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We conceive that when the opinions of eminent men, who have occupied the highest stations in the British Empire, have been unequivocally declared on subjects of vast importance, such opinions are entitled to the greatest consideration and respect, and we have ever thought it a duty to regard them in that light. Self-interest and party-politics may have great influence, but it would be unjust and ungenerous for us to suppose that men who are honoured by appointments in the Government of the most glorious empire that ever existed, should so forget their country, their honour, and duty, as to allow themselves to be altogether swayed by self-interested and party views and act contrary to their convictions and better judgment, in order to forward these views. We are induced to make these remarks at this particular period, when so much is said against the trifling protection that is provided for the encouragement of Canadian agriculture, and when it is probable that efforts will be made luring the approaching Session of our Legislature to abrogate this law. Before we proceed further, we would remind our readers that we advocate agricultural protection from foreign competition, as a Province of the British Empire, entitled to all the benefits and privileges which that station should afford us, and particularly that our agriculture should have the same protection as that of our fellow-subjects in the British Isles. We expect this as a reasonable right, and one that will not be injurious to our brother-farmers in England, Ireland, and Scotland. We shall quote the opinions delivered by eminent individuals, of the liberal parties, on the subject of agricultural protection.

Mr. Canning said:

"I am for the protection of agriculture; it must be protected as the primary interest of the State."

Mr. Huskisson, a most liberal man, observed, in reference to free trade:

"There are limits beyond which it would not be prudent to go. If the principle of free trade were carried to its fullest extent, he did not conceive that any advantage would result from it that would compensate for the evil of making us dependent on a foreign nation for the supplies of the necessaries of life."

Again, the same eminent individual, in a letter to his constituents, said:

"In the first eighteen years of war, we were forced to pay sixty millions of money (to nations, every one of whom has, in the course of it, been our enemy,) for a scanty supply of foreign corn; and when, for this purpose, we had parted with all our gold, and even our silver currency, combined Europe shut its ports against us; and America, co-operating, first laid on an embargo, and then went to war."

Lord Melbourne said:

"We shall never get into the markets of the continent, whether we repeal our corn-laws or not. Governments there will never relax their prohibitory enactments in our favour. The general opinions of the world are against free trade, and particularly so on the continent."

We could go on and quote opinions of the same tendency, delivered on this subject by the most eminent men in the British Isles; but we think it unnecessary to do so, as they must be well known to most of our readers.

The President of the United States, not long since, declared:

"That nothing could be so foolish, nothing so injurious could visit the interests of a country, as to cease to give encouragement to the interests of agriculture, and not to grow its own corn for the consumption of its own people: this is a principle which has been advanced by all countries, whether in ancient or modern times, and those countries have prospered in the greatest degree which have given full protection to agriculture."

Mr. Webster, one of the most eminent men of his his country—the United States—has, on several occasions, expressed his opinion in favour of protection, and encouragement to agriculture.

The author of "The Wealth of Nations"—Adam Smith—though very much opposed to exclusive privileges or monopolies, says:

"There are some cases in which it will be generally advantageous to lay some burden upon foreign, for the encouragement of domestic industry."

For our own part, we are not aware of any possible case that would be more generally advantageous for the population of Canada than to protect and encourage her domestic industry—her agriculture—that employs the great bulk of her people, and which is their exclusive means of support. Every true lover of his country will be in favour of encouraging the augmentation of the amount and value of the productions of his own country by every fair means, knowing that the greater the amount and value of these productions, the more certain will be the means of, and happiness to, his fellow-countrymen generally. Some persons may suppose that it is possible for those who possess capital to become rich in a country that is far from being in a prosperous condition generally; and we believe this supposition to be partly correct.

Smith, in his Wealth of Nations, in speaking of that class of society who live by profit, says:

"It is the stock that is employed for the sake of profit, which puts into motion the greater part of the useful labour of every society. The plans and projects of the employers of stock regulate and direct all the most important operations of labour, and profit is the end proposed by all those plans and projects. But the rate of profit does not, like rent and wages, rise with

the prosperity and fall with the declension of society; on the contrary it is naturally low in rich and high in poor countries, and it is always highest in the countries which are going fastest to ruin. The interest of this third order, therefore, has not the same connection with the general interest of the society as that of the other two. Merchants and master manufacturers are in this order, the two classes of people who commonly employ the largest capitals, and who, by their wealth, draw to themselves the greatest share of the public consideration. As during their whole lives they are engaged in plans and projects, they have frequently more acuteness of understanding than the greater part of country gentlemen. As their thoughts, however, are commonly exercised rather about the interest of their own particular branch of business than about that of the society, their judgment, even when given with the greatest candour, (which it has not been upon every occasion,) is much more to be depended upon with regard to the former of those two objects than with regard to the latter. Their superiority over the country gentleman is not so much in their knowledge of the public interest as in their having a better knowledge of their own interest than he has of his. It is by this superior knowledge of their own interest that they have frequently imposed upon his generosity, and persuaded him to give up both his own interest and that of the public, from a very simple but honest conviction, that their interest and not his was the interest of the public. The interest of the dealers, however, in any particular branch of trade or manufactures, is always, in some respects, different from, and even opposite to, that of the public. To widen the market and to narrow the competition, is always the interest of the dealers. To widen the market may frequently be agreeable enough to the interest of the public, but to narrow the competition must always be against it, and can serve only to enable the dealers, by raising their profits above what they naturally would be, to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens. The proposal of any new law or regulation of commerce which comes from this order ought always to be listened to with great precaution, and ought never to be adopted till after being long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men whose interest is never exactly the same with that of the public, who have generally an interest to deceive, and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it."

We do not quote this part of Smith's book to give offence, but to show that the interests of agriculture cannot be safely entrusted to the sole management of classes who do not feel any direct interest in its prosperity, but on the contrary, many of them imagine, or appear to imagine, their interest is to depress it, and keep it low. There is one part of this quotation from Smith that may be considered to be against narrowing competition in trade. We know it is, but we nevertheless candidly give the whole article, and wish that all of it may have the weight it is entitled to, coming from such an authority. Smith refers to competition in merchandize, and though it may also be applied to the produce of agriculture, we do not conceive that it could properly apply to our case in Canada, which is a most peculiar one. In fact, our case appears to be this. We have a most fertile soil, in extent three times

as large as the British Isles, with a population of about one twenty-fifth of the latter countries. We have a favourable climate for agriculture, and we are connected with a country that would give us the highest price for all the produce we could raise and spare. We neglect all these advantages, and we choose rather to buy foreign agricultural produce for a part of our own consumption, and to carry the produce of a foreign State to export to our fellow-subjects in England, than raise all this by our own people on their own lands. We repeat now what we have asserted a hundred times, that by instruction and encouragement, we might furnish more agricultural produce here annually for exportation than ever was shipped from our ports in a year. It is a lamentable mistake to neglect and sacrifice all these advantages.

From the London Gardeners' Chronicle.

EXPERIMENTS WITH MANURES.

From the numerous experiments which have been made with different manures in various parts of the kingdom, on almost every variety of soil and situation, it is reasonable to hope that by a comparison of the results obtained by those means, we may arrive at something near the truth, and be enabled to form an estimate of the relative value of the substances that may have been made the subject of investigation. It is with the view of assisting in this important work, that I transmit you the following details of some experiments made at Carlew, in 1844, for the purpose of testing, on a small scale, the merits of certain manures, when applied as a top-dressing to growing crops.

The subjects selected for experiment were—1, nitrate of soda; 2, sulphate of soda; 3, guano; 4, sulphate of ammonia; 5, drainings from the farmyard. The soil, a free light loam, averaging about a foot in depth, on a yellow clayey subsoil, interspersed with spar. It had been well manured the previous season, and cropped with turnips. After these were removed, the ground was plowed and prepared for barley, which was sown in the latter part of April. On the 15th of May, the manures were applied, the tenth part of an acre being allotted for each experiment.

1. *Nitrate of Soda.*—The quantity used was 33 1-2 lbs which is at the rate of about 3 cwt. per acre. It was sown by hand with the utmost care. Little or no effect was observable for some time afterwards, owing, no doubt, to the unusually cold wet weather, by which vegetation generally was very much retarded. No sooner, however, did it become warm and sunny, than a change was apparent, not only in the more rapid growth of the plants, which soon out-stopped those around them, but also in the color of their stems and leaves, which were all alike remarkable, both for their greater size and the rich deep green they subsequently assumed. During the season, this plot maintained its fine healthy appearance, from which I was led to infer that nitrate of soda would prove a most valuable manure; but the result was very different to what I anticipated; the weight of the produce being, in straw, 199 lbs., in grain, 178 lbs., equal to 37 1-2 bushels per acre, and less by 6 1-4 bushels per acre than any in the series.

I was not prepared for such a difference between, the weight of the grain and straw in this experiment, and those of the others, and I am quite at a loss to account for the deficiency. The only way in which I imagine it to have arisen, was from the plants having been stimulated by the application to become more succulent and vascular, than they would have been under other circumstances; so that when they arrived at maturity, and were cut and dried, the straw and grain lost in weight more than their bulk and appearance would otherwise have led us to expect.

2. *Sulphate of Soda.*—The same quantity, 33 1-2 lbs. of this salt, was used as in No. 1. Being pulverized it was sown by hand, as the preceding: and to the same cause may

be ascribed the slowness of its action, no effect being perceptible until warm weather made its appearance, when its effects became nearly as striking as in the previous experiment. The plants acquired a dark healthy green colour, and were upon the whole nearly as tall and luxuriant as those treated with nitrate of soda; but here again the produce was less than expected, the weight of straw being 264 lbs.; of grain 215 lbs., measuring 4 bushels and three gallons, which is at the rate of 42.3-4 bushels per acre. In so far, therefore, as we may judge from the result of these two experiments, it would seem that neither nitrate nor sulphate of soda were adapted for using on thin, light soils. It is perfectly true that they act in some way as a stimulant to the growing plants, as shown by the places where they have been used, being of a dark healthy green.

