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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 5.

MONTREAL, JANUARY, 1852.

No. 1.

THE AGRICULTURAL JOURNAL & TRANSACTIONS OF THE LOWER CANADA AGRICULTURAL SOCIETY.

Mr. R. W. Lay having given up the publication of this Journal, with the close of last year, the directors of the Lower Canada Agricultural Society have published the present number, and the Journal will continue to be published by the Society until such time as new arrangements can be effected with some other party.

THE NEW YEAR.

A year is gone, and we have scarcely perceived it passing! As usual, it has brought us seed-time and harvest, summer and winter, and although in the latter season nature reposed, and the land was covered with snow, and the waters with ice, yet, in the spring, the trees again brought forth leaves and blossoms, the fields were covered with a beautiful green herbage, the gardens with flowers; and the harvest succeeded, filling the barns of the husbandman with an abundant produce for himself, his household, and domestic animals. For all these blessings there is great cause for thankfulness to our Creator, the Giver of all that is good in this world. No doubt the year has not been productive of an equal portion of health and happiness to all, and it would be unreasonable to expect that it would, because various circumstances, over which we may or may not have had any control, must have had a great influence upon our health and enjoyment. The past year, however, makes only one of our lives, and for those who have found it

an unhappy one, or one of trial, they should hope that the coming year would be more favorable for them, and afford them more of the enjoyments which were withheld from them in the past. For those also, who have been blessed with health, prosperity and enjoyment the year that is now expired, it is the bounding duty to be thankful, without presuming that it shall always continue to be well with them, as such a state is seldom the lot of man. We may pray for, and humbly hope for the blessings of health and happiness, but if we should not happen to obtain these blessings to the extent we would desire, it is our duty to submit to the will of Providence without any repining or dissatisfaction, and trust that another year will be more favorable. Of one fact we may be certain, and that is, the goodness and benevolence of our Creator in all things. However we may conduct ourselves, the goodness of God is unchangeable, and shall continue so forever. With this conviction on our minds, there will be no room for doubt or apprehension for the results of the present year, but that it shall be as former years, producing food and other necessaries for all created things that have life; and as regards our own health and enjoyments we should do all in our power to secure them, and be satisfied with that portion of each which it may be our lot to obtain. There are few persons who have lived long in this world who have not experienced their share of pleasures and griefs, of success and disappointment, whatever may have been their station or circumstances, whether rich or poor. Indeed, a changeable state is the most

suitable for us while we remain in this life, because if we were constantly happy we should never wish to leave this world, and if always miserable, we would be anxious that death would remove us hence before our allotted time of life was expired. The uncertainty of all enjoyments, and of life itself, is a most wise arrangement of our Creator. There is another fact which we should not forget, namely, that a life of comparative poverty, and of constant labor, does not always produce unhappiness and misery, no more than wealth and high station produces constant happiness. The poor and laborious man may have true enjoyment if he has health, food, and raiment, but the enjoyment of the wealthy man will depend altogether upon the use he makes of his wealth, and upon his conduct in his exalted station. Wealth and high station are important gifts to those who have them, and involve a serious accountability, and if they are only made use of for the exclusive benefit of their possessors, there is little doubt that guilt is incurred. However we may flatter ourselves to the contrary, there is an obligation upon the possessors of wealth to employ and distribute it, as well for the good of the community to which they belong, as for their own exclusive gratification.

To the Editor of the Agricultural Journal.

DEAR SIR,—Should you find these few lines worth giving a little space in your most valuable columns, as it is of the utmost importance to the farmers in general, and where we have a winter that is so severe upon cattle that are sparely fed, it is, Mr. Editor, the great annual waste of one of our best, I may say, and most nourishing of fodders to all description of stock, that is the Indian corn stalks, where, go in what direction you may, you will find annually left on the fields, and broken and trampled by the cattle, when it might be so easily cured and saved at so trifling a labor and cost; for the benefit of those that wish to save one of the best fodders for milch cows in winter, I shall give the simple way I resort to yearly in saving, not only what I grow myself but what I generally get from my neighbours

for merely the trouble of cutting. I have now been in the habit for these three years past to save from six hundred to one thousand bundles or sheaves, and can vouch I never got more milk during the winter from cows fed on the corn stalks alone than feeding them on the best of hay with a feed of roots daily; and can also mention that I never saw any fodder, cattle devour more greedily than the corn; whereas it imparts a richness to the milk, increases its quantity, gives your cattle a smooth sleek coat, and fattens them amazingly. At the same time sheep and horses devour them greedily, but I prefer keeping them solely for my cows. I can also mention, to show the value of the corn stalks, that swine devour them most voraciously, and I have not the least doubt that they could be wintered on them in good condition, were they cut up for them, and I never saw animals thrive or look better than young stock that are fed on them. I speak, Mr. Editor, from experience, and not for the mere sake of writing, but as I wish to impart a most valuable information to those of my brother Farmers, who may not know the qualities of such an excellent fodder, as I have tested all the above allusions, showing there is a most unaccountable waste annually of one of our best feeds sufficient, I may say, to feed one head of horned cattle to every farm in the Lower Province, which I leave to my readers to sum up the waste. I have always fed my tops off without cutting, but am going to resort to cutting them up with a straw-cutter, which I think will be a great saving. I shall give you the simple way of curing, and lay before your readers, the exact cost of cutting and curing one thousand bundles this last year. When the ear of corn commences to harden and gets glossy, you take a sharp knife and cut the stalk close to the ear, placing the tops you cut off between the ear and end of the stalks left so as your tops may not touch the ground, leaving them to wilt two or three days in the sun; should no rain intervene, you then collect them in sheaves large enough so as to allow them to be tied with a stalk of the corn itself, which you tie close up to the head, then putting the whole up in stooks, say of twenty bundles each, putting a double cap on each stook and allowing them to remain out for about three weeks to cure, after which time you may put them in your loft or barn with as little care as you would hay, a handful of salt sprinkled over every ten or fifteen sheaves

is a great improvement to them, so as those that wish to save one of the best winter fodders for their cattle the coming season, can resort to my simple and cheap mode. I might comment more largely on the nutritious qualities of the corn tops, but I leave it, Mr. Editor, to those that wish to give it a fair trial to test its qualities, the exact time and cost I give you as follows:—

To Cutting, Curing, and Saving 1000 Sheaves last Fall, viz :

For Cutting,	s. d.
To 2 Men, 1 day each, at 2s.....	4 0
To 2 Women, 1 day each, at 1s. 3d.....	2 6
For Collecting, Binding, and Stooking,	
To 2 Men, each $\frac{3}{4}$ day, at 2s.....	3 0
To 2 Women, do. at 1s. 3d.....	1 11
To 1 Girl, do. at 1s.....	0 9

Amount of cost in full,..... 12 2

Trusting, Mr. Editor, that the above cheap and simple way of curing the corn tops may encourage every reader of this, who may have a field of corn hereafter, not to lose the opportunity of giving it a fair trial, I shall conclude.

Yours most obedient,

CHARLES HUGHES.

P. S.—I come forward boldly in my right name, not as heretofore, in my correspondence with you as a Lover of Agriculture, for I shall be ever ready to prove the fact to any of the readers of the above who may wish to give me a call and see the before mentioned corn saved and judge for themselves.

Nichollet, 10th January, 1852.

To the Editor of the Agricultural Journal.

SIR,—The letter of "A Manufacturer," published in the *Montreal Herald* of the 24th ult., stating the necessity of establishing Farmers, Manufacturers, and Mechanics Banks, has created a desire amongst the people of this part of the country to be better informed regarding the new law, and as there is no subject of more importance to Canada than that of banking, perhaps you will oblige us by inserting in your Journal the Act to which he refers. It is evident that if our present institutions render little or no assistance to this the most useful and responsible classes, they must establish Banks of their own. On reference to a paper published on this subject, I find that in the State of New York there are 336 Banks, in Massachusetts 188,

and in Main 83, whose notes are in circulation, while in Eastern and Western Canada there are nine banks, whose aggregated capital amounts to only £3,415,000, including the whole of that of the bank of British North America, which is not employed in this Province; while that of the nine principal institutions in the city of New York amounts to £4,839,600; this system of banking would then appear in a great measure to account for the prosperity and advancement of the United States, and the want of it for the backward condition of our own country.

A FARMER.

Dec. 29, 1851.

SOIL FOR SHEEP.—The soil most suitable for sheep is a dry one. It should have in its composition a due proportion of clay, in order that security be afforded against a burnt up pasturage during the heats of summer, a thing that cannot be provided against in porous sands.

Every man of intelligence and common sense is a subscriber to a newspaper, and if he is honest, he pays his subscription punctually, as a matter of course.

LONG BREAKFAST.—A farmer observing his servant a long time at breakfast, said, "John, you make a long breakfast." "Master," answered John, "a cheese of this size is not so soon eaten as you would think of."

GREAT NEWS FOR GARDENERS.—*How to kill Slugs.*—Take a quantity of cabbage-leaves, and either put them into a warm oven, or hold them before a fire till they get quite soft; then rub them with unsalted butter, or any kind of fresh dripping, and lay them in the places infested with slugs. In a few hours the leaves will be found covered with snails and slugs, which may then be destroyed in any way the gardener may think fit.

ON THE PROGRESS OF AGRICULTURAL KNOWLEDGE DURING THE LAST EIGHT YEARS.

FLAX.

Its value, as now grown in Ireland, is rated by Mr. MacAdam at £19; the outgoings at £9; the clear profit at ten pounds per acre. His prize report, published by our society, being most complete, and of the highest authority, must be consulted by those who would embark in this branch of husbandry. The obstacle to the wider growth of flax has hitherto been the number of new processes which its preparation involves. The cultivation, indeed, is somewhat peculiar, as in Belgium one may see it weeded by women creeping on their hands and knees; but the fitting it for market requires many unwonted and delicate modes of handling, as rip-

pling to rend off the seed, steeping to rot the stalk, spreading and turning to dry and clean it, bruising to loosen it, and scutching to separate the fibre. Upon these its market value greatly depends. It is only by skilled hands they can be well done; and skilled hands will be found only in a district where flax is already grown, or must be introduced by a combined effort of neighbouring landowners. Steeping, indeed, is now performed by a hot-water apparatus, and scutching by a mill; but it will not do for these things to be at a distance. If you send away the stems from the farm before steeping, you part with all its manuring matter. These are real difficulties, not insuperable, of course, but which must be weighed before embarking in the growth of flax—unless, indeed, the new processes now under trial, which dispense with steeping, and are even said to convert flax into a substance like cotton-wool, and silk also, should be found to succeed. Then, no doubt, there will be a wide extension in the growth of flax, limited only by the supply of manure; nor would that, in truth, be a limit in our days, because the supply of guano is unlimited. Flax, too, though it requires high preparation, like wheat, is not so fastidious as to soil; it has been grown on an Irish bog reclaimed but three years, and was sold for £70 per ton; nor is it so tender as wheat in the elevation at which it thrives, having succeeded in county Wicklow, at 1,060 feet above the sea, far beyond the level of wheat.

There is one most important point in our favor as to the growth of flax. "Insular countries, or long lines of coasts," says Mr. MacAdam, "whose position insures a more equable temperature, and a continued supply of moisture from spring till autumn, are found to produce the best flax." Even in Russia, the short, hot, northern summers hurry the growth, and the fibre is coarse, so that the best Russian flax fetches but £48, while the best Belgian reaches £150 or £180 per ton. Hot southern countries, again, alter the character of the plant, making it short and branchy. "Egypt," we are told, "is the only hot country which furnishes any fibre to our market," and that has not passed £44 per ton. The hot summers of Russia and Egypt cause a dryness and brittleness of fibre, and prevent its retaining that elasticity, pliancy, and oiliness which characterize the flaxes of Belgium, Holland, and Ireland. In America, it has not succeeded hitherto for fibre. In some respects, Mr. MacAdam says, our climate is even superior to that Belgium for flax, since in Belgium severe droughts in spring scorch the young flax, and even kill it in three or four years. It is right, however, to mention, that on one point our own sky is inferior. Flax dreads heavy rain in July, which lodges and discolors the crop. On the whole, it seems clear that our climate is specially adapted to the growth of flax, but some districts more so than others; and it is plain that the better knowledge of our own climate, which meteorology has lately given us, will assist in the

selection of favorable localities thus illustrating remarkably the legitimate application of science to practice, and showing the advantage of storing, as it were, scientific facts, which though of no apparent use now, may be ready for application when wanted.

Such are the main points of improvement which twelve years have brought to our knowledge, many of them not new, but true, as founded on long experience, yet many also new, but equally certain. Every soil, it appears, may be improved cheaply, if suitably treated. If the landlord cannot spare the money out of his income, the tenant should endeavour to find it on sufficient security out of his capital. The tenant's improvements, again, are cheap as well as effective; and high farming I have endeavoured to prove is not extravagant farming. But a slur is cast on agricultural improvement, because it is said those who practise it do not make it answer. Now, the notable cases of improvement, are those of gentlemen who farm their own land. They are apt to be misled by crochets; but the chief defect is the want of active inspection kept alive by dependence upon the farm for support. While they are asleep or absent, their labourers are idling; when they buy their stock or sell it, they buy it in the dearest market, and sell it in the cheapest, and they have no check upon their accounts. One of our greatest agriculturists held his farm without gain, as Lord Spencer told me, for a long course of years, yet was offered for it by his own manager, at last, a rent of £1,000 a year. That gentleman's tenants meanwhile, by the same improvements, were growing wealthy. There is, however, even for an amateur farmer, one certain test by which he may know whether a practice he adopts be an improvement or not: the test of the practice of the best farmers. Do good farmers buy bones at such a price? If superphosphate cost one-half and act as well, it must pay better. Do they buy linseed-cake? Then if rape-cake, at half the price, feed the sheep quite as fast, it pays better. There is, indeed, a source of loss which lies in the misapplication of practices, as when some one complains that he has ploughed ten inches deep for wheat, and has got a bad bed; or in the transfer of systems, as from an eastern corn-growing county to the mountains of Wales. A gentleman, who farms on principle, or still worse, on system, will be lucky indeed if he pays his own rent. In the worst-farmed district among the least enlightened farmers, if I sought to improve them, I should begin by finding out what are their prejudices, for in those prejudices will lie the peculiarities of the soil and the climate, so that in Wales an improvement of the worst Welsh farming may beat Ickleton or Castleacre transferred to the mountain sides. Books will not teach farming; but if they describe the practices of the best farmers, they will make men think, and show where to learn it. If our farmers will inquire what is

done by the foremost of them, they will themselves write such a book of agricultural improvement as never was written elsewhere, legible characters, with good straight furrows, on the broad page of England.—*Jour. of Eng. Soc.*

ATMOSPHERIC INFLUENCES.

