A man can dig a greater quantity of land in a given time with the fork, than he can with a spade, my experience proves one-sixth, and it strikes me, it must be so, because the chisel-pointed ends of a three pronged fork, can be more easily pushed into a hard subsoil, than the continuous end of a spade.

2nd. It does not bring up so much of the subsoil as the spade, but mixes the earth more, a great portion slipping through between the prongs.

3rd. The bottom is left more uneven and broken by the fork than by the spade, which I consider an advantage. One great objection to the plough is, I think, the smooth glazed surface which it leaves below, and which in many cases I fancy, presents too great a resistance to the delicate fibres of the plant. This is *heterodox*, but if true the plough will be altered *one day.* And if Mr. John Morton be correct, that in most instances the present surface soil is nothing more than a portion of the subsoil improved by cultivation, it must be right to increase the quantum of corn-growing earth by subjecting more subsoil to the same operation. In digging, I sometimes use the fork in the furrow, and then plough on to

dug the land, and so keep the top-soil on the surface, without bringing the hungry subsoil into play, till after it has been subjected to the operations of a regular rotation.

THE KINGS OF THE SOIL.

Black sin may nestle below a crest,
And crime below a crown,
As good hearts beat 'neath a fustian vest
As under a silken gown.
Shall tales be told of the chiefs who sold
Their sinews to crush and kill,
And never a word be sung or heard
Of the men who reap and till?
I bow in thanks to the sturdy throng
Who greet the young morn with toil;
And the burden I give my earnest song
Shall be this—The Kings of the Soil;
Then sing for the Kings who have no crown
But the blue sky o'er their head;
Never Sultan or Dey had such power as they
To withhold or to offer bread.

Proud ships may hold both silver and gold,
The wealth of a distant strand;
But ships would rot and be valued not
Were there none to till the land.
The wildest heath and the wildest brake,
Are rich as the richest fleet,
For they gladden the wild birds when they wake,
And give them food to eat.
And with willing hand, to the spade and plough,
The gladdening hour shall come.
When that which is called the "waste land" now,
Shall ring with the "Harvest Home."
Then sing for the Kings who have no crown
But the blue sky o'er their head;
No Sultan or Dey had such power as they
To withhold or to offer bread.

I value him whose foot can tread
By the corn his hand hath sown;
When he hears the stir of the yellow reed
It is *more* than Music's tone.
There are prophet-sounds that stir the grain,
When its golden stalks shoot up—
Voices that tell how a world of men
Shall daily dine and sup.
Then shame, oh shame, on the miser's creed,
Which holds back his praise or pay
From the men whose hands make rich the lands,
For who earn it more than they?
Then sing for the Kings who have no crown
But the blue sky o'er their head;
Never Sultan or Dey had such power as they
To withhold or to offer bread.

The poet hath gladdened with song the past,
And still sweetly he striketh the string,
But a brighter light on him is cast
Who can plough as well as sing.
The wand of Burns had a double power
To soften the common heart,
Since with harp and spade, in a double trade,
He shared a common part.
Then sing for the Kings who have no crown
But the blue sky o'er their head;
Never Sultan or Dey had such power as they
To withhold or to offer bread.

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