3. *Guano*.—The conflicting statements which have appeared from time to time respecting the proper quantity which ought to be applied of this manure, and the failures that have occurred from using it too bountifully, induced me to use a much smaller proportion of it than is now recommended, but notwithstanding this, its effects were truly remarkable; for, although only 16 1-2 lbs. were sown dry over this allotment, which is at the rate of about 1 1-2 cwt. per acre, it could readily be distinguished during the growing season from any other part of the field. The corn tilted well, and appeared thicker than in Nos. 1 and 2, and although somewhat shorter, it was in other respects equally strong and healthy, and of a rich deep green. It deserves to be noticed that, at the time of binding up the grain, the workmen remarked what appeared to them to be a difference in the weight of the sheaves, compared with those in the first and second plots, which they had previously bound up, and the result showed an increase over the nitrate of soda, of no less than 81 lbs. of straw, and 84 lbs. of grain; the weight of the straw being 280 lbs., of grain, 252 lbs., equal to 5 bushels, or 50 bushels per acre. Besides this experiment, I have made several others with guano in a liquid state, on vegetables in the kitchen garden, all of which have satisfied me that this manure, when unadulterated, is one of the most powerful that can possibly be employed. Its effects are visible in the course of eight or ten days after the application. For onions, celery and the cabbage tribe, it surpasses all manures. I had portions of each of those vegetables watered with guano, without being made aware of the particular spots so treated, and at the end of a week I had no difficulty in pointing out every spot where the guano had been used.

4. *Sulphate of Ammonia*.—A small quantity of this salt was sent me from Bristol, with the following directions: "The quantity usually applied is about 2 cwt. per acre. Upon grass lands or growing crops, it may be sown broadcast; or in preparing the land for seed, it may be harrowed lightly in the ground; or it may be mixed up in any proportion with soil or any decayed vegetable matter that may be most easily procured." In the present case, the quantity used was 22 1-2 lbs., which after being reduced and made tolerably fine, was sown by hand unmixed with any other substance. A fortnight after the application, I remarked a trifling difference in the color of the young plants, which seemed to be of a paler green, than those adjoining; but this soon changed, and was succeeded by a fine healthy green, which they retained during the rest of the season. The crop was about the same thickness as where the guano was used, and of an average height. The produce gave of straw, 269 lbs.; of grain, 232 lbs.; equal to 47 1-2 bushels per acre. Between this and guano, there is a difference in favor of the latter of 18 lbs. in grain; while the difference in the cost of sulphate of ammonia is nearly double that of guano.

Drainings from the Farm-yard.—The value of liquid manure is well known; the trial which was made of it in this instance, was highly satisfactory, and confirms the opinion I have long entertained, that more attention ought to be paid to the proper formation of dung heaps, as well as to the making and preserving of liquid manure in tanks. &c., than is the general practice. Were this the case, I am persuaded it would be far more advantageous to the farmer, than spending his money for foreign substances, not more powerful than those which may be obtained, at much

less cost, from other agents within reach, if the means are only adopted to secure them. Here we have the fact of the common drainage of the farm-yard giving a return equal to that obtained from the finest manure of which we have any knowledge. The quantity used was 100 gallons, or 1000 gallons per acre, not in the strong, brown colored state it appears when running from the stables or cattle houses, but diluted with water until it resembles what is commonly used for gardening purposes. It is difficult to make the general reader understand this; but I should think one gallon of the dark colored liquid, in two gallons of water, would be near the right proportions. The appearance of the grain was remarkably strong and healthy. The weight of straw was 300 lbs.; of grain, 256 lbs., or 52 1-2 bushels per acre.

If the effects of guano and some of the other manures were such as to excite surprise, I think the results of this experiment will appear no less remarkable, as it supplies us with evidence in proof of the great value of liquid manure, which, I regret to say, is either little attended to or permitted to run to waste. In this particular, I believe it will be generally admitted there is a great room for improvement; and it is to be hoped the time is not far distant when the facts derived from these and similar experiments, will be the means of causing a better system of management to be introduced.

A portion of equal extent to those allotted for each experiment was set apart for comparison, and found to produce, without manure, in straw 233 lbs.; in grain, 200 lbs., or at the rate of 40 bushels per acre.

The subjoined table will more readily show the results of the several experiments:

Kind of Manure.	Produce per acre.
Nothing,	40 bush.
1. Nitrate of soda,	37 1-2 "
2. Sulphate of Soda,	43 3-4 "
3. Guano,	50 "
4. Sulph. of ammonia,	47 1-2 "
5. Drainings of farm-yards,	52 1-2 "

W. B. BOOTH.

Leaves are the lungs of plants; they take oxygen from the air and emit carbonic acid, which is composed of oxygen and carbon. While the former goes off, the latter remains and converts the sap into a kind of pulp, a part of which consists of carbon. The pulp passes from the upper to the under side of the leaf. The cells where the pulp lodges being yellow, and the carbon of a dark blue, they form together the green color of the leaves and young bark.—*Selected.*

NIAGARA FALLS.

The stupendous magnitude in which the physical powers of moving waters are displayed in the unparalleled scenery of this cataract, leaves the mind of every beholder impressed with a sense and feeling "unfelt before;" and renders it an object not unworthy of a prominent motive inducement to a European for crossing the Atlantic. But as long and as often as this scenery has been viewed by all classes of people, no attempts, that we are aware of, worthy of note or reliance, have ever been made to estimate the force, or more properly the amount of power exerted by the descending water at the great precipice, until it was undertaken in '841 at the suggestion and under the direction of Z. Allen, Esq., of Providence, a gentleman whose well known scientific skill renders his estimates worthy of great confidence. In the practical measurements he associated with him E. R. Clarkwell, a most skillful and accurate Engineer, of Black Rock. An exact measurement of the depth and velocity of the river at Black Rock harbor was taken at three different points or sections, 660 feet apart,—and thus was it carefully ascertained that about 22,440,000 cubic feet, or 167,862,420 gallons, weighing 701,250 tons, or 1,402,500,000 pounds of water flow out of Lake Erie every minute. Estimating the perpendicular descent of the grand cataract to be 160 feet, and taking the usual and best sanctioned estimates of the loss of power in the application of water to water-wheels, and also regarding the power of a horse to be

equal to the raising of 33,000 pounds one foot high in one minute (Watt and Boulton's standard)—it is proved that the mechanical force or motive power of the water-fall of Niagara is equal to the power of 4,533,334 horses.

From the best general estimate of the amount of motive power employed in the united kingdom of Great Britain, including all the steam and water mechanical operations, with the steamboats and locomotive engines, the whole may be taken as equivalent to 233,000 horse power. This, it will be perceived, is only one nineteenth part of the effective water power of Niagara Falls. But the practical power in Great Britain is applied on an average but 11 hours per day—whereas that at Niagara is incessant. Hence the latter is forty times that of the aggregate power actually employed in Great Britain, and it may be justly inferred that it is equal to all the motive power employed for mechanical purposes on this earth.

Taking into consideration the force of the rapids below the falls, and the height of Lake Ontario above the ocean, it is believed that the whole power of the Lakes and the River St. Lawrence is three-fold that of the cataract, and consequently 120 fold all the physical power derived from all the waterfalls and steam engines employed in Great Britain, omitting the several large rivers that are tributary to the St. Lawrence.

Great credit is due to the gentleman first named (Z. Allen, Esq.) for obtaining an accurate measurement, and applying the principles of exact calculation to the mighty force thus displayed on our borders. His modest paper in the last number of Silliman's Journal, ends with the following appropriate remarks:—

"Such, and on so great a scale, are the ordinary operations of the impulses of physical power employed in the 'mechanics of nature,' in governing the movements of the waters of a single river, exceeding many fold the portion of physical force rendered available and employed by all the inhabitants of the earth, as a motive power in the 'mechanics of arts.'—There is thus furnished an impressive lesson to humble the pride of man in his boasted achievements of the triumphs of mind over inert matter. It is well that these considerations should occur to the spectator, whilst he regards the cataract of Niagara; for no where is there exhibited on this earth a more impressive spectacle of the display of energetic physical power. Cold and indifferent, indeed, to the highest attributes of omnipotent excellence, must be the mind of that human being, who can raise his eyes from this sublime work of nature, without a glow of fervent admiration of the 'might, majesty and power' of nature's God."—*Burlington Gazette.*

LONDON, ITS SIZE AND POPULATION.—Perhaps there is no way of really giving the mind a full comprehension of the size of any place better than the comparing such a place with others well known. Most persons are acquainted with some of the following towns and cities, viz., Lincoln, Warwick, Dover, Boston, Winchester, Salisbury, Colchester, Yarmouth, Durham, Gloucester, Ipswich, Stafford, Rochester, Carlisle, Canterbury, Wakefield, Hereford, Bridgewater, Chesterfield, Darlington, Cirencester, Bury St. Edmunds, Devizes, Dartmouth, Beverly, and Grantham. Now, we all know what a vast overgrown town is Manchester, but perhaps few would suppose that the whole of the population of the above cities and towns would be required to make another Manchester. If to the foregoing places, the last excepted, be added Gainsborough, Peterborough, Dartford, Huntingdon, Shaftesbury, Ely, Stamford, and Lichfield, so gigantic has been the stride which the metropolis has made between the years 1831, and 1841, that a population equal to the thirty-seven towns named above has been joined to it within that short period, during which time London has increased nearly 400,000. If this calculation be extended, by adding to these thirty-seven towns the following great and important places, viz., Liverpool, Bristol, Birmingham, Nottingham, Newcastle, Brighton, Bath, Leicester, Cambridge, Chester, Halifax, Derby, Huddersfield, Norwich, Northampton, York, Exeter, Lancaster, Worcester, Ramsgate, Plymouth, Scarbor-

ough, Taunton, Leamington, Newark, Mansfield, Whitby, Kidderminster, Sheffield, Tunbridge, Leeds, and Shrewsbury, making altogether sixty-nine of the principal cities and towns of England; yet so immense, so almost inconceivable is the population of the metropolis, that the whole of these places joined together would not make another London, for these sixty-nine towns make 1,873,189, when added together, whilst the metropolis alone is 1,873,676, leaving an overplus of 487 souls in favour of London. It would also require 534 towns as large as Huntingdon to make another metropolis. So rapid is the growth of this queen of cities, that a population equal to that of Salisbury is added to its number every three months; but so overwhelmingly large is this Leviathan of towns, that this constant and progressive increase (astounding as the fact may appear) is scarcely perceived, for it is almost like throwing a bucket of water into the ocean. Such is London—the city of the world.—*A. Correspondent in "The Builder."*