BY FRANKLIN COXWORTHY, AUTHOR OF "ELECTRICAL CONDITION."

(From the *Mining Journal*)

Of the atmospheric influences of by-gone ages we have no other record than is afforded in the remains of the animals of that period. These mostly possessed a powerful crushing or masticating apparatus, which enabled them to subsist on branches of trees; whilst in those of later date may be traced characters progressively partaking of the nature of the present class, which feed almost entirely on food of a nitrogenous property. The vegetable kingdom may, therefore, be supposed to have undergone a change calculated to produce these results; and it is within our remembrance that, when a boy, in Devon, the nature of the potato was totally different to the root now raised there—it having almost lost its mealy character; whilst grain and all other plants of a nitrogenous kind have increased in quality in a corresponding ratio. That this change is referable to some cause is beyond doubt; and we think that its demonstration is both simple and easy, without the slightest departure from the rule that has governed our previous inquiry—a strict adherence to facts.

On the operation of combustion and respiration we need not dilate, it being well determined, that for every 27 parts of carbon converted into carbonic acid, 73 parts of oxygen are abstracted from the atmosphere; whilst hydrogen combines with oxygen in the proportion of 1 to 8. Coals, wood, and turf or peat—the principal articles of combustion—contain a considerable proportion of hydrogen; but in order to simplify the question, although our argument will damage thereby, these materials will be considered as composed of carbon only: any estimate, in fact, that may be formed of the amount of ammonia generated being little more than approximate, and must unquestionably fall very far short of the actual quantity.

Of the amount of fuel consumed before the potato disease made its appearance we have not by us any statistical account; but it may be observed that Newcomen's engine was introduced in the year 1705; and with the improvements that have been made on it, including those by Watt, continued in use only as a land engine until 1807, when Fulton practically applied the steam-engine to the propulsion of a boat; and from that period steam-vessels have progressively increased in number; and with their increase steam has been applied to locomotive and other purposes, consequent on the rapid improvements

towards civilization that have been developed within these few years; whilst furnaces of all kinds have kept pace with the appliances of steam. That the potato disease has increased in virulence with the increased consumption of fuel is unquestionable. We will, therefore, endeavour to trace what are the conditions necessary to the production of this epidemic.

The following statement, on the authority of Professor Ansted, will give an approximative estimate of the amount of coal raised, and, therefore, consumed in the world; and to it is added the respective coalfields:—

	Tons.	Square Miles.
British Islands	32,000,000	12,000
France	4,150,000	2,000
Belgium	5,000,000	520
Spain	550,000	4,000
Prussia	3,500,000	1,200
United States	4,000,000	113,000
British North America	—	18,000

Total..... 49,200,000

Or about 50,000,000, to which is to be added wood, peat, and other combustible materials, also the carbon consumed in respiration, which certainly may be taken at 10,000,000 more, making a gross total of 60,000,000 tons; $60 \times 73 = 4380 \div 27 = 162,000,000$ tons of oxygen abstracted from the atmosphere; and if to this be added the 60,000,000 tons of fuel or carbon, it will give 182,000,000 tons of carbonic acid generated. Now, it is self evident that for every volume of oxygen abstracted from the atmosphere, there must be four volumes of nitrogen liberated, and although it is of rather less specific gravity than oxygen, its weight may be assumed at four times 162, or 648,000,000; and as this gas combines with hydrogen in the proportion of 5 to 1, we shall have a general annual increase in the amount of ammonia generated in the formation of snow—the rationale of which is given in No. VIII., and brought down to the earth, of no less a weight than 777,000,000 tons. That rain and *soil-water* invariably contain ammonia is unquestionable; and although our principles were communicated to the editors of the *Philosophical Magazines* so far back as 1844, in the *Journal* for October, 1851, will be seen an article extracted from the *Comptes Rendus*, expressive of surprise that in hailstones, analyzed by the writer, should be found ammonia and black matter, analogous to the carbon of the vegetable kingdom.

That such an amount of accumulating matter, to which should be added the increase of ammonia of putrefaction, should induce a putrefactive disease in a nonnitrogenous plant, under particular conditions, may readily be conceived; and it is but reasonable too to assume that the amount of moisture that passes through a plant should be in proportion to the evaporating influence in the atmosphere. In 1846-7, when the evaporating influence was great, and the earth was negative, the potato disease prevailed; but with

a similar amount of evaporation in 1849, and the earth positive, it totally disappeared. If, then, our position be correct, the remedy for this epidemic is self-evident—the abstraction of the ammonia being all that is requisite; and in 1847 we suggested to a friend that, for the preservation of his crop, he should plant the esculent between cabbages—a highly nitrogenous plant; and in half of a plot of ground which he so treated, he had not half a dozen rotten tubers; whilst in the corresponding half, but without the cabbage, he had not as many sound. We are also informed by Mr. Bickerton, an experimental farmer in Wales, that he has tried the plan with singular success.

OPENING OF CHEVALIER CLAUSSEN'S FLAX-WORKS.

(FROM THE GLOBE.)

Having completed all the necessary arrangements for exhibiting the whole of his processes connected with the preparation of flax actually at work on a commercial scale, Chevalier Claussen yesterday threw open his works at the Old Farm House, Stepney-green, to a distinguished party of men of science, the heads of several of our great commercial and manufacturing houses, and a number of gentlemen connected with the agricultural interest. To each and all of these the event of the day was considered one of great interest—to the first, as a practical adaptation of science to the wants of the age; to the second, as affording, if successful, a new material for the increased development of our industrial energies, and the means of ensuring a certain and steady supply of the prime agent in our staple manufactures, by remedying all possible deficiency of a supply of cotton; and to the last, in the hope that, as Sir James Graham observed in the House of Commons, “the cultivation of land will be largely improved by the introduction of capital in growing this new plant, and that this plant will be of great service to the agriculturist from its being peculiarly adapted to increase the fertility of the soil.”

Dr. RYAN undertook to explain, in a peripatetic lecture, as it were, to the large party assembled, the various processes, as they were all in operation in the different rooms of the factory—which he did in a very concise and able manner. The invention of Chevalier Claussen may be classified under three heads—1, The preparation of long flax for the linen manufacturer. Here, by breaking or partially cleansing the flax-straw as it comes from the fields, the bulk and weight of the material to be operated upon is diminished, the expense of transport decreased, and the farmer enabled to retain a large portion of the crop (56 per cent.) on the land, which may be used with food for cattle, thus doing away with the complaint of the exhausting nature of the flax crop. Again, by the

steeping or boiling in a solution of weak caustic soda, and afterwards souring in water slightly acidulated with sulphuric acid, an operation is effected in six hours, which, under other processes, it usually takes, at the most advantageous point, fourteen days to accomplish. The second, however, is the more important part of the invention, as bringing flax into competition with cotton. This is the conversion of flax and hemp into substances resembling cotton, wool, and silk, capable of being spun and manufactured upon existing machinery. The flax-straw having been deprived of its woody part, is cut into suitable lengths by a proper machine, and boiled or steeped, exactly as in the case of long fibre already referred to. Complete, however, as may be the separation produced by this mode of treatment, the fibres, from their tubular and cylindrical character, are still adapted only for the linen or present flax manufactures, as their comparatively harsh and elastic character unfits them for spinning on the ordinary cotton or woollen machinery. At this stage, therefore, it is that the most important part of the invention is brought into operation. The flax is cut by a suitable machine into the required lengths, and saturated in a solution of sesqui-carbonate of soda (common soda) a sufficient length of time to allow of the liquid entering into and permeating by capillary attraction every part of the small tubes. When sufficiently saturated, the fibres are taken out, immersed in a solution of dilute sulphuric acid of the strength of about one part to two hundred parts of water. The action of the acid on the soda contained in the tube liberates the carbonic gas which it contains; the expansive power of which causes the fibres to split, and produces the result above described. The flax fibres soaked in the solution of sub-carbonate of soda was no sooner immersed in the vessel containing the acidulated water, than its character became at once changed from that of a damp rigid aggregation of flax to a light expansive mass of cottony texture, increasing in size like leavening dough, or an expanding sponge. The change was no less striking when this converted mass in its turn was placed in the next vessel, which contained the hypochlorite of magnesia, and became at once bleached, attaining then the color, as it had just before received the texture, of cotton. The flax cotton is then ready for the third, or bleaching process, of the Chevalier Claussen's patent. This portion of the invention has for its distinguishing feature the decomposition and formation of certain bleaching salts in the fibres or fabrics themselves.

1. A solution of hypochlorite of magnesia was prepared by acting on hypochlorite of lime, by means of sulphate of magnesia. The liquid was placed in what is called “the bleaching vat.”

2. The fibre, yarn, or fabric, having been treated by caustic soda, as in the case of long flax, before described, was immersed in a solution of carbonate of soda, containing about

10 per cent. of the salt. After saturation, it was removed to "the bleaching vat," where decomposition of the hypochlorite of magnesia takes place in the fibre, and hypochlorite of soda and carbonate of magnesia were formed. After remaining here until sufficiently white, the fibre, or fabrics, may be transferred to the solution of carbonate of soda again; and then, after "souring," by means of acid water, as in the common bleaching process, may be washed and dried. With these chemical processes, the exhibition of which was rendered doubly interesting by their being carried on in one large room, the Chevalier Claussen's patent terminates—the products being now in a fit state for the operating of the present flax, cotton, and woollen machinery; but, to carry the matter out practically, and to render completely evident, beyond all possibility of doubt, the value and utility of the flax cotton, a quantity of it was passed through the ordinary machines used by the cotton manufacturers, which have been erected for the purpose on the premises. We next saw the flax cotton pass successively through the "blower," the "scribbler," and the "carder," and afterwards passed into another room, where the flax-cotton is shown dyed in various colors immediately after carding; it is also shown dyed in various colors in yarns spun entirely from flax, or mixed with various proportions of cotton; and in the case of the mixed yarns no difference of color of the two substances is at all perceptible, thus showing that the flax so prepared is capable of taking the same opaque dye as ordinary cotton. Some samples of yarn prepared as silk are also displayed, and, as illustrating the great command which the inventor has over this fibre, these are dyed in colors possessing all the glossiness and brilliancy of the most beautiful silk. Several pieces of calico, formed entirely of flax and others formed of a mixture of flax and cotton, bleached and dressed as ordinary cloth were exhibited. A specimen of wool made from "jute" (an Indian fibrous production, from the inner bark of a species of plantain) was remarkably curious, and being placed alongside some animal wool of the same brown color could scarcely be distinguished. There was also some cloth, half woollen, half flax-cotton, and some flannel of a similar texture, both of them apparently excellent; thus showing that Chevalier Claussen's invention, a valuable substance, adapted for mixing with wool, or using by itself, is now at the manufacturer's command. There was also exhibited, a piece of calico, of a low number, which was similar in all appearances to ordinary cotton goods.

The utmost satisfaction at the result shown was expressed by the numerous party present, amongst whom we observed George R. Porter, Esq. (Board of Trade); Sir George Robinson, Bart.; Rear Admiral Sir W. Dillon and lady; Sir Wm. Hooker; Rear Admiral Sir R. O'Conner; Sir Thomas Herbert; Colonel Alcock;

Digby Soymour, Esq.; W. Shaw, Esq., Member of the Council Royal Agricultural Society of England; Dr. Bachhoffner; T. Winkworth, Esq.; Messrs. Evans, and Christopher; Messrs. Atkins and Andrew, the highly respectable solicitors of *Claussen's Patent Flax Company, &c.*

The whole of the operations having been concluded, the party (nearly one hundred in number) sat down to a cold collation, provided by Messrs. Bathe and Breach, of the London Tavern. Several complimentary toasts were exchanged, and the visitors separated, all apparently perfectly satisfied with the results they had witnessed. We may state that hemp, jute, and various other fibrous substances were shown to be capable of being treated upon the above process, and that, in answer to several questions, it was stated that the "flax cotton" and "flax wool" could be prepared at prices not exceeding 3d. per lb.

Publicity has been given through various channels, to the invention of the Chevalier Claussen, for preparing flax so as to be a perfect substitute for cotton. It is but recently that works have been established for the preparation of flax upon the Chevalier's process; and we now insert a report from the *Globe*, giving an account of the "Opening of Chevalier Claussen's Flax Works" a fortnight since. Being desirous of ascertaining, for the information of our agricultural readers, what arrangements had been made for the purchase of flax straw, we addressed a letter to Messrs. Atkins and Andrew, the solicitors to the company now in course of formation for the purpose of working the Chevalier Claussen's patent upon an extensive scale and in different parts of the country, and we subjoin their reply:

"DEAR SIR,—We have received your communication touching a market for flax. A similar communication has been made by the Rev. Mr. Spencer, of Nottingham, who desires to become both a shareholder and grower in the English company.

"In answer, we would respectfully refer to the statement made by Chevalier Claussen, in his published letter dated the 5th day of October last, to His Royal Highness Prince Albert and the other Royal Commissioners of the Great Exhibition, in which you will find the following paragraph:—

"I would further take the liberty of stating, with the view of showing the value of my invention in a national point of view, that it has been the means of causing upwards of 30,000 additional acres of flax to be cultivated in this country in the present year, that about 2,000 acres have been already purchased by me, and agreements entered into for the purchase of that by the end of the present year the whole of such additional crops will have been purchased either by myself or by others holding licences under me."

"In addition to which, we can, from our own knowledge, state that flax straw in considerable quantities is now being purchased by the Chevalier for conversion into cotton at Stepney. That Mr. B. Fox, of Beaminster, Dorset, is using the patent on a large scale under a license from Claussen, and another has been contracted for to be worked on the banks of the Thames. A large landed proprietor also has offered by public advertisement £12 per acre for flax in his neighbourhood.

"The two companies now in course of formation intend to raise between them nearly half a million of capital, for the purpose of purchasing and converting flax under the patent.

"We are, dear sir, yours faithfully,

"ATKINS & ANDREW.

"5, White Hart Court, Lombard-street, Dec. 20, 1851."

We are given to understand that the shares in the North of England Company, established for the purpose of working the Chevalier's patent in the northern part of the kingdom, are nearly taken up, although the company has been but just brought under the notice of the public.

SMITHFIELD CLUB CHRISTMAS SHOW.

[FROM A CORRESPONDENT.]

Another anniversary of the exhibition which the country annually affords the metropolis has just taken place—an exhibition open to the sight of all, either in the living cattle themselves, or afterwards in the butchers' shops, ornamented with holly and mistletoe—an exhibition not, like the majority of shows, for the eye alone, but which, it is to be hoped, will supply many a poor as well as rich man with his Christmas dainties, in the "roast beef of Old England," or in the suet of the plum-pudding, in the sausages not German, and in the pork as certainly not town-fed.