LARGE TREES.—The largest sound tree I have ever measured is "the grindstone oak," in the Holt Forest. It is 35 feet in girth at 3 feet from the ground. It is dead, and was apparently lately dead, when I first saw it, since the bark was still on it. I think it has been originally a pollard (polled, or headed); and the largest sound timber I have seen in England has been old pollards, allowed to grow up in our forest grounds after the pollard system had ceased. They were probably allowed to grow because, being many-headed, their timber was not valuable.—(*From the "Tree Lifter," by Colonel George Greenwood.*)

I have received the following marvellous measurements of some pinus lambertians on the Columbia, from an authority that I cannot doubt. At 8 feet from the ground they were 15 feet in diameter. The stems were branchless to 250 feet from the ground, and were there 13 feet in diameter. If the new annual ring of wood was a quarter of an inch wide, trees would attain this diameter in 360 years; and supposing them 80 feet of head above the branchless stem.—(*Ibid.*)

SITUATION OF GUANO.—Mr. Techemacher presented specimens of guano, just received from the coast of Peru, containing feathers. With reference to the opinion entertained by some, that guano had been accumulating from a period perhaps prior to the origin of the human race, Mr. T. translated the following passage from the "Memoriales Reales" of "Garcilasso de la Vega," Lisbon, 1609, p. 102:—"On the sea coast from below Arequipa, as far as Tarapaca, which is more than 200 leagues of coast, they use no other manure than that of marine birds, which exist both great and small on all the coasts of Peru, and go in flocks perfectly incredible, if not seen. They are reared on some uninhabited islands which exist on that coast, and the manure that they leave is of unconceivable amount. At a distance the hills of it resemble the mounds on some snowy plain. In the time of the Incas there was so much vigilance in guarding these birds, that during the rearing season no person was allowed to visit these islands under pain of death, in order that they might not be frightened and driven from their nests; neither was it allowed to kill them any time, either in or off the islands, under the same penalty." Each district or territory also had a portion of these islands allotted to it, the penalties for infringement of which were very severe. From this extraordinary cause it is probable that the Incas did not permit any great consumption of this valuable manure, beyond the annual additions; and the consumption during the depopulation of South America by the Spaniards, could, by no means, have equalled these annual deposits. Even the greatest thickness of 700 or 800 feet might, without extravagant calculation, be deposited in about 3000 years, at the rate of two or three inches a year. The feathers do not appear different from those of birds of the present day. Mr. Blake, a member of our society, who has visited these deposits, has a shell found in the guano, very much resembling the *Crepidula fornicata* of this coast, but not in any way fossilized. On this coast it never rains, so that the deposits of

manure are not like those on other coasts, annually washed away.—*Proceedings of Boston Society.*

Sheridan once wrote:—' Women govern us, let us try to render them perfect; the more they are enlightened, so much the more shall we be. On the cultivation of the minds of women depends the wisdom of men. It is by women that nature writes on the hearts of men.' Napoleon said:—' The future destiny of the child is always the work of the mother.'

GUANO.—As guano appears to be constantly exhaling ammonia on exposure to the atmosphere, to prevent loss and deterioration, it cannot be, before use, too carefully excluded from the air; and on the same account, it ought not to be applied as manure whilst vegetation is inactive, but rather at the moment of its coming into activity, and when in progress, according to the Peruvian manner of bestowing it on the plant rather than on the soil.—*Edinburgh New Philosophical Journal.*

THE GUANO TRADE.—A sailor coming from Liverpool to Preston, who had been with a vessel for guano, states it to be a most lucrative speculation. He said that the vessel was ten weeks on its passage to Africa, nine weeks returning, and seven landing—altogether a few weeks over half a year. The article itself, he states, cost not a farthing, the vessel carried 500 tons, which, at 8l. person, would make 4,000l. The expenses, he thought, would not exceed 500l.; but if we call them 1,000l., the importation of guano is not a bad speculation.—*Lancaster Guardian.*

ON WEEDING.—The most proper time for weeding is before the corn takes what is termed "the second growth"—the weeds are then sufficiently strong to be easily got hold of, while their roots are not too firmly fixed in the earth to cause injury to the corn by their being pulled out, nor is the corn plant at that age hurt by being trod upon. When the weeds are removed at that juncture, the grain crops get such a start of any under growth that may have been left in the ground that it soon overtops all kinds of weeds for the rest of the season, and, what is of much importance, prevents them coming to seed.

MODEL EXPERIMENT.—Mr. Barclay, M.P., reported to the common Council the progress made at the last meeting in arranging the plan of the Model Experiment proposed by Mr. Miles, for trial by such Members of the Society as could conveniently join in it. An interesting discussion then ensued in reference to results obtained in the use of Guano and farm-yard Manure. The Rev. Thomas Cator, of Skelbrooke Park, near Doncaster, had found an application of 300lbs. of guano per acre to a potato crop; strewn upon the ground when they were ready for earthing, equivalent to 18 loads of fold manure applied in the usual way; and having last year manured a bean crop with guano, pigeon-dung, rape dust, and fold-manure, he found, now the wheat had come up this Spring, a decided evidence of the superiority of guano on the 5 lands of the bean-field to which that manure had been applied; he considered it as one of the cheapest hand-tillages, while the fold manure was most advantageously reserved for the grass and clover crops.—Mr. Davenport of Capesthorpe, Cheshire, regarded guano at one of the most valuable manures; having now had three or four years experience of its use; and he considered in general that 3 cwt. of guano was equal to 20 tons of farm-yard manure. He spoke of the guano in its unadulterated state as imported. His own supply had been of the Peruvian guano, furnished to him by Mr. Meyers, of Liverpool, at 10l. per ton. He believed that the African guano was substantially the same in its general character, but that it contained 25 per cent. of water, while the Peruvian contained only 10 per cent.; and assuming the Peruvian variety as 10l. per ton, Mr. Bernays had stated the relative value of the African guano to be as 7l. per ton. Notwithstanding the immense quantities already sold in this country, Mr. Meyer had informed him that he had at present orders for 3,000 tons which he was unable to supply. The hardest samples were the best, and as it was known to be

frequently adulterated with one third of an inferior quality, it was most advisable to purchase it from a direct importer of the article, and in the original packages. His practice was to apply a mixture of half a ton of finely-worked bones and two cwt. of guano, per acre, to a crop of potatoes or turnips. He recommended powdered gypsum to be scattered by handfuls in the farm and stable yards, and mixed with the straw and liquid manure; or should not be done then to put layers of it in the manure-heap every three or four feet; by means of this proceeding, the ammonia instead of escaping into the air in the state of gas, was retained by the gypsum. By these new systems of manuring he was quite sure the same results could be obtained at one-quarter the former expense. Mr. Hillyard, of Thorpe, near Northampton, would engage in no trial of new manures unless they were susceptible of being brought into general farming use, and the experiments made after a white straw corn crop. Mr. Gibbs thought that it was desirable to make the trial after a white grain crop whenever the given weight of the turnips was the point to be ascertained. Mr. Barclay, Mr. Hillyard, and the Rev. Thomas Cator, then agreed to undertake the trial of the Model Experiment proposed, and under such conditions as might hereafter be finally arranged.

HOW TO JUDGE MALT.—In buying malt, a good judge on taking up a handful, examines narrowly the different pickles, to ascertain if the spire be well grown, that is, at least two thirds up the back of the pickle; he also looks for sleepers, or dead corns, which have not sprung at all. Should there be many of these, he will probably reject the malt. But a mode of judging of malt, which is very good is one that is old and simple. Count out indiscriminately from the bulk about 200 pickles, throw them into a tumbler of cold water and stir them; the pickles thoroughly malted will float horizontally on the surface, those half malted will float vertically one end hanging down, and the unmalted will sink to the bottom. We can thus, at once, form an accurate estimation of the quality of any malt.—*Black's Treatise on Brewing.*

THE PROCESS OF AGRICULTURE.—The reign of George the Third was distinguished in the History of Useful Arts, for the rapid growth of the cotton manufacture; that of William the Fourth for the perfection which railway locomotives attained. The reign of Victoria promises to be not less remarkable for the progress of agriculture, as displayed in the advances towards reducing it to an exact science. The worthy successors of the Belfords, Cokes, and Collings, have called to their aid the chemist. The merchant, stimulated by such enlightened patronage, has ransacked Africa and America for new fertilizers. The mechanician from day to day announces some improved means of obtaining increased power and exactness in the operations of the farm. The principle of association is applied to facilitate draining, that of insurance to protection against storms and murrain. A Royal Society itinerates from town to town, instructing and rewarding the experimental cultivator and breeder; and the wide-spread interest felt in these important pursuits is attested by the number of periodicals devoted to its elucidation, which have within a very short time sprung into life. It would savour too much of the spirit or puffery, if we were to designate any by name—but we will venture to assert that there are some conducted with a union of practical skill and scientific knowledge, which would, on the Continent, entitle the editors to well-paid professorships, titles, and ribands of all the colors of the rainbow.—*Western Advertiser.*

THICKNESS OF THE CRUST OF THE EARTH.—The first investigation of importance that presents itself is the thickness of the crust on which we dwell. We have seen by the theory that this ought to be continually increasing, though with increasing slowness, and that there was a time when it was so thin as to be almost in a state of confusion. We have stated that the increase of temperature observed is about one degree Fahr. for every fifteen yards of descent. In all probability, however, the increase will yet be found to be in geometrical progression, as investigation is exten-

ded; in which case the present crust will be much thinner than we have calculated it to be; and should this be found to be correct, the ingenious theory will become a subject of more importance, in a theological point of view, than we are at present disposed to consider it. Taking, then, as correct the present observed rate of increase, the temperature would be as follows:—

Water will boil at the depth of 2,430 yards.

Lead melts at the depth of 8,400 yards.

There is red heat at the depth of seven miles.

Gold melts at 21 miles.

Cast iron at 74 miles.

Soft iron at 97 miles.

And at the depth of 100 miles there is a temperature equal to the greatest artificial heat yet observed; a temperature capable of fusing platina, porcelain, and indeed every refractory substance we are acquainted with. These temperatures are calculated from Gytton Movern's corrected scale of Wedgwood's pyrometer, and if we adopt them, we find that the earth is fluid at the depth of 100 miles, and little more than the soil on which we tread is fit for the habitation of organised beings.—*Polytechnic Review*.

THINGS TO BE AIMED AT ON A FARM.—1. To exhibit a considerable ambition to be esteemed a good farmer, to contribute all that can be done to the stock of human happiness, and which may be undertaken with profit to himself and benefit to the community.

2. To make a compost of one part stable manure and two parts of earth, or other properly decomposed matter, instead of using long manure from the stable, in its green state.

3. To use manure spread and ploughed in, and not to apply it green in the hill—particularly with potatoes; as, by this practice, the crop suffers both in quantity and quality, especially in dry seasons.

4. Where a crop of grain is wanted from land to be laid down to grass, the better plan is to sow grass seed in September, after taking off the grain crop, and plowing in the stubble. Grass-seed should be sown thick; from two to three pecks of timothy and a bushel of red top should be allowed to the acre.

5. All barns should, if possible, be provided with cellars—part for roots and part for manure; and should be made warm and comfortable. This will operate, too, as a saving of food. Water should also be always at hand.

6. Improvements should be made on a farm on a good scale, and with liberal outlay, if practicable, instead of laying out surplus funds in buying more land.

7. There should be a systematic course of culture of the land; there should be a plentiful planting of fruit and ornamental trees, and all the small fruits should be in abundance.

8. Deep plowing, good in general, should be resorted to as a remedy for the washing of the land on hill-sides; it absorbs the water that falls upon the surface.

9. To plant unproductive and waste lands with trees—such as locusts, for posts, &c.

10. Not to be alarmed at scientific, or what are more commonly denoted "book farmers" and "gentlemen farmers," their experiments are often exceedingly valuable to the "stand still" farmers, who are often induced by them to move on, and to be improving in their practice.

11. To keep all tools in good order, and in their proper place when done with.

12. To take one good agricultural and horticultural paper, so as to keep up, to the best of their means, with their neighbours and the world at large.—*Western & Fur. Gard.*

GROWTH OF TREES.—We may convince ourselves by experiment, that the downward is after the upward growth of trees. If notches are cut on the stem of a tree, from the root to the setting on of the first branches, the new growth over the scars will be when the tree is ceasing to shoot. The upper notches will heal first, in the form of a horse-shoe, with the head downwards, that is, the growth will be on the upper part and the sides of the notches, without any growth from the lower parts of the notches. This fact also strongly corroborates the opinion that the new

growth in diameter is from the downward sap; for if it were a side deposit from the upward sap the lowest notches should heal first. I have found that if stems thus notched are inverted, the new growth comes only from the sides of the notches, and neither from the upper nor lower parts of them, which I am unable to account for. But the notches nearest the head are the first to heal, and those nearest the root last to heal.—*From the "Tree Lifter," by Colonel George Greenwood.*

HEDGES.—We have seen it frequently stated by the correspondents and editors of the New England agricultural papers, that the buckthorn is proved there to be the best plant for hedges. The seed on this plant can be procured in Boston. It also grows from cuttings. A correspondent in a late Massachusetts Ploughman, says:

"After some frequent and continued observations, I should select the buckthorn. My reasons for giving it the preference are the facts that it is easy of culture, of very rapid vegetation, having beautiful foliage, is compact and unyielding in its natural growth, and is more hardy than any other variety. It also possesses certain medicinal qualities, which render it unpalatable and nauseous to cattle, and deters them from browsing upon it. The usual age at which the plants are set is two years, and as the price now asked for them by the nurserymen is rather high, it would perhaps be the most economical plan for a farmer, who may wish to set a considerable length of hedge, and who has land and manure to spare, to procure seed and raise the plants for himself."—*Louisville Journal.*

RAILWAY INTELLIGENCE.—The extent of railways already constructed and in operation in the United Kingdom is 2,000 miles; the sum which has already been actually expended in their formation is no less than 79,000,000*l.* sterling; the projects now before Parliament will, if sanctioned, add nearly another 1,000 miles to the existing length of our railways, and were the cost of their construction to be equal to the rate of executing the existing lines, almost another 40,000,000*l.* sterling would be added to railway investments; but as the cost will not reach that rate, to add another 30,000,000*l.* sterling to railway stock will be probably a more truthful calculation. Thus in a few years the enormous sum of 100,000,000 of money will have been invested by the English capitalists in the construction of railways at home besides a very considerable sum which has been sent out of the country to assist in the formation of foreign railways.

BEANS AND TARES.—A suffolk farmer writes as follows, "A friend of mine tried the experiment, last year, of planting an acre of heavy land with Mazagan beans and spring tares, viz, 8 rows of beans and 7 ditto of tares, so as to have the outside rows of beans next the furrows; and the produce was 5 quarters and 6 bushels of tares. The straw if well harvested, is very valuable food for cattle."—*Tunton Courier.*

DEFECT IN POTATOES.—At the Agricultural Meeting at the Old State Hall on Thursday evening, April 25th, the subject for discussion was the defect which occurred in potatoes last year. Remarks were elicited from various gentlemen, and the subject seemed very much to engage the attention of all present. Dr. Lee observed that the defect which was complained of here last year, had prevailed in Europe for several years, and he referred to the theory of some writers there, that the defect was occasioned by the degeneracy of varieties from age. The facts brought out at the meeting, did not seem to support the idea that the defect here, could properly be attributed to that cause, inasmuch as it did not appear to prevail most with the oldest varieties. The most hardy kinds, it seems, have been least effected, and the least hardy, as the Mercer, (or Chenango,) Foxite, &c., the most. It was nearly the unanimous opinion of those who spoke on the subject, that the unusual prevalence of the defect, (or as some called it "disease,") last year, was caused by the very warm and wet weather, following a severe and long continued drought. This idea was supported by many state-

ments that potatoes which were planted on dry soil, and so early that they reached maturity before the great change alluded to in the season come on, were scarcely affected at all, whereas the same varieties planted later and being in an immature state when the change took place, were nearly worthless when harvested, or had become so during the winter.

Dr. Emmons made some remarks on the nature of the defect. He had taken some pains to examine it, and found it quite analogous to *gangrene* in animals—he was satisfied it was no fungus. He should suppose it would render potatoes unwholesome for animals, and he had heard of several cases where it was believed they had occasioned the death of cattle; but he knew a man who had given them in large quantities to hogs, and had not discovered any bad consequences from it to them.

It was the general opinion of the meeting that it is best to plant potatoes as early in the season as the ground is in suitable condition. The yield, it was thought, was generally better, and they were less liable to blight, or defect of any kind.

CUCUMBERS.—A writer in the London Gardener's Chronicle, says he has entirely discarded the old mode of allowing cucumbers to run on the surface of the ground. He trains them to trellises, and finds that he has not half the trouble with them that is required by the old plan, and that the plants continue much longer in bearing, when so treated.

The Canadian Agricultural Journal.

MONTREAL, JULY 1, 1844.

We promised in our last number to give a description of an English dairy and its utensils, and we now do so, copying from a late work, and making such alterations as we think would be necessary in a Canadian dairy. It is for the combined production of cheese and butter that dairies are usually made; and a dairy, that it may fulfil these purposes, should consist of several apartments:—

1. The milk-room. 2. The work-room. 3. The store-room. The milk-room is intended to contain the milk, previous to obtaining from it the cheese or cream. It should have its windows to the north, and be so formed as to preserve a cool and equal temperature. It should be well ventilated, kept dry and clean, and as far as possible removed from the effluvia of putrid substances. The windows should be formed of gauze-cloth, which will exclude flies, but admit the air, and protected from mice and accidents by a grating of wire. This apartment should be kept cool in summer, and in winter be heated by a stove or otherwise, so as to maintain a temperature of from 50° to 55°. The work-room is that in which the different manual operations are performed. It is to be fitted up with a boiler to boil water and heat milk, and it should be of sufficient size to allow of performing the operations of churning, cheese-making, washing the dairy utensils, and the like. The cheese-room is merely

to keep the cheese when made, and should have a certain degree of warmth, without being too much heated or lighted.

When very particular about dairies the insides of the walls are lined with white delf tiles, and the floor with bricks or smooth flagstones, with gutters of brick to carry off the water when the floors are washed, which they should be daily, and dried up immediately.

The utensils required for a dairy are:—1. Milking-pails, which may be formed of tin or wood. 2. Sieves of hair or wire gauze, for the purpose of passing the milk through and retaining the impurities. 3. Vessels for holding the milk until the cream rises to the surface. These may be of glass, zinc or tin, the two former are to be preferred. 4. A vessel made of white oak or other sweet wood for containing cream. 5. Flat dishes of willow, ivory, or horn, for the purpose of skimming the cream from the surface of the milk. 6. A churn. 7. A wooden vat or tub, in which the milk is placed when the curd is about to be coagulated. 8. A cheese-knife, for the purpose of cutting or breaking the coagulated curd, that the whey may be separated. 9. A vessel perforated with holes, or a close basket, in which the curd may be placed, that it may be broken, and the serous matter further separated. 10. Wooden vessels, with perforated sides and bottom, in which the curd is placed for being compressed. 11. A cheese-press. 12. A wooden vessel, for containing the butter when removed from the churn, and in which the butter may be washed and salted. These are utensils that are essentially necessary for the dairy, and to those may be added any others that may be required. We shall again refer to the dairy management.

We may consider it as good farming when we convert bad land into good, or when we are able to continue land that is naturally good and productive, in a state of permanent and improving productiveness. To produce these results, we must first carry off all superfluous water by means of judicious draining. We must next impart to bad soil what is necessary to it, by mixing other soil with it, or by manuring it. We have also constantly to return to the soil, through the medium of manure, the strength and fertility which we extract from the land by crops; and lastly, we should eradicate all noxious weeds, that the strength of the land and manure may be thrown into the crops, and not into the weeds. If we were to be governed by these rules, Canadian agriculture would soon exhibit an improved appearance, and be a much more profitable business for the farmers and

the country. In fact, without observing these rules, land cannot be improved, or kept in a state of fertility, and profitable productiveness, when it is improved. It is very unreasonable to expect that the system that has been so long followed in Canada, of taking all from the soil that can be extracted, and giving it no manure in return, could be constantly continued. However excellent our lands may be, they cannot continue to give crops of any value, without receiving back a part of those crops in the form of manure. No wonder the lands of Canada should be poor and exhausted by such treatment, and they will require much attention now to restore them to their original fertility.