It is plain that Londoners owe much to this institution for what they are supposed to value highly at all times, and more especially at Christmas—good living. How much fatter this competition causes stock generally to be made than it would if no Smithfield Club existed! How much does the fattening of these animals improve the general character of live stock over the whole of England, by the sight of them in London, and the report carried down into the counties, of the extraordinary fat stock, to say nothing, at the present moment, of the effects of these shows in improving breeds, in proving which fatten earliest, and which are the best fattening kinds, as shown by the perfection of particular specimens! We allude merely to its effect this year and this Christmas on the fatness of the stock sent up to Smithfield for the immediate consumption of Londoners; and that this is considered a point of no mean importance, is proved by the number of Londoners who for the show with their presence this year, were at the fair by The Bazaar in Baker

street, although considerably enlarged, is throughout the day, and until a late hour in the evening, filled with crowds of people, the majority of whom, to judge from their criticisms on the cattle, are inhabitants of the metropolis. While we congratulate ourselves upon the unabated interest taken in this exhibition, it is also gratifying to perceive that each year brings with it improvements in the arrangements as regards additional space for the stock, and for the convenience and comfort of the visitors.

With regard to the show itself there is, we believe, a diminution in the number of cattle exhibited as compared with the entries of last year; but this is made up by the improved character of some of the classes for sheep, more particularly the Southdowns and half-breeds from the Leicester and Down. We did not observe so many of those enormous animals with ugly protuberances of fat, whose chief merit was to excite the wonder of a gaping public; but we saw what was far more gratifying—a great increase in the number of young animals, which are as remarkable for their size and symmetry as they are for their early maturity. As a whole, it was the general opinion that the Herefords had a decided advantage over the shorthorns and other breeds. In the classes for oxen and steers the Herefords carried off most of the prizes; and it is only in the classes for cows and heifers that the shorthorns have been the most successful. However, the most remarkable feature of the show is the perfection and earlier maturity of the cattle, which is of itself an abundant proof, if it was wanted, of the benefit of the Club to the farming interest; in fact many of the advances the farmers of this country have made may be fairly attributed to this and similar societies. To the stimulus given to the makers of agricultural implements by the annual gatherings of the Smithfield Club in Baker Street, and at the periodical meetings of the Royal Agricultural Society, may be attributed the pre-eminent position of our implements and machines when compared with those of foreign nations shown at the Great Exhibition. Nor, if it had not been for these, should we now number foreigners of high rank as customers for superior and high-priced specimens of live stock.

Among the successful competitors, we observe in several classes the name of his Royal Highness Prince Albert, who is a larger contributor than usual, and obtains in addition to prizes for pigs, three prizes in classes 1, 2, and 3, for very creditable Hereford oxen.

In class one, for oxen we mention as deserving of particular notice, the Hereford oxen shown by Mr. William Heath, of Ludham Hall, Norwich, who is also the successful exhibitor of several excellent animals of the same description in other classes. The second prize is awarded to a compact shorthorn steer, four years and six months old, shown by Mr. Brickwell, of Leckhamstead, Buckingham, who, we

believe, is for the first time an exhibitor. The symmetry and compactness of this ox, formed a very striking contrast to others of the same breed, which, although large and fat, were far from being handsome. A four years and four months old Durham bullock, shown by Mr. Leeds, of West Lenham, Norfolk, was very large and useful.

In class two, oxen or steers, of any breed, above three and not exceeding four years old, a remarkable level Hereford, bred and fed by Mr. Edward Longmore, of Shropshire, took the first prize, the silver medal, and also the gold medal, as the best ox in the first six classes. Mr. Longmore was also the breeder of a commended Hereford shown by Sir C. E. Isham: this ox was three years and nine months old, and from the same lot as the one with which Mr. Longmore was successful; but although a symmetrical beast, it was scarcely so well fed as the latter; we may mention also Mr. Heath's three years and nine months old Hereford ox, to which the second prize was given. Prince Albert's was firm and fleshy, but not a level ox.

In class three, the first prize was given to Mr. Phillips, of Ardington, Berks, for a very good and level Hereford two years and ten months old, which was remarkable for its form and early maturity. With a few exceptions, the shorthorns in the above classes, although numerously exhibited, were generally too big and coarse for prize animals. The Herefords were superior to them in squareness of form, firmness of touch, and compactness.

The Earl of Leicester is successful in classes four and five, with two good beasts of the North Devon breed.

Cattle of the Scotch breeds were more numerously shown than we remember to have seen them on former occasions; but, if we except a useful Highlander or two, and one of the Galloway breed, these animals would not bear comparison, either for fatness or in the signs of an aptitude to fatten, so well developed in the more improved breeds of England. We should scarcely think the cattle of this class so good as we have seen them at local shows, and we are justified in this remark by the judges having awarded the prize to a well-fed Pembroke shire ox, 4 years and 6 months old, belonging to Mr. G. H. Kendefley.

In class seven, for cows and heifers under 5 years old, the shorthorns maintained their reputation by carrying off the prizes. The first prize and the gold medal were awarded to Mr. S. Druce, of Eynsham, Oxford, for his shorthorn and Hereford heifer, aged 3 years and 4½ months—a very complete and perfect animal. The same may be said of Mr. Stratton's cow, and of many others in this class.

In class eight—there being only three exhibitors—but little judgment was required in making the award of the first prize to a short-horned cow belonging to Lord Feversham.

Three or four good animals were shown in

class nine. The first prize shorthorn was certainly a good and well-fed cow; but its appearance was spoiled by the ugly protuberances of fat on its rumps. Mr. Beman's roan cow, 5 years old, and of the Durham breed, was deservedly an object of much attention. We observed also a fine old cow shown by Mr. Chas. Knightley.

The extra class contained very few objects worthy of admiration for symmetry: in fact, the only exception we need make is Mr. Heath's Hereford, removed from class 4, being over weight—a level, short-legged ox, to which the silver medal was given.

A cross-bred Brahmin and Ayrshire heifer, shown in class seven, and a young Brahmin and shorthorn ox, shown in class three, might, we think, have been classed as extra stock. They stood no chance of a premium; but they were certainly well formed and well fed, and showed much improvement by the cross from the original breed.

Of the sheep exhibited, those which attracted the most attention were the Southdowns bred and fed by his Grace the Duke of Richmond, and by Mr. Sainsbury, who very nearly divided the prizes between them; as examples of feeding these were considered almost perfect. There were also many other pens of good Southdowns shown by Mr. Shelley, Mr. Williams, Messrs. Arkcoll, and other gentlemen. Altogether this was a most excellent class. In the class for short-woolled sheep (not being Southdowns), the prize was withheld: the only exhibitors were his Royal Highness Prince Albert, Mr. Wm. Humfrey, and Mr. Stephen King. The sheep shown by Mr. Humfrey, although certainly inferior in their touch and fatness to the other prize sheep; yet, in the opinion of many, were sheep, well suited for the purpose of the butcher; and, although perhaps inferior to some, they illustrated the character of a valuable breed—the Hampshire Downs, which has as yet been little encouraged by our national agricultural societies. As a class, the Leicesters were scarcely equal to the Southdowns; nor did they, although numerously exhibited, attract an equal amount of attention. We have already given the names of the successful exhibitors, so that in this instance we must refer to the report of the judges for the list of awards.

We observed only two pens of Cotswolds; the three fine sheep shown by Mr. Beman took the prize.

Mr. Cother, whose letter on the subject of Cotswold sheep in this paper has most likely attracted attention, exhibited, at a butcher's shop just opposite the entrance to the Bazaar, a most extraordinary carcass of mutton, weighing no less than 336lbs.—about four times the weight of an ordinary carcass. The sheep was of the Cotswold breed, and three years and nine months old.

The valuable class of cross-bred sheep was well illustrated by the Southdown and Leicester

wethers, shown by Mr. T. R. Overman, of Burnham, Norfolk, who was again successful in carrying off the prizes, in competition with some good sheep shown by Mr. Druce, of Eynsham, and Mr. John Hitchman, of Little Milton, Oxon, and some others of scarcely equal merit.

Our limited space will not admit of our giving a lengthened report of the pigs; and perhaps we shall be excused making mention of the exhibitors—the more so as the first prize in all of the three classes, with the gold medal, has been awarded to the excellent specimens of “improved Dorset pigs,” shown by Mr. Coate, of Hammoon, near Blandford, Dorset—thus beating in a wholesale manner the best specimens that the far-famed breeds of Coleshill, Eynsham, Arborfield, and others could produce. We congratulate Mr. Coate upon his success.

However, we must not omit the enormous Hampshire and Sussex pig, said to weigh half a ton—but we will not vouch for the truth of this—two years and nine months old, bred by Mr. W. Culliford, of Hayling Island, Havant, Hants.

The alterations in the classification of the cattle recently determined upon, by which it is intended at ensuing shows to form the classes according to the different breeds, so that short-horns will only compete with shorthorns, Herefords with Herefords, and Devons with Devons, &c., &c. With the other kinds will probably be a cause of increased competition amongst the members of the club for the honors it so liberally confers. It will also probably lessen the difficulties of the judges in making their awards; for the most unprejudiced breeder of cattle must be more or less biased in favor of his own kind; and this may influence a person's judgment without he being himself conscious of it.

SIR,—Allow me, through the medium of your widely circulated paper, to aid the judicious observations you made a fortnight ago in reference to the Cotswold sheep; at the same time to state that the breeders of these animals have not any desire to shew them in the Leicester class; they only wish to be placed on equal terms with the other important breeders of the kingdom I use the word important advisedly; for never was there a season of greater demand for any kind of male animals than the breeders of Cotswolds have recently experienced, at prices relatively higher than those of the last seven years; indeed, some averages have exceeded all former ones, and the country may be said to be literally swept of them. Such being the result of public opinion, we may yet hope that the fact, coupled with others, may have the desired effect in certain influential quarters.

It has lately fallen to my lot, as an auctioneer, to dispose of a flock of sheep (not a ram breeder's) in the neighbourhood of Rugby, which I was informed was originally of the Leicester breed, but has been of late years crossed by

Cotswolds (which is now rather common in that quarter). I succeeded in making as high as 35s. per head of the weather lambs, and from 36 to 42s. of the ewe lambs. I mention this to shew how greatly Cotswold blood is making head in public opinion. I happen to have two carcasses of mutton now hanging up of my own breeding, one 84lbs. per qr., the other 70½lbs. per qr., the heads included (these were obliged to be slaughtered before the intended time). I have another sheep now alive, which appears to be much heavier. It is my intention to present the Council with a shank bone of each of these animals, as a memento of the weight which it is possible to produce on a given quantity of bone, agricultural societies having laid down as a rule, that the greater the disproportion of bone and meat, the nearer perfection, form and quality properly considered. The cross-bred sheep having now a class in the Smithfield Club, it may not be out of place to say that the great winner in that class has obtained his success by the use of Cotswold rams. In conclusion I would ask, if in their day a parallel case had existed, the Messrs. Collins, with their “Alloy,” would have felt satisfied to have been placed in an inferior position with Herefords and Devons? Their cattle were destined to make marvellous improvements in the stock of the country; and I am greatly deceived if Cotswold sheep are not now doing similar service. Thanking you for the interest you have taken in the matter, I am, sir, your obedient servant, WM. COTHR. R.

Middle Aston, Woodstock, 4th Dec., 1851.

P.S.—I may, perhaps, hang up my large sheep opposite the entrance to the yard in King-street during the next week.

NOTES OF AGRICULTURAL INSTRUCTION, FOR THE JUNIOR PAUPERS IN CLONES WORKHOUSE.

You have now a tolerable idea of the constituents of the soil and of vegetables; and, if the latter be divided, in a great measure, from the former, as we have seen, it is clear that if the farm crops be raised successively from the same ground, they at length exhaust it, unless adequate means are employed to maintain its permanent fertility. It is here that farming may be said to begin—assisting the natural power of the soil by artificial appliances. One of the most efficient of these, is the use of manure, which we now have to consider.

The striking effects which manuring substances produce on vegetation are well known, though it is not easy to describe the way in which they operate. Sometimes they directly supply the vegetable nutriment—sometimes they also promote its decomposition and solubility in other substances; while sometimes they prevent the formation of noxious principles in the land, or, in certain forms of combination, neutralize them when formed. Generally

speaking, however, their action may be regarded as two-fold: either bearing directly on the plant, by being carried with the sap into the alimentary organs, and forming its nourishment, or upon the soil itself, by forming new combination with its bases, and increasing its power of production. To the former class belong more especially what are termed the animal and vegetable manures, which are the ordinary collection of the farm: in the latter class, are to be comprehended the mineral manures, such as lime, marl, &c., which can only be derived from the earth. We had better examine them separately.

Common manure consists of the excrements of animals and the refuse of the farm crops, mixed together: in a state of decomposition, which takes place under certain conditions of temperature and moisture, the materials of the former are already in a sufficient state of putrefaction, or nearly so, and those of the latter, are also capable of becoming so very soon: but when they are dried, as in the case of hay, straw, and other litter, they proceed through the various stages of the process more slowly, and are greatly assisted by their conjunction with the more juicy substances of the former. In this state, having undergone various chemical changes, it forms the principal dressing with which farmers annually supply their grounds; the common practice being to have it partially fermented before it is applied, and then to allow the final decomposition to proceed in the soil. It is the continued addition of manuring substances to the upper mould, which chiefly distinguishes it from the subsoil, in color and texture, and imparts to it its superior fertility. The finest natural soils require putrescent manure to call into action their inherent nutrient principles. It is this that imparts to them their power of productiveness; for, as I already told you, the fertility of land does not depend so much on the earths which form its basis as upon the quantity of carbonaceous matters they contain, capable of becoming solvent in the liquid portion of the soil, and of entering into those particular forms of chemical combination which fit them for the purposes of vegetation. Every soil contains, at least, the three earths—clay, sand, and lime, and sometimes, also, magnesia; but if you were to mix three earths together in the proper proportions to constitute what you would consider the most fertile natural soil, choose the most favorable aspect as to sun and shelter, place any of the farm crops you like in it, and water them ever so carefully, still not one of them would succeed, unless you also supplied them sufficiently with liquid nutriment. Neither water, nor sun, nor shelter, nor air, nor earth, would bring them to maturity; but place the same plants in four separate plots of garden ground, filled with the same pure earths and with good well-rotted manure, and they would all grow vigorously, notwithstanding the diversity of the soil; and each would contain the usual

earthy constituents of plants, notwithstanding the absence of these from the soil, *having derived them from the manure*. Pure earths, therefore, cannot, of themselves, directly nourish plants.