AGRICULTURAL REPORT FOR JUNE.

The past month has been a wet one for this season of the year, and we scarcely had two days in succession without rain. It has, however, been extremely favourable to vegetation, and where lands have been in any reasonable state of fertility and dryness, the crops have made great progress in their growth, and appear very promising. We cannot report so favourably of lands that are not fertile and dry. For such lands, the season has been rather cold and wet, and produced a large quantity of weeds in the crops, wild mustard, and thistles in particular. These two species of weeds prevail to a most injurious and discreditable extent in Canada; and we believe the most certain way to overcome them, is, by seeding down the land for grass. There can be no doubt that the constant cropping of land produces these weeds, and many others—more especially when the proportion of root crops cultivated is so very small, none of the land cleaned by summer fallow, and no regular rotation of crops observed. A considerable quantity of wheat has been sown this spring, and has a good appearance. As it has been generally sown late in May, we have not seen any of it in ear. The 25th of June is the earliest period of the appearance of the wheat-fly; and as they are to be seen in barley as well as wheat, we have examined some barley fields, but have not seen the fly. The weather has been windy, and that would have prevented us seeing them, if they were in the fields. We hope the wheat crop may escape their ravages, though we have some apprehension that the early sown, if soon in ear, will not altogether be free from damage. The barley is now generally coming into ear, and has a good appearance where free from weeds. The season is favourable for oats. Peas, also, look well. Indian corn has not succeeded well, except where the soil was very dry and favourable. This spring has been too wet and cold for that plant. Potatoes are not sufficiently advanced generally to judge what the crop is likely to be. We believe the dry rot has not injured them to any great extent. We see, by a report in the Gardener's Almanack, of an experiment made in cultivating potatoes, the produce to be as follows:—

The rows 30 inches apart produced	16 tons.
“ 24 “ “ “	24 do.
“ 18 “ “ “	22 $\frac{3}{4}$ do.
“ 6 “ “ “	16 $\frac{3}{4}$ do.

The person who made this experiment also ascertained that planting the seed six inches deep in the soil, was the most productive. He recommends hoeing or stirring the earth frequently between the rows, but is not certain that it is beneficial to the crop to earth up the plants very high. He says, that taking off the blossoms only, will increase the produce considerably. He recommends that the seed planted be from tubers exhibiting scarcely any symptoms of vegetation; that they be set immediately after being cut,—that they never be placed upon the manure in the drills,—and that potatoes never be raised oftener than once in four years upon the same ground. So far as our own experience goes, we should recommend, in all soil that is sufficiently dry, to plant the seed under the manure; but if the soil is heavy and damp, the manure should be placed under the seed. To plough in the manure in the previous fall, or early in the spring, before the drills are formed, is the best plan, when it can be accomplished. The Gardener's Almanack recommends salt to be applied to asparagus at this time, at the rate of twenty bushels per acre. It being a native of the sea-shore, it requires salt to be plentifully supplied to it. Indeed, the excellence of all cultivated plants, so far as growth and flavour only are concerned, depends upon their being supplied with the food consonant to their nature more abundantly than it is usually afforded to them in a state of nature. Hence it is, that we are able to improve plants when we supply them more abundantly with what is suitable for them, than they could obtain in the situation in which they were produced naturally. Thus, the art of man may assist nature, by employing this art judiciously. The meadows have a good appearance, where the land is sufficiently dry and fertile; but old meadows, that are not in good order, will not produce a heavy crop. This season, like all other years, will be likely to produce crops in proportion to the skill and good management of the soil. The pastures are good, and the cattle in the neighbourhood of Montreal in good condition; but we understand that this is not generally the case. The season, however, has not been unfavourable for pasture where the land is of medium quality and not overstocked. It cannot be expected that we shall have good pasture on poor land that was under crop last year, and had no clover or grass seed sown in it, and such is the state of a large proportion of the pastures of Canada. Our markets are abundantly supplied with good beef, mutton, lamb, and veal, and sold at moderate prices. Dairy produce is also abundant, and sold at a reasonable price. The orchards have suffered dreadfully this year from the ravages of caterpillars. Few have escaped injury, unless where great care was observed in destroying the vermin. It is said that scattering powdered lime over the trees will de-

stroy the caterpillar. The lime is applied from a small tin box, with holes, fastened to a long pole. We are glad to be able to report that there is a full demand for all the labour that can be had in this neighbourhood at present, and that most labourers who are disposed to work, may find employment and good wages. We confidently hope the farmers will have good crops this year, and some wheat to dispose of, if it escapes the fly. What the price may be of spare produce, we can scarcely conjecture at this moment, but believe it will not be high, if the season finishes as it has commenced. While we only raise a produce for the very limited consumption of Canada, and not for exportation, we need not expect high, or even remunerating prices.

July 1, 1844.

In a late number of our English papers—we have seen a Report of the proceedings of the Derbyshire Agricultural Society, and the objects of that Society are declared to be as follows:—

“To promote the interest of all classes dependent upon agriculture, and to diffuse sound and useful knowledge upon all subjects connected therewith; to encourage and reward the exertions of agricultural labourers, and to give bounties to meritorious servants in husbandry; to encourage the breeding and the feeding of stock; to promote the cultivation of arable farms; to give premiums to the inventors of the new and improved agricultural implements; to correspond with and to promote the views of the Royal Agricultural Society of England.”

The same rule, we conceive, should be adopted by all Agricultural Societies in Canada, and if a General Board of Agriculture were established, there might be a regular correspondence between them and the local societies, as there is in England between Country Societies and the Royal Agricultural Society. The value of good and faithful labourers, and farm servants, to agriculturists, is so great, that we think it would be of immense benefit to them to encourage such valuable servants by giving them premiums. We are not aware that it would be possible to apply parts of the funds of the Society to a better or more judicious purpose. It would be encouraging faithful, and useful servants, and labourers, that are so essential to profitable farming. It would be a much more reasonable application of the funds of the Society, than paying them away to wealthy farmers as rewards for keeping good stock, or having good crops, which they find it to be their interest to have. The funds of Agricultural Societies should in all cases be applied in such a manner as to produce the most general benefit, and the greatest degree of improvement

where it is most required. The value of a good, and faithful labourer, who will execute his work, whatever it may be, with care, and dispatch, is very great to a farmer, and such labourers should be encouraged in every reasonable way. It is become a general rule with all the English Agricultural Societies to give premiums to those who have rendered long and faithful service to their employers, and in no country would it be more necessary to encourage such services than in Canada.

Butter of good quality, and put up in casks of proper size, and make, for exportation, should be a matter of great consequence to Canadian farmers. The making of butter might be a profitable trade, if such an article was made as would command the highest price, and ready sale. It will not require any more cows to be kept to make good butter than it would do for bad, unsaleable butter. The same quantity of milk and labour are required to make the one as the other. Certainly good pastures, and sufficient grass have a great influence in producing the quantity of milk, but as a general rule in Canada, we have no doubt, a given quantity of milk would produce a certain quantity of butter or cheese, of bad or good quality according to the mode of management, so that the loss or gain will depend altogether on the management. Next to a proper milk-house or cellar for keeping the milk, which is an essential requisite, much will depend upon the proper working of the butter, by which it may be deprived of all the butter-milk. If the butter-milk is allowed to remain in the butter, it will not taste well, or keep well, however judiciously the dairy may be managed in all other respects. The mixture of milk in the slightest degree with the butter, is sure to produce an unpleasant taste in the butter; and the entire freedom from this, and from all the water used in washing it, constitutes the grand secret in making good butter, provided the milk and churning are also properly managed. There are many who object to washing butter with water, but when cold and pure water is made use of, we know from experience that it does not injure the flavour of the butter, provided always, that no part of the water is allowed to remain in the butter after the butter-milk is washed out. The Dutch butter, which even in the English markets, generally commands the highest price, is invariably washed in water after churning. In England they are very particular in their pastures for dairy cows. They are generally old pastures very rich—having a diversity of grasses mixed together—and from which

they remove if possible all weeds or plants that are supposed likely to injure the flavour of the milk, butter or cheese. It has been lately discovered that a species of plant, known as the buttercup, injures the butter in parts of England, and some persons attribute the epidemic that prevails among cattle in that country to the eating of this plant. It is described as being of an acrid, poisonous nature, and by various experiments proved to be very fatal to animals. If cattle have a sufficient pasture, they are said to avoid this plant, but when they are limited, and obliged to feed close, they will eat it. The use of lime in the compost with which they top-dress the pastures where the buttercup is found, is recommended. Perhaps we cannot conclude this article better than by copying a part of Mr. Ellsworth's report describing the mode of making butter in the State of New York, as we have seen it published in the *New England Farmer* :—

"The Goshen butter, in the State of New York, is celebrated all over the country, and the following account is given of one of the most celebrated dairies there:—"The cows are regularly salted and kept in good pasture during the summer. In the winter, each cow is kept in a stall, with a separate door to it, in a building two sides of a square round a large yard; the upper story of the building is appropriated for fodder and hay. The cows are brought up to the yard, night and morning, and regularly milked. The milk is set on a cellar bottom; here it stands till loppered and soured, as it is said to make more butter in this state than any other, and of a better quality. In this state it is poured, cream and all, into churns which hold a barrel each. If the weather be cool, and the milk not sufficiently warm to come readily, a can is filled with hot water, and this placed in the milk in the churn, and stirred about till it reaches a temperature of 55 to 60 degrees." Water power is preferred for churning to any other, as it is more regular. "After being churned, the butter is thoroughly washed with cold water; if this be not done, it is difficult to get the buttermilk clean out of it. As soon as cool and solid, the butter is taken on a marble or smooth stone table, properly salted with clean fine salt, and worked over thoroughly with a wooden ladle—the hand never being allowed to touch the butter, as, from its heat, it softens it." After being thoroughly worked, the butter is packed in firkins of seasoned white oak. The firkin, previous to packing, is well washed with cold water, and then rubbed all round with salt, to prevent the butter from adhering to its sides. It is put down in layers as churned, 3 or 4 inches deep. When the firkin is filled, a linen cloth is placed over the top of the butter; on this, half an inch of salt; to which is added a little water, to form a brine.

The cellar is considered very important; it should be seven feet deep; 18 inches of which, at the top, should be allowed for ventilation; the windows to be covered with very fine wire gauze, to let in the air and keep out the insects; the walls to be of stone and painted; the floor of slabs.

The best temperature at which butter may be procured from cream, appears by the experiments of Dr. Barclay and Mr. Allen, is in commencing churning

from fifty to fifty-five degrees, and at no time ought it to exceed sixty-five degrees; while, if it falls below fifty degrees, it will be more difficult and laborious to obtain the butter. It was found by Mr. Ballantyne that the greatest quantity of butter is obtained at sixty, and the best quality at fifty-five degrees in the churn, just before it came.

The extraordinary improvement that has been effected within the last few years, in English Agriculture, is chiefly to be attributed to the exertions of the Royal English Agricultural Society—by their monthly, and great annual meetings, and by the circulation of "*Journals of Agriculture*" which contain all that is new and interesting on the subject of husbandry. The English farmer has also the advantage of many other publications on Agriculture particularly the "*Farmers' Magazine*," under the able management of Wm. Shaw, Esqr. the editor of the *Mark-Lane-Express*. Through the medium of all these publications, the most useful information is constantly in circulation—the results of experiments are reported—new modes of cultivation and management suggested—in fact, all is done that is necessary to prompt the agriculturists to adopt the best and most profitable system of farming in all its branches. As might be expected from this judicious attention to Agriculture, the improvement produced is almost incredible. Perhaps we may say that thorough draining has been the principle or first means of improvement adopted—indeed it was the general opinion that all attempts to improve would be useless until the sufficient draining of land was first effected. By this draining, land that was previously unproductive and nearly waste, has been rendered the most fertile and productive in the British Isles. It is supposed in England that no outlay on improvements will pay so well as that for judicious draining; and we perfectly agree in this opinion. No land is in a fit state for arable culture unless sufficiently drained, and for the strong clay lands in Canada, sufficient draining is most essential. Some persons imagine that land may be too much drained, but this is a great mistake. It is from the moisture of the atmosphere that crops must derive benefit, not from natural wetness souring the soil. The rain, and moisture from the atmosphere will benefit crops; when they can pass through the soil in which the plants are growing. Undrained clay soil, when dry and requiring moisture for the crops growing upon it, is so baked and hard, that slight showers of rain, or the dews, have no effect upon it—the dew will not penetrate to the roots of the plants—and the rain will run off the surface or be dried up

again without much benefitting the crop. When the soil is sufficiently dry for working it will be open, and after the seed is put in, every shower of rain will benefit the crop, and so will heavy dew; but if the soil is wet, when cultivating, it becomes hard with the first dry weather, and remains so generally until the crop is harvested, impervious to either slight summer showers or to heavy dews. This is a great fault in Canadian farming, and is the chief cause that the strongest and best lands in the country produce only scanty crops. A summer fallowing would be necessary to open and pulverise all strong lands that never had that sort of cultivation. There is a large proportion of the soil of Canada, that has been invariably ploughed in one direction, and the same furrow slice is turned in the same way year after year, and never broken. The consequence is, that the soil is not much benefited by the process of ploughing—and it would therefore be very necessary that such soils should have a thorough breaking up, by ploughing them in all directions, and clearing them of all weeds, and couch grass. This operation, properly executed, would be a vast improvement in all strong clay lands—and would amply compensate for the labour. We wish we could persuade farmers to adopt this plan very generally, as the most easy and certain means of effecting improvement—that would be in the power of almost every one who had a farm. There is no preparation of the soil for wheat so good as that by summer fallow. It is said to be a great check to the ravages of vermin, particularly the wire-worm, and it will also check the growth of weeds, if the work be carefully executed. Farmers will find it to their advantage to forego a year's crop of the land they summer fallow, when they will obtain more than a double crop the year after the land is properly cultivated, and it will be much improved for future production. It would infinitely improve the appearance of the country to drain the land of superfluous moisture—clear it from weeds—and grow good crops, that would do credit to the farmer, and produce him profit. We are not justified in holding possession of good land, if we do not improve it to the utmost, and no man can pretend to be a friend to the prosperity of this country who, possessing wealth, power or influence, will not use them to forward the improvement of our Agriculture, by instructing and encouraging the people to adopt a better system.

We have received, through the hands of Mr. Tebbets, of this city, Simmonds' Colonial Magazine,

for which we beg to return the editor our best thanks. It is a very interesting and useful publication, well entitled to support, and a large circulation in the colonies of Britain, as well as in England. Such a publication as this is calculated to bring the British Colonies into notice, show their true respective value, and their suitability for emigration, for the several classes of emigrants. This information is of great importance to persons desirous of emigrating from the British Isles, to know which of the colonies will be most likely to suit them; and no man can give more accurate information in this way than Mr. Simmonds, from his extensive correspondence with the colonies. We wish the work success.

We have further to acknowledge, from the same gentleman, the Gardener's Almanack, by George W. Johnston, Esq., and a Supplement to Mr. Withers' work on the Culture, Qualities and Uses of the Acacia, or Locust Tree. The Almanack is a most valuable little book, and we shall often copy from it, what we may conceive suitable information for this country gardeners. We know that much of the management adopted in English gardens will answer in Canada. The climate is as favourable here as in that country for seven months of the year, and we may grow in our gardens here almost every plant they do there, and in equal perfection; fruit we may have in greater perfection. Some time back, Mr. Withers sent us his work on the Cultivation of the Acacia, or Locust Tree, to which the Book received now is the Supplement. The Acacia, or Locust Tree, may be cultivated successfully in Canada. They are a tree of very rapid growth, and would, in a few years, arrive at a considerable size. This is of great consequence when designed for ornament, for which they are suitable, and we wish that planting trees for ornament was to become a general practice in Canada. In a few years they would be found useful as well as ornamental. Mr. Withers' book gives instructions for planting trees, which would be very interesting to persons desirous to plant. Our English friends will confer a great favour upon us by sending us any useful information on the subject of agriculture or gardening. There are publications on these subjects constantly appearing in England, and we may not even hear of them unless through the kindness of some friend. Any we get shall be made use of for the general good of our country, not for our own exclusive advantage.

We have seen a Circular of Dr. Meilleur's, Superintendent of Education in Canada East, containing Instructions to the School Commissioners, and a Précis of their Duties, which must be a great assistance to those Commissioners, if they are disposed to promote the education of the people, as it is in their power to do. The School Law may have some defects, that require to be amended; but this should not prevent the Commissioners from acting under the existing law until it is amended. Education is of too much im-

portance to the people to allow it to be neglected, and the Commissioners who have accepted appointments under the law as it is, will not do their duty to the Government or the people, unless they do all in their power to promote the object for which the law was made. It is a pity to put off the education of the people, because the school law may not be all that could be desired. Very few laws are perfect when first made, and we should not complain that this is imperfect. The Superintendent of Education, Dr. Meilleur, affords conclusive evidence that he is disposed to do all in his power to advance education in Canada, and no gentleman is better qualified. We most sincerely wish him success. We have ever been an advocate for the general education of the people, but always combined with religious instruction. We consider religious instruction as essentially necessary to youth as secular education, and we believe both might be judiciously combined by the true friends of the rising generation. Religious instruction is necessary to keep the mind of youth from wandering into the wild theories and speculations which frequently result from a strictly secular education. The education of the people should be of that nature that would be most likely to produce happiness, and make them good members of society, and of the State to which they belong. An education that will not produce this result in the educated, will not be of much value.

The following Resolution was unanimously adopted by the Broomgrove Farmers' Club, at a recent meeting:—

“That in the management of farm-yard manure it is highly important that the escape of any gas or liquid from it should be prevented, and that the more perfectly this is accomplished, the more valuable, other circumstances being the same, will the manure be. That to promote this end, it would seem desirable to form the bury on a stratum of soil which should absorb any liquid flowing from it, and to cover the surface also either with a layer of soil, or with some substance capable of fixing the ammonia given off. That for the same end it would also appear desirable that buries of manure should be formed under cover, proper moisture being supplied, though farm buildings, as at present constructed, rarely offer convenience for this. That from the evidence of Mr. Wilson, Mr. Matthews, and Mr. Smith, kindly communicated to the club, it appears that salt has been found extremely valuable as a manure on light soils, the quantity usually applied not exceeding five or six cwt. per acre; and also that it is extremely advantageous when supplied to live stock, in preserving their health.”

We have been informed, from what we consider good authority, that persons who have made contracts with the Government for the supply of butchers' meat to the troops and others, have imported cattle from

the United States; and, after obtaining a drawback for the provincial duty payable upon foreign cattle, have sold them again to butchers and others,—thus cheating the province and defeating the object of the law, namely, the encouragement and protection of Canadian agriculture. We believe we were correctly informed, and we see that it is quite possible to carry on this fraud to a great extent, unless the officers who have it in their power to check the imposition are strictly attentive to see that contractors do not import more cattle, duty free, than they require for the fulfilment of their respective contracts. This might be easily ascertained. We mention the subject in order that the proper authorities may strictly investigate the matter. Indeed, we are persuaded that no exemption should ever have been allowed, as it is scarcely possible to prevent the law being broken while there are exemptions.

In one of our communications, published in the *Montreal Gazette* some time back, we gave the report of an experiment made in England on the feeding of sheep by J. W. Childers, Esq., M. P. One lot was fed in the usual manner in the open field, the other in a yard, with a shed to protect them from the weather. From the result of this experiment it appears that even in the temperate climate of England, shelter is found of great advantage to sheep, when feeding in winter. We should not therefore complain of the Canadian climate, that we are obliged to shelter our sheep in winter. Our winters are longer and more severe than in England, but we are persuaded that if cattle and sheep are properly sheltered, as they generally are in England, they will not require more food here than in that country. The snow does not cover the ground in the British Isles, for several months, as it does here, and consequently a larger proportion of the cattle and sheep find sufficient shelter in the fields and in yards when they have an open shed. But we would observe that in Britain the country is sheltered by live hedge fences, and plantations, in every direction, which afford great protection to stock, when the ground is not deeply covered with snow. The report we copy clearly proves, that even in temperate climates shelter and covering is very beneficial to stock, and profitable to the owners, particularly for breeding stock, and those that are fattening for the butcher. To make the keeping of sheep profitable in this country they must be provided with suitable yards and shelter.