Results mainly similar have been obtained from experiments with manure, as regards their influences in various conditions of decomposition; those which are most putrid invariably produce the most speedy effect, but the least permanent. This has always been an open question between practical farmers and scientific men, and is not yet finally decided. The subject has been placed in a very clear point of view, and illustrated by a number of details, which are very interesting, and seem to be very conclusive. For example, when we manure two pieces of the same ground, the one with a mixture of dung and straw in a state of complete decomposition, and the other with an equal quantity of the same materials newly made, it has been found that the crop on the ground manured with the rotten dung is much better than the other the first year; but the second year, the ground having the fresh manure is better than it: the same result takes place the third season, after which both would appear to be equally exhausted. Here, it is evident, that the well-rotted manure acted soonest, and was soonest exhausted; demonstrating the fact, that carbon only acts as a manure when in a particular state of combination; and that this state, whatever it may be, is evidently produced by putrefaction. Another experiment, which has been made, confirms this principle still more fully. A quantity of dry shavings were allowed to remain in a moist place till they began to exhibit incipient fermentation, when they were dug into a piece of ground of fair average power, but completely exhausted by severe cropping. The first two years it produced nothing more than the other ground alongside, which had not received any manure; the third year it yielded more; the next it yielded more still; the fifth it reached its maximum of fertility, after which it declined every year till the ninth, when it was again entirely exhausted. Here, again, the effect of the manure evidently depended, as before, on the progress of putrefaction; so that you will now perceive from these accounts, that a point of good practice is, always to employ manuring substances as nearly as possible in that degree of putrefaction which is requisite for the special purpose intended. Some crops, as turnips and other small seeds, require a quick action of the manure in the first stage of their growth, or the crop may entirely fail; and, therefore, it needs to be applied in a state of complete decomposition: while in the case of potatoes and other slow-growing plants, the same degree of previous preparation is less necessary. Generally speaking, the management of manure in the farm-yard is not attended with much difficulty. Some substances do not require to be decomposed artificially—as sea-weed, &c.—since their particles easily break up of them-

selves, but others are apt to ferment too much. Keeping the mass in a compact, solid form has the effect of preventing this, by excluding the external air. If the temperature stands higher than about 100, or if paper, dipped in muriatic acid and held over it, emit white fumes, we may conclude that it is decomposing too fast, and elements useful to the land would be lost. The white fumes are *sal ammoniac*, two gases formed by the union of the ammonia which escapes from the manure with the muriatic acid. The common test in practice, and there is no surer, is, when the particles can be readily separated with a pitch-fork; it is then fit for all the ordinary uses of the farm. Whenever the fermentation has been allowed to proceed much beyond this, or to such an extreme degree that it can be cut with a spade, like soft earth, it has been kept too long, and the management has been bad.

Thus far we have been speaking of the ordinary manure of the farm, which consists as has been already seen, of a promiscuous collection of animal matter and vegetable substances; the former inducing the decomposition of the latter by mixture, or contact: but vegetable manure is sometimes used alone. Of these the most common are the various kinds of ashes obtained from the homestead, from burning vegetable refuse found upon the land, such as the root-weeds disengaged in the process of tilling and clearing it, and sometimes from burning useless portions of the land itself, as the back of old ditches, &c. In the case of burning these and similar substances, the greater part of their organic structure is lost by evaporation; what remains, in the shape of ashes, being part of their earthy, alkaline, and saline constituents. But these ingredients supply to the soil the substances which the growing crops consume; and acting, also, in some measure, upon the matter of some soils, constitute a manure of considerable efficacy. Turf ashes are a very compound substance, containing a large proportion of sand and various other earthy matters; sometimes they contain sulphate, and even phosphate of lime, in such quantity as to form sufficient manuring for turnips and clover; but, for the most part, they are very transient in their effects. Burning partially some kinds of clay increases, in a remarkable degree, the solubility of their alkaline constituents, potash and soda, especially the former; and the ashes of these, it is found, afford the substances especially required for promoting the solution of the vegetable matter in the soil. But though ashes produce a very immediate action on vegetation, still they are very inferior in value to cattle manure; they are sufficiently enriching to the crop to which they are applied, in the case of a single season, but they exercise little or no permanent influence on the soil.

The least valuable of the vegetable manure is turf-mould; it is much used in this country, especially in the western parts; but unless it

has been freed from its peculiar properties, it may remain for years exposed to water and air without undergoing decomposition, in which state it can afford no nourishment to plants. It should invariably be made to undergo a decomposition before it is applied to the soil, either by long exposure to the air, or by mixing it with urine, or with dung in a fermenting state, or with quicklime, which will break up its inert fibre, and correct its acid principle; but yet, even in these forms of compost, it is not great y valued, and often disappoints expectation, probably from its still retaining some principles unfavorable to vegetation.

Soot forms a more valuable manure of the same origin, though, from the small quantities in which it can be obtained, it is held to be of secondary importance. It may be applied to every kind of crop with advantage; though it is said to exhibit its greatest effects in the case of some of the grain crop and young grasses. A very small portion of it is sufficient to promote an immediate and vigorous vegetation of the stems and leaves of plants, a point of the first importance in the early stages of turnips and other quick-growing crops. It is sometimes used as a top-dressing; but it is better covered lightly with the mould, when it attracts moisture and speedily dissolves. It is a deposition of carbon in a minute state of division; but it contains, also, various compounds, among which are acetate and other salts of ammonia, to the agency of which, probably, it owes a considerable part of its fertilizing properties. But this and similar substances, of a strong, stimulating nature, are applied with more safety and advantage mixed either with ordinary manure or in the compost-heap. They exercise a most powerful action on the other materials with which they come in contact; and increase, in no ordinary degree, the fertilizing properties of the whole mass.

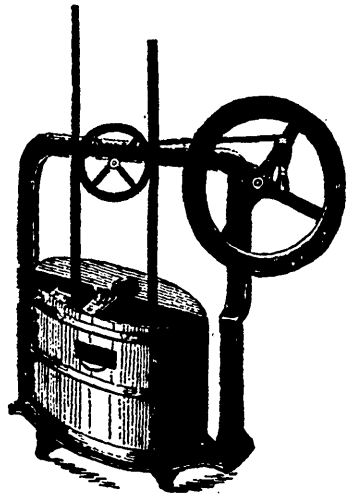
Speaking of composts, these form a valuable auxiliary to the farmer, at little expense, though there is hardly anything so ill managed. The great and common defect in them all is, their want of a sufficient quantity of enriching matter—vegetable and animal substances—especially the latter. Dry earth and lime merely are in no degree to be considered useful compost stuff except as affording bases of combination for the nitrogenized and other gaseous compounds, generated in the progress of fermentation. In a mass so compound as a well-formed compost, of course it is not possible to explain the chemical changes which the substances undergo—their modes of action and results. Nitrogen is probably one of the most active agents producing putrefaction not only in the compounds into which it enters, but also inducing similar action in the other substances; and hence, some writers have been led to determine the relative value of manures in proportion to the quantity of this substance which they contain. But it would seem that manures act through the

medium of their other ingredients as well as their nitrogen; and we might as well say, that because the seeds and seed vessels of plants owe their formation, in a large degree, to this element, it is, therefore, more essential to the properties of the vegetable organism than any other; and yet, we know that nitrogen enters into the composition of plants in much less quantity than either carbon or the elements of water.

When proper economy is observed in the department of manures, the soil ought to perpetuate the means of its own fertility; but of late years, a numerous order of artificial substitutes has been introduced, in the form of special compounds, or fertilizers, as they are termed. Of these, the most common are guano and bones. Guano is composed of the droppings and remains of sea fowl, and is brought from abroad. It is in the form of a coarse, brown powder, containing phosphates, urates, and other saline matter, and is applied either alone or along with other manures. Bones are reduced into the state of phosphate of lime, by solution with muriatic acid (spirits of salts), or, more commonly, in sulphuric acid (vitriol), in the proportion of two pounds of the former to one of the latter; or, if great economy be studied in conducting the process, three of bone to one of acid; but the former proportions—half their weight of acid—will yield the most satisfactory results. Guano yields most turnips, it is said, weight for weight, but the animal matter is not as durable element in the manure. Its phosphate of lime, which is its most valuable part, is more permanent. In the case of vitriolized bones, as this preparation is also sometimes called, it is different; the strongest effects will appear at first, but they are good for three or four years. All classes of plants benefit by them—turnips in a very remarkable degree. Land that had commonly yielded an ordinary average of twenty-five to thirty tons, has been known to give forty tons. In the case of the white crops they decrease in the weight of straw, and increase the weight of grain. If you suspect a crop of oats will grow too much straw, phosphate of lime will enable that which would have formed a bad quality of straw, to be elaborated into juices fitted to fill the ear with more gluten. When well applied to wheat land, the wheat will return almost twenty per cent. more flour, and of better quality; while meadow and grass lands, when regularly supplied with about a bushel of it to the acre; every spring, it is said, will actually bring animals to maturity a year sooner, and of better flesh.

The other general class of manures, those of mineral origin, we shall reserve for next lesson.

A Persian philosopher being asked by what method he had acquired so much knowledge, answered, "By not being prevented by shame from asking questions when I was ignorant."



DRUMMOND'S PATENT ANTI-METALLIC CHURN.

In reply to a correspondent whose communication appeared in the *Gazette* of November 29, respecting the above churn, we now beg to place before our readers a wood-cut of same, with the following description, which we take from the prospectus issued by the manufacturers, Messrs. C. D. Young and Co., Edinburgh:—

"It is in form an elliptic or oblong square, or nearly so, as shown in the foregoing wood-cut, and is divided in the middle, forming two chambers or compartments, but which communicate with each other by a series of holes perforated in this division at top and bottom. To each of these chambers belong a staff and 'dasher,' similar to those in the ordinary plunge churns, the staffs being peculiarly but simply constructed, to insure an infusion of pure air through the whole body of cream at every stroke. The churn is set into an iron stand, with an elliptic iron bracket attached, supporting two wheels—one a fly or driving, and the other oscillating, which latter acts between the upper ends of the two staffs, and is simply attached by means of two leather belts. To the fly-wheel is a handle, by which it is driven round, acting on the oscillating wheel by a connecting rod, effecting two hundred strokes per minute, with the most perfect ease, and without the least effort; so much so, that the whole operation of churning can be successfully and easily accomplished by a child.

"The one staff, as it is propelled downward, forces the cream through its dasher, and likewise through the division at the bottom into the other compartment, the other simultaneously forcing itself through the cream upwards, and in the same manner causing a cross action through the holes perforated at the top, and vice versa, thus consummating the most rapid and complete action without in the least—from its rapidity—deteriorating the quality, protected as it is from

such a possibility by the constant injection of fresh air, which is pumped in at every stroke."

DOMESTIC POULTRY-HEN HOUSE.

BY G. TILLINGHAST HAMMOND.

A poultry house need not be expensive and yet be as good for the farmer as one with fancy fixings that no one knows the use of. Of whatever shape, it is better to have it too small than too large, in winter especially. For if too large the hens get together in one corner in order to keep themselves warm. While, if of the right size, they can promenade as much as they please; and have the proper amount of exercise.

If you have plenty of room in your stable or barn, a room partitioned off there will do. Having built the partition, all the cracks should be well battened up to make it warm. It should have good sized windows fronting toward the south, if possible, and it should be well white-washed, both for neatness and to make it lighter. Then divide it into two apartments; one to be used for the roosting room, the other for their occupation during the day. It would be better if they had no access to the roosts in the day. The day room should be furnished with gravel, chalk, old mortar, and such other materials, to assist in making the shells to their eggs. Also sand and ashes, which are good for a dust bath, put into shallow boxes so that the room may not be made untidy. The room should have a good plank floor which should be often swept.

If you wish them to lay in winter they must be furnished with animal food and vegetables, every few days, beside their regular supply of grain, which, in my opinion, had better be kept in hoppers constantly before them.

Nests can be made in a great many different ways. Some use barrels, which answer well; small boxes, however, are just as good and take up less room. They should be filled with good clean straw with one nest egg, (better artificial); as soon as laid the eggs should be taken from the nest, or at least as often as once a day.

In summer, if your fowls have a large yard to roam in, it will not be found necessary to furnish them either with meat or materials to make the shells of their eggs, for they will get them from the earth.

In the spring a yard should be fenced off for them in which they will thrive better without doing any mischief than if they were allowed to run at large, in which case they are often very troublesome in newly-sowed fields. The roosting room should be thoroughly cleaned as often as once or twice a week, and the floor sprinkled with lime.

If these few directions are carefully attended to we will ensure an abundance of eggs.—*New England Farmer*.

A clock is the most modest article we know of; it always covers its face with its hands.

LABOR NECESSARY TO HEALTH AND HAPPINESS.

BY A. TODD.

It is an undeniable fact that no class of mankind enjoy so good health, or possess such an amount of real happiness, as the working class. The man who earns his bread by the sweat of his brow, is the best calculated to live in the enjoyment of that health and happiness which make his journey through life pleasant and cheerful. The Creator has so constituted man, that it is as necessary for him to labor, in order to enjoy health and happiness, as it is to have refreshing rains to give life and nourishment to vegetation. Man was never designed for a life of inactivity and consequent ease; and that individual who seeks for happiness and contentment in the lap of ease and indolence, must ever expect to be perplexed and troubled in body and mind.

It is impossible for an individual to live in the enjoyment of health without engaging in some sort of labor, whereby he can exercise himself bodily and mentally; because it would be contrary to the laws of nature to have a man in full possession of bodily health without it. And it is impossible, too, for a man to attain to any important or elevated station in society without devoting some part of his time to the exercise of his body and mind. Hardly a great man can be pointed to, who has not, in the early part of his career, labored with his hands and made himself hale and robust by the exercise of his bodily powers.

There is no business so well calculated to fit a man for the enjoyment of that happiness attendant on domestic life, as the cultivation of the soil. And there is no business that gives such health to the body, and soundness of mind, as this. In my opinion, the farmer's life is the happiest life a man can live. But as I have said, labor is necessary to the health and happiness of mankind. The importance of labor is too little thought of, and what is still worse, the idea is too prevalent that to labor with one's hands is disgraceful. But the Almighty, in His wise arrangement, has said that he who will not work shall not eat. To those who think it is disgraceful to labor, let me point them to some of our greatest and most learned men, as examples. When Washington, whose fame is world-wide, first received the news of his election to the presidency of the United States, he was following the plough in his fields. Daniel Webster, whose name is familiar with every school-boy, was born in a log cabin among the granite hills of New Hampshire,—and here his noble mind expanded while tilling the earth. Henry Clay was once a poor boy, and knew what it was to labor; and what school-boy cannot tell what business Elihu Burritt followed while pursuing his studies; hence it is evident that if our greatest men, by laboring from the rising to the setting sun, have won for themselves laurels of fame, it is not disgraceful to labor. Then let me utter in the ears

of those who desire a happy and contented life, and who wish to enjoy a peaceful mind, to engage in some sort of daily labor; for to be engaged in honest labor is manly and noble; and "for six thousand years God has been uttering it in human ears, that he who will not work, shall not enjoy."—*New England Farmer.*

SYSTEM—ORDER—REGULARITY.