J. W. CHILDERS, M. P. in a late English publication, has given a detailed account of an experiment made in feeding two lots of sheep, one in a small yard and out shed to protect them from the weather, and the other in the usual manner in the open field. As it is

conclusive on the advantages of protection in feeding, we have abridged it for the Cultivator.

On the first of January, Mr. C. took from his flock 40 wether hogs (yearly) Liecesters, and divided them into two lots, one weighing 183 stone, 3 lbs., and the other 184 stone, 4 lbs., and in other respects there was as little difference as possible. The first lot was put into the yard, the second into the field; and each lot had exactly the same quantity of food given them, which was as follows:

1st. As many turnips as they could eat, which was about 27 stone per day for each lot.

2d. Ten lbs. of linseed cake, or half a lb. per sheep per day.

3d. Half a pint of barley per sheep per day.

4th. A little hay, and a constant supply of salt.

For the first three weeks both lot consumed the same amount of food, but in the fourth week, the lot in the shed eat less by 3 stone of turnips per day, and in the ninth week they fell off 2 stone more. Of linseed cake, there was also a falling off 3 lbs. per day. The lot in the field consumed the same from first to last.

The result of the experiment was as follows:

20 Shed Wethers.	Increase.	20 Field Wethers.	Increase.
Jan. 1st, 183 st. 3 lbs.		184 st. 4 lbs.	
Feb. 1st, 205 st. 0 lbs.	21 st. 11 lbs.	199 st. 8 lbs.	15 st. 4 lbs.
Mar. 1st, 215 st. 10 lbs.	10 st. 10 lbs.	208 st. 2 lbs.	8 st. 8 lbs.
Apr. 1st, 239 st. 9 lbs.	23 st. 13 lbs.	220 st. 12 lbs.	12 st. 10 lbs.
Total increase	56 st. 6 lbs.		36 st. 8 lbs.

Thus the shed wethers, through consuming one-fifth less food, made above one-third greater progress; and the circumstance of the experiment were on the whole unfavorable to the winners, as the turnips being stored in a house for their use, were more wilted and dry, than those consumed in the field by the other lot. The shed floor was swept each day, and fresh straw given after each shower of rain."

According to Mr. McCulloch, the value of the manure alone, annually put on the soil of Britain, is more than all the foreign trade put together, and we are convinced he was perfectly correct in this opinion. This fact alone would show the vast importance of agriculture in England. Agriculture does not obtain credit for the immense amount of capital which it employs, because it is so divided; but when we know that it is computed that the rent-paying-farmer should have a capital of from £6 to £10 per acre for the land he occupies, altogether exclusive of the value of the land, the buildings, and improvements, the capital employed in trade, and manufactures are far below the amount invested in land, farm buildings, stock, seed, and implements. The extent of land in England and Wales is about 37,000,000 acres, and the farmers' capital, in stock, seed and implements, would, at about £8 per acre, amount to nearly £300,000,000. If we add the value of the land, the buildings and permanent improvements to this the whole will not be less than from £1,700,000,000, to £2,000,000,000, in land, buildings, stock, implements, and improvements; and if to this we again add, Ireland and Scotland, the amount may

be nearly doubled, so that the whole amount of capital invested in land, buildings, stock, seeds and implements, in the British Isles, must be from £3,000,000,000 to £4,000,000,000 or perhaps more, and we believe that trade and manufactures have no such amount invested. We may now refer to our own country, Canada, and we suppose there is nearly 4,000,000 acres in cultivation, and computing the value of this land at £5 per acre and it certainly has cost that sum to clear it and make it what it is—the farm buildings and improvements at £2 10s. per acre, and the stock, seed, and implements a £2 10s. per acre, we shall have a total amount of £40,000,000, exclusive of uncultivated land, that is in the hands of the farmers, and which we believe may be computed at full £10,000,000. This would give the agricultural class in Canada a capital of at least £50,000,000, and we are convinced this is very considerably under the real amount. Under such circumstances, do not the interests of this class demand the first consideration? The agricultural class unquestionably possess in lands, buildings, stock, seed and implements, three times the amount of fixed capital that all other classes own in the Province, and we, therefore, conceive that they are in every way entitled to a proportional degree of attention given to their interests. They are the producing class here, and in every country that class are entitled to every reasonable encouragement and support. The country is not worth keeping if not productive of what is necessary to her inhabitants, in the comforts and conveniences of existence, or the means to procure them by exchange. If the producing class have justice done them, the country will flourish and prosper, but if they who should have the greatest influence are kept back by others who have not the same right, we despair of the improvement and prosperity of the country.

We have the seat of Government now permanently established in Montreal certainly in every way it can be considered, the most convenient and eligible position for it in the Province. It is the centre of the most fertile and beautiful part of Canada, and accessible conveniently from all parts of the country. We hope it will give a new stimulus to the improvement of agriculture. It is from Montreal first, we should expect that encouragement and instruction would be given to the improvement of husbandry. We are convinced that we never have been favored with a Governor who was more disposed to forward the improvement of agriculture

than the present Governor General; indeed he is the only one who ever took any particular interest in the matter, particularly, so far as regards the French Canadian agriculturists. When we first submitted our proposition to publish our Agricultural Journal in the French language, to His Excellency, he at once signified his approbation, and gave us a handsome contribution from his own private fortune towards the expense of the publication. As it is well known that the publication cannot be a profitable one for us, we may be pardoned for observing that His Excellency is the only individual in Canada, with one exception (Col. Wilgress of Lachine,) who has given any contribution towards the support of the translation and publication, except their subscriptions. If the publication is not worthy of support, it is not our fault. We have constantly stated that the columns of our Journal would be open to any communication on agricultural subjects that might be sent us for insertion, and if those who are better informed in regard to this subject than we are, will withhold their light, and the aid of their experience, and instruction, from their brother farmers, we lament their selfishness, and want of patriotism. We trust we shall have it in our power to record, that during the administration of His Excellency the present Governor General, Canadian Agriculture will advance more than ever it has done hitherto, in general and profitable improvement; and if this be the result, through his powerful influence and example, His Excellency will have done more for the real prosperity, comfort, and happiness of the Canadian people than any man who governed this fine Province of the British Empire, before him. We repeat now, what we have asserted so often, that whoever shall be instrumental in augmenting the quantity and value of our annual productions, will be the greatest benefactor to the people of Canada they have ever seen. To instruct and encourage them to produce abundantly all that is necessary to procure for them the comforts and conveniences of life, will confer a greater benefit upon them, than all the political agitation that has distracted the Province for the last thirty years. It is perfectly possible to produce this benefit to the people; there is nothing in the soil and climate of the country to prevent it—both are favourable to the most perfect system of agriculture.

We have repeatedly stated our conviction, that the more closely we were able to adopt the English system of agriculture in Canada, the more perfect and

profitable would be our farming. Every year's experience confirms us in this opinion. Our land is much better than the average lands of the British Isles. Our climate is good; but we want the necessary capital and skill to apply it to the proper cultivation of the soil. A deficiency of capital paralyses every thing, even with the most skilful farmer; and until a larger amount of capital is employed in the agriculture of Canada, its improvement will not advance very rapidly. It is to production that capital might be applied most profitably, and for the general interests, in this country. If a large amount of exportable produce was raised annually, it would refund the capital employed with interest and profit, and it would be the means of giving employment to thousands of poor labourers, who come here to seek it. The disposable capital in Canada is only employed in the trade in commodities that are already produced, not in producing them; and this is a great cause of the languishing state of our agriculture. We have seen some extracts from Mr. Colman's Agricultural Tour in Britain, now being published, and he being a gentleman who is very capable of giving most useful and accurate information on the subject, we shall occasionally copy from his work. The following extract is very interesting, showing the large capital engaged in English agriculture—the character of the farmers—the excellent order and arrangement of their establishments—with some reference to the farm labourers. Mr. Colman may be considered an impartial judge in these matters, and all that we have seen of his book is highly creditable to English agriculture. Mr. Colman describes the general interest manifested by all ranks and classes in the improvement of agriculture; and certainly, if we have any particular desire to follow the example of our fellow-subjects in Britain, we cannot possibly do so more usefully or more for the general good, than by adopting the same means of forwarding the improvement of our agriculture. We do not require it less than the English farmers. We are not more wealthy, or skilful in the art of agriculture, than they are; consequently, we require instruction as much as they do, that we may be able to augment our means of comfort and enjoyment; or, we might rather say, that we might, by a more skilful industry in the cultivation and management of our lands, be able to obtain a larger and more valuable product from our labour and land than we do at present. Our lands are our wealth, if we only know how to extract it from them by the judicious application of labour and capital. They will be the true benefactors of their country, who will adopt the proper means to enable the people to accomplish this good.

EXTRACT FROM MR. COLMAN'S EUROPEAN AGRICULTURAL TOUR.

THE FARMERS.—Next come the farmers, who lease the land of the land-owners. These men are not like farmers in the United States, who themselves labour in the field; they rarely do any personal labour whatever. They are in general a substantial, well informed

body of men, and many of them live in a style of elegance and fashion. Many of them are persons of considerable property, as indeed they must be to manage the lands which they undertake. The capital necessary to manage a stock or an arable farm must be always estimated at double or treble the amount of rent, and in general cannot be set down at less than £10 sterling, or \$50 per acre. The stock required for a grazing is, of course, much more than for an arable farm; but in no case can success be looked for without ample means of outlay. In no respect does the agriculture of England differ more from that of the United States, especially from that of the northern States, than in that of capital. They attempt to get along with the least possible expenditure. Under such circumstances, they operate to very great disadvantage. They can never wait for a market. They cannot bring out the capabilities of their farms, and the results of their farm are consequently limited and meagre. The difference between a new country, contending as it were for existence, and an old country, operating with the accumulations of years and centuries, is most sensibly marked; the expenses incurred on some farms in England solely for manures purchased, exceeding thousands of pounds sterling, and the cost merely of grass seeds are perfectly surprising to an American farmer; yet experience has demonstrated that in these cases the most liberal outlay of capital is the most sure to be followed by successful results.

The farmers of England, as far as I have had the pleasure to meet with them, are a well informed set of men, on subjects connected with their particular pursuits. There, of course, is the variety among them which is to be found in other classes, but their manners, without exception, are courteous and agreeable—their hospitality distinguished—and their housekeeping and I speak with the authority of a connoisseur in these matters, is admirable. Indeed it has not been my misfortune to meet, in England or Scotland, with a single instance of sluttishness in any private house I have visited; but, on the other hand, the most exemplary neatness. I cannot say as much of all the hotels or taverns in the country, many of which are far inferior in all respects, and none of them superior in any, to our best hotels. There is one circumstance in English manners so much to the credit of their housekeeping, that I shall, for the best of reasons, venture to remind my American friends of it, although I fear that any reformation in the case is hopeless. In no private house which I have visited, have I been smothered or offended with tobacco smoke, and I have seen the offensive and useless habit of chewing tobacco, since I came to England, in but one solitary instance, and that was on the part of an American. At public dinners, the same reserve is not practised, and the atmosphere becomes as thick as a London fog. I will not interfere with any gentleman's private pleasures; but I will lose no fair opportunity of protesting against a practice which has nothing to recommend it, and in respect to which I think we have good grounds to ask, what right has any man to indulge in any mere personal or selfish gratification, indoors or without, at the expense of his neighbour's comfort? I know very well the value to my own country, as a branch of agriculture, of the production of tobacco; but I cannot look upon its cultivation with much complacency. Nor does the exhausted condition of the soil where tobacco has been some time cultivated, reconcile me to its culture. Indeed, how much it were to be wished, that instead of the production of an article useless for sustenance and pernicious to health, there could be substituted the cultivation of plants for the

food and comfort of millions, now suffering for the want of them!

THE AGRICULTURAL LABOURERS.—Next to the farmer comes the labourer, and these three classes preserve the lines of distinction among them, with as much caution and strictness as they preserve the lines and boundaries of their estates. These distinctions strike a visitor from the United States with much force, but in England they have been so long established, are so interwoven in the texture of society, and men are by education and habit so trained in them, that their propriety or expediency is never matter of question. The nobleman will sometimes, as an act of courtesy and kindness, invite his tenant farmer to his table, but such a visit is never expected to be returned. The farmer would, under no circumstances, invite the labourer to his table, or to visit him as a friend or neighbour. I do not mean to imply, that there is, on the part of the higher classes of society in England, any insolence, or arrogance, in their treatment of their inferiors. Free as my intercourse has been with the higher and middle classes, I have seen no instance of this nor any thing approaching it, but the contrary, and the best bred men in the country, the true gentlemen, are distinguished for their courtesy and the absence of all ostentatious pretensions. While they naturally fall into the orbit in which birth, education, and the political institutions of the country have accustomed them to revolve, the well principled among them, would, I am sure, be the last persons by any assumptions voluntarily to mortify one below them, with a sense of his inferiority.

The following is copied from the proceedings of the Royal English Agricultural Society, at one of their late meetings. It will give some idea of what a perfect dairy should be. We have seen the milk and cream kept in those dairies, and they certainly were of the purest and best quality. The saltpetre recommended to be dissolved in the milk, we can, from experience, say, is a very good method of preserving the milk pure and improving the butter. We can have good butter if we adopt the proper means:—

Mr. Greaves, of Bakewell, Derbyshire, stated to the Council, that having paid a visit, some twenty years ago, to the dairy of the late Duchess of Rutland, at Belvoir, he was much struck with the plan adopted for obtaining the cream without skimming it from the surface of the milk. The milk-room was lined with porcelain, laid on in square; and, in order to preserve it cool and fresh, as well as to create a gradual ventilation, a fountain of cold water was kept constantly flowing in the middle of the dairy; the current rising through an upright pipe in the centre, and, having attained its height, rolling back in sheets of water over a cone of successive basins, increasing in size from the top to the bottom, where the water entered a drain and was carried away. All the puncheons were of china-ware, and very shallow; it having, he believed, been satisfactorily ascertained, that the amount of cream thrown to the surface by a given quantity of milk was dependent, to a certain extent, on the breadth of surface given to it by such shallow vessels: the same measure of milk poured into a vessel allowing it to stand at two inches deep, casting nearly twice as much cream as it would do if its depth were eight inches. In the experimental part of the dairy, puncheons containing milk from various cows of the different breeds, were arranged in distinct order, and duly registered with

every circumstance of condition supposed to affect the quality and quantity of the milk and cream obtained in each case; but the greater bulk of the milk was kept in leaden cisterns, about three inches long, two feet wide, and three inches deep: the bottom of each cistern inside having a slight concavity, in the centre of which was an aperture connected with a tap underneath, for the purpose of drawing off the milk, and leaving the cream behind untouched in the cistern.—Mr. Graves considered this to be on every account an admirable plan; and he had found in his own dairy, that a piece of saltpetre, about the size of a hazel-nut, dissolved in warm water, and mixed with every gallon of new milk as soon as strained, not only caused the milk to cast its cream better, but had the effect of removing from the butter every disagreeable flavour arising from the herbage of particular pastures, such small addition to the milk, of so well-known and simple a saline substance, imparting to it a wholesome character, rather than otherwise, in a dietetic point of view. Lord Camoys, of Stonor Park, Oxfordshire, stated that, while on a visit last winter with his friend Mr. Tollet, of Betley Hall, Staffordshire, it occurred to him, on inspecting that gentleman's dairy, without being aware of the contrivance then brought under the notice of the Council, that the milk might with great ease and nicety be drawn off from beneath the cream on its surface, by means of a syphon inserted into the milk over the edge of the pan. On his return home he carried out the idea, and having found the plan to answer perfectly, he now used nothing else but the syphon for separating the milk from the cream. The syphons were made of block-tin, with a tube of about a quarter of an inch bore, and cost two or three shillings each. One great advantage in their use was, that they were self-acting, merely requiring to be inserted in the milk and set at work, the stream continuing to flow by such decantation for about a quarter of an hour, until the cream presented itself for admission into the lower orifice of the tube, when its greater body and less fluidity prevented its free passage, and the syphon gradually stopped of its own accord. This complete draining of the milk from the cream, rendered the latter very superior in its keeping properties. His own dairy cows were Alderneys, and the cream, therefore, of greater body; but he believed the same effect of perfect separation would result in the case of ordinary cream, especially if the bore of the tube were diminished accordingly. His Lordship, at the request of the Council, expressed his willingness to present a specimen of the syphon to the society.

SAWDUST AS MANURE.—The Highland and Agricultural Society of Scotland has lately published a paper on the use of saw-dust as manure. It is highly recommended as litter for byres, cattle-sheds, pig-styes, &c., and answers well both for keeping the animals clean, and for absorbing the urine. We have often used saw-dust for this purpose, and can recommend it as one of the best articles to be had. We have also used, and seen it use for ameliorating clayey and tenacious soils, with good effect. In some sections this substance may be obtained in abundance, and instead of being wasted as it generally is, it would be found, if used in the manner above mentioned, highly valuable.

LARGE SHEEP.—Two sheep, said to be of the Devon breed, were lately killed at Exeter, (Eng.) one of which weighed 71½, and the other 73 pounds per quarter.

ENGLISH FARMING.—J. J. Mechi, Esq. gives, in the English Farmer's Herald, an account of his improve-

ments on a farm of 130 acres in Essex. The whole improvements, including over eighty miles of drains, amounted to the sum of \$23,400! The 132 acres cost him \$14,000, making the total investment amount to \$37,800—or a fraction over \$290 per acre, and yet he esteemed this a better investment than to place his funds in the public stocks.

Never drive a toad from your garden; they are useful in destroying noxious bugs.

MONTREAL MARKET PRICES.

CORRECTED BY THE CLERK OF THE MARKET.

		New Market, July 1.	
Wheat,.....per minot,.....	5/6 @	6/3	
Oats,.....do	1/3 @	1/4	
Barley,.....do	2/0 @	2/3	
Peas,.....do	2/6 @	3/9	
Buckwheat, do	1/8 @	2/0	
Rye,.....do	2/6 @	3/0	
Flaxseed,....do	5/0 @	5/6	
Potatoes,....do	0/10 @	1/0	
Beans, American, per bushel,.....	4/0 @	4/6	
Do. Canada,....do	6/0 @	6/8	
Honey, per lb,.....	0/4 @	0/4½	
Beef,....do	0/2½ @	0/6	
Mutton, per qr.	2/6 @	8/9	
Lamb,....do	1/3 @	2/6	
Veal,....do	2/0 @	1/0	
Pork,.....per lb,.....	0/3 @	0/5	
Butter, Fresh, do	0/6 @	0/7½	
Do. Salt, do	0/5 @	0/6	
Cheese,.....do	0/3 @	0/4½	
Lard,.....do	0/5 @	0/6	
Maple Sugar, do	0/4 @	0/5	
Eggs, per dozen, fresh,.....	0/4 @	0/4½	
Turkeys, (old), per couple,.....	5/0 @	6/0	
Do. (young) do	0/0 @	0/0	
Geese,.....do	4/0 @	6/0	
Ducks,.....do	2/6 @	2/9	
Fowls,.....do	1/3 @	2/0	
Chickens,.....do	1/0 @	1/8	
Partridges,.....do	2/6 @	3/0	
Hares,.....do	0/10 @	1/0	
Apples, American, per barrel,.....	15/0 @	20/	
Do. Canada,....do	0/0 @	0/0½	
Flour, per quintal,.....	12/6 @	13/4	
Beef, per 100 lbs.,.....	20/0 @	30/	
Pork, Fresh, do	22/6 @	27/6	
Hay, per 100 bundles,.....	20/0 @	27/6	
Straw, per 1200 lbs.,.....	12/6 @	17/6	

The Canadian Agricultural Journal.

PUBLISHED MONTHLY,
AT ONE DOLLAR PER ANNUM,
PAYABLE IN ADVANCE.

Any Post Master or other individual who obtains subscribers, to be entitled to one copy, gratis.

As the object of this Journal is to improve Canadian Husbandry, by the dissemination of the best and cheapest Agricultural information, the charge for it will be simply sufficient to cover the necessary expense. The subscription price will therefore be Five Shillings per annum, to single Subscribers. Societies or clubs will be furnished at the following rates:—

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WILLIAM EVANS, EDITOR AND PROPRIETOR.

LOVELL AND GIBSON, PUBLISHERS.