The importance of attending to these points must be apparent to every one who has had any experience in managing a household, and who has the important and indispensable talent of observing. Supposing, then, my young friends to be early risers, your attention should be next directed towards having a system and regular time for every-thing you do. "There's a time to work, a time to sing, necessities, or tastes, have your moments or hours set apart, and when once fixed, adhere to them, and make every other thing about the houses adapt themselves accordingly. In this way you will soon have united and harmonious action, and everything go on like "clock work." You know always where to find yourself, and every one will know where to find you, and place their dependence and make their calculations accordingly. This is supposed that you are at the head of the establishment, for there must always be a head to a body. But, if you are not at the head, you can regulate according to that head, and, if there is a system about it, you are as much the governor of your time, as if you were the main regulator. If there is not system about it, I pity you from my heart; you are a slave indeed, and must have the patience of Job and the meekness of a lamb, if your temper is not ruffled. From all the scourges and distempers incident to the ills of human life, God save me from factions and disturbances of an irregular household. Behold the beautiful, grand and incomprehensible system of all nature, the sublime regularity of the heavenly universe; watch the harmony of system, and the beauty and regularity displayed by the Divine Regulator, and who will deny that we have not there an unmistakable example for us to follow?

St. Paul's Clock.—A writer in the Foreign Quarterly thus describes the machinery of this great London clock:

"The pendulum is fourteen feet long, and the weight at the end is one hundred weight; the dial on the outside is regulated by a smaller one within; the length of the minute hand on the exterior dials is eight feet, and the weight of each seventy-five pounds; the length of the hour figures two feet and two and a half inches.

The fine-toned bell, which strikes, is clearly distinguished from every other bell in the metropolis, and has been distinctly heard at the distance of twenty miles. It is about ten feet in diameter, and is said to weigh four and a half tons. The bell is tolled on the death of any

member of the royal family, of the lord mayor, Bishop of London, or dean of the cathedral.

The whole expense of building the cathedral was about a million and a half pounds sterling—in the United States currency, about six and two-thirds millions of dollars."

ROOM IN THE WORLD.

There is room in the world for the wealthy and great,

For princes to reign in magnificent state;
For the courtier to bend, for the noble to sue,
If the hearts of all these be but honest and true.

And there's room in the world for the lowly and meek,

For the hard horny hand, and the toil furrow'd cheek;

For the scholar to think, for the merchant to trade,

So these are found upright and just in their grade.

But room there is none for the wicked; and naught,

For the souls that with teeming corruption are fraught!

The world would be small were its oceans all land,

To harbour and feed such a pestilent band.

Root out from among ye, by teaching the mind,
By training the heart, this chief curse of mankind!

'Tis a duty ye owe to the forthcoming race—
Confess it in time, and discharge it with grace!

OLD WINTER IS COMING.

Old Winter is coming to see us again;
He has issued forth from his frozen den;
On iceberg tops his path has he,
Which roll and clash in the Northern Sea,
He hardens the earth with his ice-cold breath,
And the silver streams are silent as death;
He has bound them fast with his icy chain,
And to break his fetters they struggle in vain.

Thick clouds are gathered around his head,
And glittering snow 'neath his feet is spread,
And howling blasts his approach declare,
Singing through trees with their branches bare,
And with ceaseless fury lashing the oak,
Till he smiteth the ground with a crashing stroke.
As onward he comes, the orb of day
To the smiling south speeds on his way,
And his glorious face, as in fear, he shrouds
In cold thick fogs, or a mantle of clouds.

Though Winter will come, he will not always stay,
For the sun of the Spring time shall drive him away,
When the frost and the snow shall have mellowed
the soil.

And rendered it fit for the husbandman's toil,

In the winter of life, the heart may be light,
Let him never despair who is acting right.
O, son of affliction! look upward and hope,
By aid from above, thou art able to cope
With thy trials and sorrows, and soon there shall be
A spring time of sunlight and gladness for thee.
Shipston. W. D. H.

Agricultural Journal,

AND
TRANSACTIONS

OF THE
LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, JANUARY, 1852.

LOWER CANADA AGRICULTURAL SOCIETY.

The following is a summary of the proceedings of the Directors of this Society at various meetings held since the 15th of August, 1851. At a meeting held on the 21st day of August, 1851, Joseph Vincent, David Laurent, and J. Hurteau, Esquires, were appointed to have a valuation made of the live stock, agricultural implements, and produce, which Alfred Pinsoneault, Esq., has leased to the L. C. A. Society, with his farm at La Tortue, for a Model Farm, to commence from the 1st day of September, 1851.

A meeting of the Special Committee, appointed for the management of the Provincial Ploughing Match, took place on the 5th of September, 1851, and decided upon the rules and general conditions for competition, and the prizes to be offered, which were already published in this Journal. At this meeting, the gentlemen appointed to have a valuation made of the live stock, implements, &c., upon the Model Farm at La Tortue, made their Report, and handed in an inventory of the same, which the Secretary was ordered to record in the Transaction Book of the Society.

On the 12th of September, 1851, the Committee for the superintendence of the Model Farm, met at the Rooms of the Society, when Mr. Ossaye, the gentleman in charge of the farm, submitted his plan for the management of the farm, and after considerable discussion, the Secretary was ordered to have it inserted in both the English and French copies of the Agricultural Journal, before the Committee decide upon it.

On the 10th day of October, 1851, there

was a Special Meeting of the Directors called by written notice addressed to each Member. The Secretary submitted the several accounts for payment, and the Finance Committee, who were present, having examined the several claims, ordered that all those due previous to the 1st day of May last should be paid, and checks were accordingly made out at once for each. Numerous samples of seeds having been sent to the Society from the Great London Exhibition, through the hands of Mr. Houghton, it was ordered that these seeds should be distributed to the Members of the Lower Canada Agricultural Society, on condition that they sow and cultivate them carefully, and report next year the results to the Directors of the Society, and return samples of each to the Society, to be at their disposal. It was resolved at this meeting that the Committee for superintending the Model Farm at La Tortue should meet at the Rooms of the Society the first Tuesday of every month, for the transaction of business connected with the Model Farm. It was further resolved, that Major Campbell and J. Hurteau, Esq., be the visitors to the Model Farm for the month of October, and that at the next meeting of the Committee, two gentlemen be appointed as visitors for the month of November. £76 was then voted to be paid on account to Alfred Pinsoneault, Esq., as Treasurer for the Model Farm.

On the 4th day of November, 1851, being the first Tuesday of the month, the Committee of Directors for superintending the Model Farm, at La Tortue, met at their Rooms, for receiving the report of the gentlemen appointed to visit the Farm in October, and for transacting any other business connected with the Model Farm. Major Campbell, one of the visitors then stated that he had in company with J. Hurteau, Esq., made a visit to the Farm in October last, but that in consequence of the absence of Mr. Hurteau this day, he wished to defer making any report until a future meeting of the Committee. F. A. LaRocque and Wm. Evans, Esquires, were

then named as the visitors to the Model Farm for the month of November. Mr. Ossaye, the manager of the Model Farm at La Tortue, appeared before the Committee with his account and Transaction Books, and submitted them to the meeting, at the same time giving a very satisfactory explanation of his plan of keeping those accounts, and of recording the every day transactions upon the farm. His plan of keeping those books was generally approved of for a Model Farm. He has a Journal in which he enters daily every interesting transaction that occurs upon the Farm. His accounts show the daily consumption of provender by the live stock of every description, each class of animals separately, also the work done by the horses, the produce of the dairy in milk, cheese and butter, the expense of labor, and each work is described, the house expenses, in fact, accurate accounts are kept of every thing going on upon the Farm. Mr. Ossaye gave a full explanation of all his proceedings so far, and the Committee appeared perfectly satisfied with his statement.

The Quarterly Meeting of Directors took place on the 21st day of November, but in consequence of the state of the roads and ice, the attendance was not numerous. The Secretary submitted several letters and other documents, with the accounts for the last two months. One of the letters was from Hector L. Langevin, Esq., apprising the Directors of his desire to resign his appointment as a Director of the Lower Canada Agricultural Society for the present year, in consequence of his removal to Quebec.

It was then unanimously resolved by the gentlemen present, that the Secretary should be instructed to address a letter to Mr. Langevin, who is now residing at Quebec, thanking him for his valuable assistance while acting as a Director for the last two years, and requesting that he would continue a Director until the next Annual General Meeting in May next, to act for the Directors at Quebec.

The Secretary having stated that the English Agricultural Journal for November was not issued until the 18th of that month, and that the French Journal was not yet published, it was resolved that the following gentlemen be appointed a Special Committee: Alfred Pinsoneault, F. A. LaRocque, and P. L. Latourneaux, Esqs., to confer with the publisher, Mr. R. W. Lay, as well with regard to the cause why the Agricultural Journals are not published at the regular time specified in his contract, as to enquire what subscriptions he has collected for the Society up to this period, and to call upon him for a correct list of the actual subscribers to both Journals at this time, in conformity to the terms of his contract.

Insurance on the buildings, live stock, implements and produce on the Model Farm at La Tortue amounting to £12 15s., was ordered to be paid, also, Mr. Doucett's account for making contracts between the Directors and Alfred Pinsoneault, Esq., for the Model Farm at La Tortue, and between the Directors and Mr. Ossaye, the manager of the Farm. There was not any other business of importance transacted, and the meeting separated.

On the 2nd day of December, being the first Tuesday of the month, the Committee for superintending the Model Farm met at the Society's Rooms. Mr. Ossaye, the manager of the Model Farm, submitted his report, which was read before the Committee and approved. In consequence of the bad state of the roads and ice, the Committee did not appoint visitors to the Model Farm for December. No other business was brought before the Committee.

On the 7th January, 1852, a Special General Meeting of the Directors took place at the Society's Rooms. Mr. Ossaye, the manager of the Model Farm, brought his books before the members of the Committee for superintending the Model Farm, who were present. There were several letters and other documents submitted by the Secretary, one of

which, was a letter from Mr. R. W. Lay, acquainting the Directors that it was not his intention to publish the Agricultural Journals after the 31st of December last, and making some other propositions to the Society, which were not deemed necessary to be inserted in the Transaction Book. The following Resolution was then moved by John Yule, Esq., and seconded by John Fraser, Esq., that a Committee, consisting of Alfred Pinsoncault, P. L. Le Tourneux, and L. A. H. Latour, Esqs., be appointed, with full power to enforce the agreement with Mr. R. W. Lay, or make such a final settlement with him as they see fit, and also, to take such steps as they may deem necessary, to have the Agricultural Journals carried on by any other parties, making a previous report to a meeting of the Directors. Passed unanimously. Proposed by Major Campbell, seconded by Dr. Valois, M. P. P., that the Presidents of the County Agricultural Societies of Lower Canada be elected Honorary Members of the Lower Canada Agricultural Society, and that they be requested to attend the next General Meeting on the 10th day of February next, at these Rooms. Proposed by L. A. H. Latour, Esq., seconded by Major Campbell, that Samuel Walker, Esq., Mayor of Roxbury, Boston, Massachusetts, and President of the Horticultural Society of Massachusetts, be elected an Honorary Member of the Lower Canada Agricultural Society. Passed unanimously. Proposed by John Fraser, Esq., seconded by David Laurent, Esq., that the balance of the three hundred pounds, currency, voted for carrying on the Model Farm at La Tortue, be paid to the Treasurer of the Farm, Alfred Pinsoncault, Esq., for that purpose. Passed unanimously. A check was accordingly made out for two hundred and twenty-four pounds, currency, being the balance in full, and handed to Mr. Pinsoncault. The Secretary was instructed to address letters to the several Presidents of the County Agricultural Societies of Lower Canada, apprizing them of the resolution adopted this day, and requesting them to attend at the next General Meeting of

the Lower Canada Agricultural Society, which was ordered to take place on Tuesday the 10th day of February next, at these Rooms.

P. E. Leclere and David Laurent, Esqs., were appointed visitors to the Model Farm for the month of January.

No other business coming before the meeting it separated.

By Order,

Wm. Evans,
Secretary and Treasurer,

L. C. A. S.

AGRICULTURAL PUBLICATIONS.

With a population of nearly one million in Lower Canada, of whom, we suppose, nine-tenths are dependent upon Agriculture, we only have this Journal exclusively devoted to Agriculture. There are Agricultural periodicals introduced from the United States, all published in the English Language, but they are not suitable for a vast majority of our farmers not being in the French language, and it would appear a most extraordinary circumstance that Canadian Agriculturists would not feel a pride in encouraging and supporting a Canadian Publication devoted to their interests, in preference to foreign publications. All other interests are represented and supported by the Provincial Press, but of more than one hundred thousand families directly dependent upon Agriculture, there are not three thousand subscribers to this Journal in both languages. It is not the amount of subscription that could prevent any farmer from taking it, therefore it must be indifference. In all other countries consistent patriotism is considered the characteristic of Agriculturists, bound as they are to the soil by every earthly tie. We do not conceive it possible that any farmer would imagine that he could not derive more than five shillings benefit from this Journal in a year by reading it. The selections alone contain much useful as well as highly interesting information for any one engaged directly or indirectly in Agricultural pursuits. This information is highly prized by the first in wealth and station in other countries, as well as by the farmers. If

farmers are not a reading class, the sooner they become so the better it will be for their interest in every respect. They never can have that degree of influence which ought to belong to their station, as proprietors of the soil of the country, nor can they practice the art of Agriculture to the greatest advantage until they do become reading men. Ignorance may despise education, but this cannot lessen its importance to the human race. It is only educated men who can estimate it at its proper value.

STALL-FEEDING CATTLE IN CANADA.

Stall-feeding cattle might be practiced to advantage by farmers, but only by those who are good judges of stock, and would be determined to give the most careful and constant attention to their feeding. Considerable judgment is required if the business should be carried on to any extent. Should the markets be glutted by an over supply when effecting or forcing sales, cattle may leave very little profits, perhaps not even pay for the expenditure upon them. Residing near a good or extensive market affords opportunity to cattle feeders to dispose of fat stock when it can be done to the greatest advantage. For cattle feeders residing a great distance from our principal markets, the appointment of qualified salesmen at these markets would be necessary, or farmers would have to make great sacrifices if obliged to sell their cattle whether there was a demand for them or not. Salesmen might keep over the stock for a more favorable market, and for a better demand. It would be very desirable that properly qualified salesmen should be appointed in Montreal and Quebec at all events. A farm under a judicious rotation of crops cannot be well carried on without stall-feeding cattle, particularly if extensive. If there is sufficient pasturage, oxen or steers might be purchased during the summer, for stall-feeding the following winter, but where there is not pasture they might be purchased in the fall. At either of these periods stock could be pur-

chased at a much lower price per hundred weight than they would sell for by weight fat in the latter end of winter, or early in the following spring. The difference in the value of the beef in the fall and in the spring, as well as the additional weight the cattle would gain by fattening, could scarcely fail to pay for their feeding, and a profit besides, if all was judiciously managed. The success of stall-feeding will be considerably influenced by a judicious selection of stock when purchasing—Some animals will fatten much better and more rapidly than others, indeed there are some animals that it is almost impossible to fatten with any chance of profit. Those with short legs, fine bone, thick body, and free from any coarseness about the neck, head or horns, will be found to feed better than animals possessing the contrary characteristics of form. There is another essential point,—that the oxen or steers purchased should have been regularly castrated when calves. There is always a coarseness about male animals which have not this operation performed upon them when very young, and the neglect to do this is one of the greatest defects in the Canadian farmers management of neat-cattle and sheep. A mixture of food will be found to succeed better in fattening animals, than to feed them constantly upon the same description of food. A portion of grain or linseed given at intervals with roots, will greatly facilitate the fattening of cattle or sheep, and improve the quality of the beef or mutton. We do not doubt that fat cattle of good quality, might find a better market in the United States in the spring, than in Canada, notwithstanding the high duty imposed upon them in the former country. Rail Roads will greatly promote this trade. Upon the whole, we do not think that any farmer should be deterred from stall-feeding cattle to a reasonable extent, provided he possesses the means and the qualification we have stated to be necessary for those who embark in this branch of farming. We have known parties who have been successfully engaged in this business for a great num-

ber of years, and still continue it. Cows or heifers of good size, and of the most approved form, might be found to pay better for their keep and attendance, than oxen or steers. They generally fatten more rapidly than oxen.

We give insertion to the letter of "a farmer." In the Session of Provincial Parliament, 1850, an Act was passed "to establish the Freedom of Banking in this Province," and in the last Session of the same Parliament, there was a short Act passed to amend the former Act, but we humbly conceive that neither Acts are calculated to be of much advantage to Canadian Agriculturists, whatever they might be to manufacturers, and therefore we do not see the necessity of copying either in this Journal. Our attention is altogether directed to the cause of Agriculture, and we have only thought of Banking so far as it might be made advantageous to the interests of Agriculture. We are free to admit that a large circulation of the Notes of solvent Banks, must be an indirect benefit to Agriculturists, although, they should never obtain accommodation from these Banks to the extent of five dollars, but any further than this, the present system of Banking in Canada, is of very little advantage to farmers. As we have frequently observed before, the only system of Banking that can be directly useful to Agriculturists, and from which they could safely obtain reasonable accommodation, would be the Scotch system of Cash Credits, or the European system of "Associations of Agricultural Credit." The latter system is established in most of the countries of Europe, Prussia in particular has them in every section of her Dominions, and they have proved of immense advantage to agriculture, and although they were first introduced by Frederick the Great, about one hundred years ago, they have succeeded to admiration without any check whatever, and their paper is now said to be generally above par, and to pass currently at all other Banks, and in payment of the Revenue. No Banking Acts can

be of any direct advantage to farmers here, unless, "a Cash Credit" accommodation can be had, upon the same terms as in Scotland, or by means of "Associations of Agricultural Credit" where accommodation is given to a reasonable extent, which is only to be refunded by a fixed amount annually. We have in former numbers of this Journal, given an outline of the plan of these Associations, and it would answer no good purpose that we should do so again—if there is no likelihood that any action would be taken in the matter. When Agriculturists are prepared to apply in earnest for a Banking Act that will be suitable for them, and safe for the country, there will not be much difficulty in submitting a plan that will be unobjectionable. It indeed would be astonishing, if the Agriculturists of Canada, who are generally proprietors of the soil they occupy, could not offer sufficient security for any Banks that would be necessary for their accommodation, but this accommodation can only be of use to them, when granted on such terms as will enable them to repay in a reasonable time, and without loss. One year is the shortest period that is safe for a farmer to obtain Bank accommodation to carry on his business, as his returns are only annual. In "Associations of Agricultural Credit" there are local Committees, regularly appointed whose duty it is to see that parties obtaining accommodation must apply the money to the best advantage for improvement, and in case the annual payments are not regularly made, the lands are taken possession of, until the arrears are paid, and then they are returned to the owner, and no law expenses or sale of the property ever takes place.

FLAX.

We copy in this number very interesting information respecting flax. We shall soon be able to see what encouragement there will be for the extensive cultivation of this crop in Canada. Even with our present prospects we conceive that flax might be grown to some extent, the seed taken off and disposed

of for feeding cattle, or for sale, and the straw put up safe and dry, until we have mills for dressing it. There is already a flax mill at Portneuf, and we know that Mr. Knox is preparing one at Lachine. We suppose that we shall soon have many more. At the present moment, farmers are unwilling to incur the risk of sowing flax, lest they should not find purchasers for the straw, and those parties who might be disposed to erect mills for dressing it, are deterred from doing so lest they might not be able to find flax straw to purchase to employ their machinery when constructed. The only means of surmounting these difficulties would be, for a few gentlemen with capital, who would be desirous to promote the prosperity of our country, to construct a few flax mills at once, and thus secure to the farmers the encouragement of a market for this produce. Farmers would be very glad to grow flax, if they were certain of disposing of it when grown, but until this is the case, we have not much hope that this crop will be cultivated to any great extent. This is the plain state of the case, and the remedy is equally plain and easy to accomplish.

CANADIAN MANUFACTURES.

Every possible encouragement should be given to domestic manufactures in Canada, that could be made from our raw produce, for our own use. Agricultural implements of every description, should be of Canadian make. We do not advocate, however, that we should make use of inferior implements because they were of Canadian manufacture, in preference to superior implements of other countries. There is no necessity for this, as we may have the very best models, and we have excellent materials and workmen. We should not purchase low priced implements for their cheapness, because such are generally unfit to execute work properly, and from their being made of unsuitable materials, and too slight for their work, they are the most expensive implements a farmer can purchase, however low the price. We have some

excellent wire work manufactories and fanning machines made by Mr. Rice, whose store is only two or three doors from the Societies' Rooms in Notre Dame street. Farmers can be supplied by Mr. Rice with every implement for cleaning grain and small seeds, of the very best description that is made, and on moderate terms.

CLOVER SEED.

David Laurent, Esq., of Varennes, sent to the Rooms of the L. C. A. Society, a sample of red clover seed, raised by him last year on his farm at Varennes. The sample is excellent, and he informed us that he raised about 1500 lbs. from the *second crop* of clover, of between two and three arpents of land. This would pay a farmer very well indeed. Mr. Laurent purchased a machine for separating the seed at the Brockville Exhibition, last September, which he states, answers exceedingly well. We saw this machine when he purchased it, it occupies very little space, is simple, easily worked, and not high priced. Mr. Laurent deserves great credit for his enterprize, public spirit, and example as a Canadian farmer.

INDIAN CORN STALKS.

We are much obliged to our Correspondent, Charles Hughes, Esq., of Nicolet, for his valuable communication, which appears in this number. It is very satisfactory to see gentlemen come out in this way in their proper name, as Correspondents in the Agricultural Journal. It proves that they feel an interest in the usefulness of the Journal, and are willing to assist to increase its usefulness. Mr. Hughes' letter is a practical one, and the matter it refers to is of great consequence to farmers. There is not any crop which will yield a larger return of dry provender for cattle than indian corn, and when saved or cured in good condition, as by Mr. Hughes' plan it must be, we have no doubt of its being good provender, with a feed of roots daily.

When great wealth is employed for the benefit of the community, it is highly creditable and honorable to those who apply it in this way. The Duke of Northumberland has offered £200 as a prize, for the best constructed Life Boat to be employed upon the English coast in cases of shipwreck, and for this prize, there has been a large number of competitors, of whom one was successful. The boat for which the prize has been awarded, has been lately tried in a great storm, upon the most dangerous part of the English Channel, the Goodwin sands, and succeeded to admiration. This conduct of the Duke of Northumberland may be the saving of thousands of lives. His grace has also ordered the construction of no less than a thousand cottages upon his estate in Northumberland for the accommodation of the working classes. Who can regret the great wealth of a nobleman who thus employs it for the good of his fellowmen.

WHEAT GROWN IN SUCCESSION WITHOUT MANURE.

We copy in this number, an article on this subject from the *Mark Lane Express*, which deserves attention. There cannot exist a doubt that this mode of cultivation, although, it would be very expensive in this country, must be an excellent one for both soil and crops. Deep cultivation with the spade or fork, must have a greater and better effect upon the soil than the operation of ploughing could possibly have, however well executed. Digging is now coming into considerable practice in the British Isles.

“I shall now take you with me, if I can, and show you the whole process of my simple cultivation, from this first digging, till I have cut, and thrashed, and measured the produce.

“Don't let us leave these diggings, however, till I have shown you how they are done. They are two spits deep; and after the pan is a little moved, the staple is turned upon it, and the second spit is gently laid uppermost, and in such a form that the frost may be felt right through the whole. Look: you can almost see down to the subsoil.

“This digging, then, is my first outlay. Half the acre being already in wheat, I have

had only half the acre—bear this in mind—only half the acre to dig and to pay; for and the price of that, at the average rate of £3 the acre, is £1 10s.

“Well; thus lie these ridged intervals during the winter—higher than the tender wheat, and so protecting it, and checking the drifting snow. The winter fallow over, I give my spring stirring with the fork, which moves, without damaging, the spreading fibres; and I follow up that with the cultivator and hoe, as often as the surface incrustates, and as long as the growing corn will permit. The crop being carried, last of all comes the forking and pulverizing, and levelling for seed time.

“The two forkings, and the hoeings *ad libitum*, I value at 20s.

“I pay great attention to what follows, namely, the putting in the seed. For my three rows of wheat I make channels with a three-wheeled presser, the edges of which are sharper than usual, in order to cut through the land to the depth of two inches and a half or three inches. Boys or men follow, and drop single grains into the channels, about two or three inches apart; and I keep a sharp look-out that this is done faithfully. The seed thus lying deep on a hard bed, and the land being well drained; I am not afraid of the plants being lifted by the frost; so I cover over the seed, and close up the channels, with the roller.

“Be gracious, Heaven! for now laborious man Has done his part. Ye fostering breezes, blow! Ye softening dews, ye tender showers, descend! And temper all, thou world-reviving sun, Into the perfect year!”

“The hand-cultivator, or hoe, is still kept at work between the rows of the growing wheat as long as it is safe; and then comes the last scene of all—the sickle and the harvest-home.

“Sum up, then, the outlay for this crop from first to last:

	£ s. d.
One double digging.....	1 10 0
Two single diggings, with fork.....	1 0 0
Pressing, sowing, hoeing, carrying, thrashing, rates, and taxes.....	2 1 0
Two pecks of seed (5s. the bushel)...	0 2 6

Total..... £4 13 6

“Such has been the process, such the outlay. The wheat is now thrashed: what is the yield?”

“I have already had wheat on the same acre of land for three successive years. Of the first year I took no account; but I have accurately measured the produce of the two last years, and the yield has been the same in both cases—namely four quarters and two bushels.

	£ s. d.
Four quarters and two bushels of wheat (at 40s. the quarter).....	8 10 0
One ton and 12 cwt. of straw (at £2 the ton).....	3 4 0

Total amount of produce..... 11 14 0
Deduct outlay..... 4 13 6

Total amount of profit..... £7 0 6

“To myself, as proprietor, then, this acre of wheat land is worth £7 0s. 6d. To a tenant, renting at 40s. or 50s. or 60s., it would be worth accordingly. Would a tenant be satisfied with a net profit of £5 or £4 10s., or £4 the acre. Would the stout British farmer, who had a hundred acres in wheat, be content with a sheer gain of £400?”

It is put forward as an important feature in this system that *no manure* is needed for the wheat crop. Upon this point it is remarked—

“Nor is it surprising that the growing crop should all this while take advantage of this wider pasture, so inviting, and so easy of access. Recollect, that each grain was planted singly, and every fibre has now, during growth, full scope to search for its food. And the result, under such circumstances, is now well known. There is scarcely a plant over the whole acre but tillers abundantly, twenty, thirty, or forty stalks to the grain. The ears become heavy and large, and the yield is as I have experienced and just described.

“This, however, is not enough. It is a great thing to have the untold convenience and gain of unmeasured wheat crops, year after year, from the same land. It is a great thing to be prepared, as I am, for sowing my seed whenever I choose. It is much to supply myself with thick reed-like straw, which, purchased as it is from myself, is ready at my hand for use, and turned into manure, supplies with food the grosser feeders of my farm. It is a great thing, after all this, to have my fair yield of thirty four bushels to the acre.”—*Mark Lane Express.*

The following is selected from a speech delivered at the Smithfield Farmer's Club Dinner.

“The importance of the tenantry of the country to the body politic is, however, so admirably portrayed in an article which has recently appeared, that I cannot refrain giving it you. It is as follows: “The farmer is the great middle man between poverty and wealth, between labor and capital, between the many and the few. In the hour of distress the battle always falls back upon him. According to the constitution he is the responsible man! The tenant pays the wages, the poor-rates, the way-rates, the church-rates, the county-rates and the tithes; and, directly or indirectly, he is the assessor of all but the last two. Add to these payments rent and taxes and the numerous small tradesmen who live on the tenant-farmer, and he presents himself in the light of the uni-

versal paymaster. In half an hour's walk, from almost every market-place in the kingdom, you find yourself under the sway of these powerful and responsible, though unassuming, potentates.” (Hear, hear). “Once among green fields and hedgerows, and the tenant-farmer is your immediate superior. The road you are riding upon, the ditch you leap over, and the bridge you cross, are maintained by him. If you damage a fence, it is his. The cattle are his. The laborers are in his pay, and the cottages are in his letting. He keeps the carpenter's bench, the sawpit, and the forge incessantly at work. The village shop and the village public-house are filled by his servants and laborers. If profits fall, he has to draw on his capital to keep things going. If wages are reduced, he has to bear the odium. If disaffection spreads, his ricks are burned. When he can no longer pay wages, he must still pay rates. If there are widows, or orphans, or old men, or cripples, or sick, or vagrants, the tenant-farmer must maintain them. If they die without friends, he must bury them.”—*Mark Lane Express.*

MODEL FARM, AND SCHOOL AT LIMERICK, IRELAND.

The Government have granted £4000 for the establishment of a Model School and Farm near Limerick, beside some other funds that are available for the purpose. These Schools and Model Farms are being established in every County of Ireland, and are reported to be producing a vast amount of benefit to the country. Shall we follow this example, and provide similar institutions in Lower Canada.

The following is a copy of the letters addressed to the Presidents of the County Agricultural Societies, by the Secretary of the Lower Canada Agricultural Society.

ROOMS OF THE LOWER CANADA AGRICULTURAL SOCIETY.

Montreal, January 15, 1852.

Sir,—I have the honor to acquaint you, that at a meeting of the Directors of the Lower Canada Agricultural Society which took place on the 7th instant, a Resolution passed unanimously, electing the several Presidents of the County Agricultural Societies as Honorary Members of the Lower Canada Agricultural Society, and in that capacity, you are respectfully invited to a General Meeting of the Society which is to take place at these Rooms on

Tuesday the 10th day of February next, when matters of vital importance to the welfare of Agriculture in this section of the Province, will be discussed. And amongst other topics the Meeting will be called upon to consider the means best calculated to encourage and extend Agricultural education throughout Lower Canada. The Directors trusting to your zeal and co-operation for the promotion of agricultural improvement earnestly beg your presence at the Meeting on the 10th of February next. I have the honor to be,

Sir,

Your most obedient servant,

WM. EVANS,

Sec. and Treas. L. C. A. S.

To the President of the County of _____
Agricultural Society.

The Editor of an Agricultural Journal undertakes a very serious responsibility, and one that is encompassed with many difficulties and discouragements. The articles he writes as well as the selections he makes, are sure to be severely scrutinized by those who may consider themselves practical farmers, and every practical farmer will judge of his writings and selections by their own favorite system of husbandry, so that it will be almost impossible for him to give general satisfaction. An Editor might certainly avoid much trouble, by filling up his paper with selections, and giving very few of his own ideas; but as all the selections have to be made from foreign publications, it would be impossible to make up a very useful Agricultural Journal altogether of selections. We devote much of our time and thought to the preparation of articles for this Journal, and our readers may rest assured, that it is our most anxious desire to make it as useful and interesting as possible. We have no high pretensions, but even if our qualifications were of the highest order, it would be our constant aim to make use of the plainest language, and style of writing. We can assure our readers that it is not such an easy matter to edit an Agricultural Journal that will be faultless and please every one. We have an opportunity of seeing a great many of these publications, and we know

they often contain matter that is objectionable, and some that is not instructive in the most approved systems of agriculture. We hope, therefore, that readers will be indulgent to any faults they may discover in this Journal. We beg to remind them that it is a plain farmer that has ventured to become an Editor, in the first instance certainly, with the sole object of promoting the improvement and prosperity of agriculture in Canada. On these grounds we presume upon the favor of all who are interested in the prosperity of agriculture, and we entreat them to aid us by communicating useful information for this Journal. When a farmer finds our views objectionable, and differing from his own, he must of course consider that his own are better. Under such circumstances, why would he not come forward and give the benefit of his superior information to his brother farmers? We shall always be most happy to give insertion to such communications. Politics and party questions we carefully excluded from our columns, and therefore there is no danger, whatever party a man may belong to, that he would give offence to his party by corresponding in this Journal on subjects relating to agriculture. It is not possible for those who write much, and frequently to avoid repetition occasionally, but this objection may be urged against any publication as well as the Agricultural Journal. There is a sameness in the art and practice of approved husbandry, that necessarily requires a sameness in the description of it. There are various systems suitable to various qualities of soils and situations, but still there is only one description belongs to each of these systems. We respectfully submit these remarks to the consideration of our readers, and rely upon their indulgence.

We beg to direct attention to the letter addressed by the Secretary of the Lower Canada Agricultural Society, to the Presidents of the County Agricultural Societies of Lower Canada. The Presidents of the County So-

cieties have been elected Honorary Members of the Lower Canada Agricultural Society with a view of connecting them with the Provincial Society. If these gentlemen will attend the General Meeting to which they are respectfully invited, they will have it in their power to communicate their views, and offer their advice. The Provincial will, as all other Agricultural Societies, have no other object but the advancement of agricultural improvement and prosperity, and they should all unite heartily in promoting these objects by every means in their power.

AGRICULTURAL REPORT FOR DECEMBER,
1851.

The Month of December had all the characteristics of the Canadian winter. The cold was so great that the ice upon the St. Lawrence was passable at an earlier period than usual, and the Thermometer was down to twenty degrees below zero, a very unusual temperature, for the month of December. There was a thaw, however, the last few days of the month, and a variation in the temperature of between 50 and 60 degrees. This extraordinary variation in twenty-four hours, one would imagine to be very prejudicial to health, but notwithstanding the Canadian climate is decidedly a healthy one, particularly in the winter season. An Agricultural Report for the month of December cannot be very interesting to our readers, but as we have made it a rule to give monthly reports, we shall endeavour to submit suggestions that may be useful, when farmers can again work in the fields. The results of the past year's labor are not so favorable for the farmer as was anticipated at one time in summer, from the extremely luxuriant appearance of the crops. Both in the wheat, and potatoe crop, the failure has been considerable. Barley and oats were fair average crops, and would pay better than wheat, but unfortunately barley was not sown to any great extent. There is a certain demand for barley and oats in the United States, and this should

be a great encouragement to their cultivation. It will be very necessary that farmers would be particular in cultivating the crops that would be most certain, and most readily disposed of at remunerating prices. When there is an outlet for exporting of some of our products to a foreign country, there is always a probability that the demand will be better and more remunerative than if the demand was confined to the supply of home consumption, and, therefore, we would recommend that barley, peas, and oats, neat cattle, and *Leicester* sheep should be cultivated for the supply of the demand from the United States, as well as our own necessities. It would be very imprudent, however, to give up the cultivation of wheat. It is one of the most necessary articles of human food, and its cultivation should never be neglected in any country where a fair crop can be produced, because if it is not required in one country, it may in another, where adverse seasons and other casualties may injure crops. Hence it will be best to cultivate a diversity of crops, giving the preference to those that pay best, and to cultivate those to the greatest extent, but always endeavoring to grow sufficient wheat for our own consumption, as it is a serious evil for a country to have to purchase this most necessary article of food, and we have experienced this evil in Lower Canada within the last few years, in consequence of the ravages of the wheat fly. We submit these suggestions to the consideration of farmers, that they may be prepared to adopt that system of cropping in the spring that will be most profitable for them. By a judicious adaptation of a system of husbandry to our situation and circumstances, we might make farming much more profitable than it is generally. In the present state of the world, we shall have no chance of success if we go on in the ordinary way, sowing a certain number of acres of wheat, barley, oats, peas, potatoes, &c., without any regard to whether these crops are best suited to the soil they are sown upon, or whether they are sown in proportion to our necessities and means of disposing of them when at maturity.

A suitable stock of neat-cattle, good sheep, and Canadian horses, should be more extensively introduced, and if managed properly, would pay well. This latter branch of farming is indispensable, as a good system of husbandry cannot be maintained without a due proportion of domestic animals, and in order to make them profitable, they must be of a good quality, and kept in a proper way, both in summer and winter. A few acres of roots, such as mangel-wurzel, carrots, parsnips, and Swedish turnips, or either of them, would enable a farmer to keep his live stock in good condition in winter. These roots are not expensive to grow, and their cultivation is necessary to clean the soil and improve it. Farmers should not be discouraged if their profits are not so large as they would wish them to be, or as they imagine they ought to be. It is a business that cannot be given up unless we are prepared to give up our existence. We should not forget that, however farming may be despised by some parties, it is the most honorable and healthful profession practiced by mankind, when conducted upon a good system. There is not any thing of which a man has so good reason to be proud, as of a well managed, well cultivated, and suitably stocked farm, with every thing upon it and about it, good and suitable for their several uses. For our own part, we should prefer a situation of this description to any other attainable by man, and it would be our earnest desire to see every agriculturist endeavoring to attain this respectable situation. The agriculturist who feels anxious to attain to a high state of perfection in his farming, will have a much better prospect of success, provided he acts cautiously and judiciously, than those parties who act as if they imagined they never could, nor never should attempt high farming, or make any change in their system of husbandry. The price and demand for wheat is lower in proportion than that for any other grain. Barley, oats and peas sell at fair prices. Potatoes also bring remunerative prices to those who were so fortunate as to raise fair crops of them. Hay and straw

are cheap. Butchers' meat is at fair prices, except pork, which does not sell at a remunerative price. Fowls are in great abundance, and sell at fair prices. Butter and cheese, perhaps, sell for as much as we could reasonably expect. We hope, in conclusion, that this time next year, should we be spared so long, we may have the satisfaction to be able to congratulate farmers on the abundance and excellence of the present year's produce.

January 15, 1852.

ABOUT DUCKS.

BESIDES the common English duck, there is a very great variety of which, however, only three kinds are usually found in our farm-yard; these are the RHONE or ROUEN DUCK, the MUSCOVY, and the WHITE AYLESBURY.

The Rhone is dark-colored, of rather large size, but is now almost entirely bred in with the native kind. The Muscovy, so called, not from its country, but from the strong musky odour it emits, is much larger than the common duck; in length it sometimes exceeds two feet, and nearly three feet measured across the wings, when they are extended. A red patch covers each side of the head. Its color in its native state, is nearly black, shaded with shining green with a stripe of white on the wings, and the bill and legs red. It is considered profitable from being more productive than others, and because it fattens very readily, but on account of its musky flavor, is generally discarded from the table. If, however, the glands near the tail, and the head be cut off as soon as the duck is killed, the disagreeable taste is removed, and the flesh somewhat resembles that of the wild duck.

The White Aylesbury is the most ornamental, as well as the most profitable, and, of course, is on these accounts to be preferred. It is very plentiful in Buckinghamshire, from whence vast quantities are sent to the London markets.

Among all the varieties, the drake is larger than the duck, his colors are also more striking and brilliant; he is also distinguished by a tuft of feathers turning upwards at the tail. One drake is sufficient for six ducks.

February is the period when laying commences and if not interrupted by setting, from fifty to sixty eggs are produced. A duck is reported to have laid eighty-five eggs in as many successive days.

During the laying-season, they must be well looked after, as they will deposit their eggs in any place where they may happen to be, sometimes even in the water. They are more difficult to keep in confinement than the goose, and there is more trouble in getting them to take to a nest, but as they usually lay in the night or early in the morning, a little care in giving food near the place, and in preparing a nest

will generally be sufficient, and when once accustomed to a nest, they seldom forsake it.

The anxiety of ducks for sitting, is not generally so great as with domestic fowls, and it often happens that they remain so long away from the nest, that the eggs become chilled, and spoiled in consequence. Hence *hens* are sometimes used for hatching ducks' eggs, not only from sitting better, but also from being more careful mothers in leading the young brood *from*, rather than *to*, the water, which is injurious to them when very young.

The number of eggs given for a duck to hatch is from eleven to fifteen. The period of sitting is thirty-one days. If the eggs are not of the duck's own laying, they should be all of the same color as her own, as she will sometimes turn out from her nest those of a different shade, or those belonging to other ducks. During incubation or sitting, food must be placed beside her, and an opportunity may be sometimes afforded her for going into the water for a short period. The duck will often cover her eggs with hay or straw, or leaves in order to prevent them growing cool in her absence.

There is no necessity for removing the young ducklings as they are hatched, they are hardy, and may be left to the care of the parent. In fine weather, as soon as all are hatched, they may be allowed to run on the grass, the duck or hen being confined under a coop, with food made of oat or barley-meal in water, near at hand.

In France, when the ducklings are a week or ten days old, they get mashed potatoes, mashed acorns, vegetables boiled, chopped up, and mixed with bran.

Very soon they may begin to eat almost any thing, for ducks are so voracious, and so little particular as to kind or quality in their food, that any offal, however disgusting, seems not to come amiss to them. Thus Cobbett says, "A dead rat three-parts rotten is a feast for them." They seek their food ravenously, whether on land, in the water, or in mud; worms, slugs, snails, caterpillars, insects, &c., &c., are acceptable to them. Thus they are sometimes advantageously allowed to forage for themselves in gardens, where they effect good by destroying these creatures in addition to finding a great portion of their food. On this account the duck is the least expensive kind of live stock for any one to keep, and may be turned to profitable account by those who have the room, and will take the necessary pains to rear them. Young ducks should not be allowed to eat too gluttonously of slugs, or worms, or they will kill themselves in doing so.

It will not do to bring ducks to table if they have only been fed on such a refuse food, or garbage. In order to fatten them, or to render their flesh delicate, it is necessary to give good oats, plenty of clean, fresh vegetables and water. Or as they do abroad, cram them with paste made of buck-wheat, or ground malt, mixed with milk,

for eight or ten days, which makes them fat and well-flavored. Ducks may also be fattened upon acorns of which they are very fond, the flesh is, however, not so tender or delicate as when fed by other means.

Cobbett further states—"I treat ducks precisely as I do my geese. I buy a troop when they are young, and put them in a pen, and feed them upon oats, cabbages, lettuces and water, and have the place kept very clean. My ducks are, in consequence of this, a great deal more fine and delicate than any others I know any thing of."

The feathers of ducks are not so valuable as those of the goose, but yet the profit to be derived from the eggs, the flesh, the feathers, and even from the dung, would be of considerable importance to the cottager, especially where there is the advantage of a free, open range, where, there are ponds or marshes, or even a ditch in which they can forage out food for themselves.

EXPERIENCE IN ANIMALS.

The expectation of the recurrence of an event is the impression of a former circumstance, which, from certain causes and a resemblance of certain points, we are again led to entertain and to see fulfilled; the former is caused by the memory and the latter by the understanding; for the imagination by a comparison of the past with the present, prepares the mind to receive a certain conclusive result. The application of experience is traceable in the lowest orders of life. The razor shell-fish buries itself deep in when left by the ebbing tide, and is attracted to the surface by a little salt being dropped into its hole. A movement in the sand immediately follows, and presently half the fish becoming visible, the fisherman draws it out with an iron prong; but should he fail in seizing it or relax his hold, the first rapidly disappears, and it will not rise again, although more salt be thrown to it. It seems thus to be aware of its danger, for it will come forth on the fresh application of salt, should it not have been touched in the first instance. Borley says that he saw the attack of a lobster on an oyster. Lobsters, like most other crustacea, feed principally on shell-fish, which they extract with their claws, and in the instance in question the oyster closed its shell as often as the lobster attempted to insert itself; after many failures the lobster took a small stone, which it placed between the shells as soon as they were separated, and then devoured the fish. Monkeys in the West Indies have been seen to resort to the same device. Crickets, if disturbed, withdraw quickly into their holes, and reappear again soon; but if the disturbance be repeated, they remain altogether within them. A fox escaped from a trap in which it may have been caught, remembers the danger, and is not again to be deceived. Birds are equally suspicious. The quail which has once been enticed into the net by the call-pipe, will not allow itself to be caught

again; but some, like the redbreast and titmice, are not so readily alarmed. A wasp encumbered by the struggles of a large fly, which it had caught, bit its wings off, and then bore it away with ease: the same with a sand wasp, which attempted to draw a small moth into its hole, but being prevented by the wings of the insect it separated them and the legs from the body, and thus secured it. Dages saw a spider which had seized a bee by the back, and effectually prevented it from taking flight; but the legs being at liberty it dragged the spider along, which presently suspended it by a thread from its web, leaving it in the air to dangle till it was dead, when it was drawn up and devoured. The use of experience becomes more marked and extensive with age, the higher we ascend in the scale of life. Thus, old birds are not so easily approached within gun-shot as young ones; old foxes are less easily caught in traps, and old stags show more cunning. On newly-discovered islands, the birds and animals have no fear of man, and the seals and other amphibians do not move at his approach; but a very short experience teaches them in what their safety consists. In tracts where the art of trapping has never been practised, the animals are at first caught in numbers, but by degrees they become more wary, and the hunter is compelled to use greater stratagems. In woods which are much hunted, the game is more shy and vigilant, while it seems fully to comprehend the sanctity of a preserve. — *Thompson's Passions of Animals.*

TAYLOR'S BEE-KEEPER'S MANUAL.—A FOURTH edition of this useful work has just been published by Messrs. Groombridge; it contains such new information and instructions as have been brought to light and suggested by experience. From the natural history of the bee, the author treats of the various kinds of hives, the modes of management, and shows how bees may best be kept with profit and advantage. It is pretty well known that in order to be successful with bees, the person who tends them should show no signs of fear. Accidents, it is true, seldom happen; but Mr. Taylor recommends the use of a screen or dress made of thin muslin, which covers the head and face, is tied round the waist, and fitted with sleeves. With this, and a pair of thick woolen gloves no danger is to be feared. The author states that bees may be kept in health by proper care: "all their pretended diseases," as he observes, "are the result of cold, hunger, or the infection produced by a too close and long confinement during the winter." He says further, that no particular set of rules will apply in all cases for the keeping of bees; but that each bee-keeper should endeavour to suit his practice according to the situation of his hives, the nature and productions of the soil, climate, and so on. This is a hint well worth attending to, as many persons fall from not taking the trouble to think for themselves.

THE COCOA-NUT PALM-TREE.—When the Cin-galese villager has felled one of these trees after it has ceased bearing, (say in its seventieth year,) with its trunk he builds his hut, and his bullock stall, which he thatches with its leaves. His bolts and bars are slips of the bark; by which he also suspends the small shelf which holds his stock of home-made utensils and vessels. He fences his little plot of chillies, tobacco, and fine grain, with the leaf stalks. The infant is swung to sleep in a rude net of coil-string, made from the husk of the fruit; its meal of rice and scraped cocoa-nut is boiled over a fire of cocoa-nut shells, and husks, and is eaten off a dish formed of the plaited green leaves of the tree, with a spoon cut out of the nut-shell. When he goes a fishing by torch-light, his net is of cocoa-nut fibre; the torch or *chule* is a bundle of dried cocoa-nut leaves and flower stalks; the little canoe is a trunk of the cocoa palm-tree, hollowed by his own hands. He carries home his net and his string of fish on a yoke, or *pingo*, formed of a cocoa-nut stalk. When he is thirsty, he drinks of the fresh juice of the young nut; when he is hungry, he eats its soft kernel. If he has a mind to be merry, he sips a glass of arrack, distilled from the fermented juice of the palm, and dances to the music of rude cocoa-nut castanets; if he be weary, he quaffs toddy of the unfermented juice, and flavors his curry with vinegar made from this toddy. Should he be sick, his body will be rubbed with cocoa-nut oil; he sweetens his coffee with *jaggary*, or cocoa-nut sugar, and softens it with cocoa-nut milk; it is sipped by the light of a lamp, constructed from a cocoa-nut shell, and fed by cocoa-nut oil. His doors, his windows, his shelves, his chair, the water-gutter under the eaves, all are made from the wood of the tree. His spoons, his forks, his basins, his mugs, his salt-cellars, his jars, his child's money-box, are all constructed from the shell of the nut. Over his couch when born, and over his grave when buried, a bunch of cocoa-nut blossoms is hung to charm away evil spirits.—*Dicken's Household Words.*

ANECDOTE OF AN ELEPHANT.—An officer of the Bengal army had a favorite elephant, which was supplied daily in presence with a certain allowance of food, but being compelled to absent himself on a journey, the keeper of the beast diminished the ration of food, and the animal became daily thinner and weaker. When its master returned, the elephant exhibited the greatest signs of pleasure; the feeding time came, and the keeper laid before it the former full allowance of food, which it divided into two parts, consuming one immediately and leaving the other untouched. The officer, knowing the sagacity of his favorite, saw immediately the fraud that had been committed, and made the man confess his crime.

THE FARMERS' NOTE-BOOK.

Within the last quarter of a century, what has not Agriculture done among us? and how little has it merited—nay, how triumphantly has it falsified, the taunts of its selfish defamers! To speak of nothing else, what skill and what energy have been displayed in procuring for our poor soils the elements of fertility! They who ever talk of farmers ever sticking like limpets to the rock—ever clinging obstinately to old ways, old prejudices, while the world around them is hastening on faster and faster—talk so from very ignorance. They forget the many great changes in farming that this century has witnessed. They forget the revolution in agriculture that was necessary ere the very first step in manuring was generally accomplished—the planting of green crops, the buying of live stock, the building of sheds and courts and byres, and the subsequent thousand and one experiments in feeding. But as agriculture advanced, the difficulty increased. Each year brought new demands on behalf of the hard-tasked soil, and the manures of the farm-yard were soon found inadequate to meet them. Let us see what followed—it will show whether farmers be indeed the stand-still dunces which some men have not scrupled to call them.

First of all, bone-dust was found to be an excellent fertiliser; and forthwith bone-mills were erected, and the osseous gatherings of town and country were poured into them, in order to eke out the refuse of the byre. Nay, wide Europe was ransacked for this new and potent agent of fertility; the fields of the Continent were robbed of their long-buried stores to grow the grain of England. The scenes of unforbidden strife, where the grass still grew rank and long, were opened for the sake of their hidden treasures, and “a valley of dry bones” would then have been prized like a golden mine. Leipsic, Waterloo, and far Borondino; Eylau, Lutzen, and Friedland, and many another bloody field of fight, were thus ransacked; and not seldom did our wondering millers lift from amid the bone-heaps fragments of shivered swords and rusty breastplates.*

* England consumes more bones, for agricultural purposes, than all the rest of the world. As bones gathered for this purpose in Great Britain are free from police or excise inspection, we have no means of ascertaining the amount of the home supply; but the official value of those imported amounted, some twelve years ago, to £300,000 per annum, and the selling price to our farmers would probably be little under £400,000. Since then, the foreign supply has

But even the hundred battle-fields of Napoleon failed at length to yield an adequate supply. Bone-mills began to stand idle, and yet the ground clamored loudly for more. Farmers were puzzled what to do, but cast their eyes anxiously around to discover some other agent of fertility. And lo! it was found almost at the Antipodes—upon the lone islets of the Southern seas, amid the rainless region of Peru, and off the burning shores of Africa,—where countless flocks of sea-birds had for ages made their resting-place. The discovery was a godsend, and the news spread like wildfire. Ship after ship sailed for those far-off islets, and returned laden with guano, to add still further to the produce of our fields.†

Guano in turn grew scarce, yet the progressive movement went on. Town and country were ransacked at home, as eagerly as land and sea abroad; and soon a rich, though limited, mine of manure was discovered in the beds of coprolites, which pass like verdant zones across many parts of England. The farmer's eye first rested reflectively on the superior luxuriance of these bands, and, with the eagerness of the gold-seeker, he dug into their depths to lay bare the cause. In those depths he found strangely-formed nodules, the fossil-dung of enormous lizards or crocodiles which in primeval ages had roamed over the south-eastern parts of our island; and the value of the discovery became at once apparent when analysis proved these coprolites to contain a much larger quantity of phosphoric acid than the best bones.

Meanwhile Science was working away in her laboratory to assist the sturdy farmer in the field; and not a little was he benefited by her investigations. Nitrate of soda, sulphate of ammonia, and a dozen other chemical fertilisers, were thus added in his store. The fertilising property and rapid action of bones were greatly enhanced by dissolving, or rather digesting, them in diluted sulphuric acid.*

been decreasing; the bones imported in 1848 being worth, in bone-dust at 2s. 6d. per bushel, about £220,000.

† The imports of guano rose from 2000 tons in 1841, to 220,000 tons in 1845; but, since then, the paucity of the supply has caused the average annual importation to fall to about 90,000 tons. It will give some idea of the energy and enterprise of our farmers to state that, as the price of guano has ranged from £6 to £10 per ton, the money expended on the purchase of this manure alone amounted in 1845 to the enormous sum of a million and a half, sterling.

* It is worth while nothing here, that although, from the pasty state in which sulphuric acid leaves

Soot, the refuse of the manufactories of glue, soap, ga-, &c., were no longer wasted, but became of value to their owners, and still more to the farmers who bought them; while water-meadows, and the important science of Irrigation became studied and applied.

To crown all,—and as if the wealth and enterprise of England made her in truth the world's Queen, and supplied her necessities by tribute from every clime, last year an "animal manure" began to be forwarded to us from Buenos Ayres. The countless herds that overspread the Brazillian Pampas used formerly to be slaughtered solely for the sake of their hides. But time and experience teach wisdom: the tallow and the best part of the flesh are now saved for use, and the remaining mass of dry flesh and bones is being exported as a manure. This animal matter has been found, in theoretical value, to be "nearer to guano than to any other manure," and superior to it in regard to the gradual liberation of ammonia; and doubtless it may now be regarded as a standard auxiliary to the agriculture of our islands.

It was ordinary demand that produced so extraordinary a supply. It was no ordinary demand that brought guano from the isles of the far South—bones from every battle-field in Europe—animal manure from the Pampas of Brazil—that revealed the coprolites in their hidden beds—and that set the chemist devotedly prying into subjects and substances hitherto totally foreign to his researches. And it is at once cheering and instructive to mark the result—to see how, as one fertilising substance grew scarce, the skill of the agriculturist discovered new ones at hand, or how his energy and enterprise caused others to be brought too from afar. The same process is continuing, and we hope ever will continue; the same progressive demand is going on, and we hope it will ever meet with the same ready supply. But in order to insure this, knowledge and enterprise must progress in a like ratio; and ever more and more must Agriculture be aided by the counsels of Science. So that every man of science—he the chemist, mechanist, or physiologist—who

them, the bones must be mixed with some other substance (such as ashes or soil) before it is possible to apply them by either the hand or drill-machine; yet that unfortunately it is too often the case that some substance containing lime (such as chalk or gypsum) is used for this purpose, which—instead of leaving a mixture containing from twenty to thirty per cent of soluble phosphate of lime—at once restores the bones to their original insoluble condition.

brings his knowledge to the aid of the farmer, becomes at once to him an able coadjutor and special benefactor.

Foremost among such men we must at present reckon the talented Professor of Chemistry and Mineralogy in the University of Durham. By his admirable *Lectures* and other works, which have obtained for him a more than European reputation—as well as by his instruction analyses while chemist to our Chemistry Association, and by his general zeal for the improvement of agriculture, he has won for himself a name that will not soon be forgotten by the farmers of Great Britain. His recent work on North America—which, we may mention, is as valuable for its political and philosophic reflections as for its agricultural information—has given him a fresh title to our gratitude. For he has therein given to the public a carefully-written eye-witness account of the present state and future capabilities of our North American provinces—a thing now much needed; and so clear and so minute are his descriptions of the local features of these provinces, and of some portions of the States also, that an emigrant may almost fix, ere ever he leave our shores, on the very farm he purposes to take.

His volumes are so full of information interesting to agriculturists that it is impossible to do justice to them in a single notice: we shall, therefore, recur to the subject in a future number. Meanwhile let us open our present review by acknowledging a service he has done this country during his recent visit to America. We all know that good guano is exorbitant in price, which, like our other fertilisers, prevents it from satisfying the wants of the farmers, and that consequently they must soon be compelled either to treat their land less generously, or else discover, yet again, some additional fertiliser. Professor Johnston has done the latter. In the course of his travels, he observed many beds and rocks of gypsum and phosphate of lime; and he not only endeavored to instruct the Americans in the value of these rocks to their own agriculture, but suggested that they would find it profitable to export the latter of these substances to England. His advice has been acted upon; the first consignments have reached Liverpool; and thus a new and valuable supply of fertilising matter is being opened up to us. The quantity of phosphate of lime existing in the Northern provinces of America is still very imperfectly known; but from the synopsis of Professor Johnston's

observations on the *Lime-Rocks* of these regions, it will be seen to be considerable, and that investigation seems all that is required to reveal the precious mineral in great abundance.

WEALTH.—Nothing is more easy, says Mr. Spaulding, than to grow rich. It is only to hurt nobody, befriend no one, to heap interest, cent upon cent; to destroy all the finer feelings of nature, and be rendered mean, miserable, and be despised, for some twenty or thirty years, and riches will come as sure as disease, disappointment, and a miserable death.—*American Paper.*

THE HOUSEKEEPER.

Buttermilk.—It is not generally known that buttermilk can be used for many purposes in domestic affairs; and in consequence it is often thrown away or given to pigs. New buttermilk as a drink is cooling and moist, the best remedy for a hot thirsty stomach, good for hoarseness, excellent in consumptions and fevers, and also for constipation of the bowels. When stale and sour it may be used in combination with bi-carbonate of soda for the making of bread, pastry, &c. The bread, buns, and rolls made with it are excellent, keeping moist and good much longer than those made with yeast.

Tea Cakes.—Take of white flour, two pounds; bi-carbonate of soda, quarter of an ounce; sugar, two ounces; butter, two ounces; sour buttermilk, twenty ounces, or one pint. Rub the soda, sugar, and butter well into the flour, and mix with the buttermilk; roll out and make into cakes, of any convenient size, and bake in a moderate oven twenty minutes.

Luncheon Cake.—Take of white flour, one pound; bi-carbonate of soda, two drachms; sugar, three ounces; butter, three ounces; sour buttermilk, half-a-pint, or ten ounces. Mix as above, and bake in a quick oven, in a tin one hour.

Scotch Buns.—Take of white flour, two pounds; bi-carbonate of soda, two drachms; salt, quarter of an ounce; sour buttermilk, one pint or twenty ounces. Mix and bake the same as for tea-cakes.

Plum Cake.—Take of fine flour, one pound; bi-carbonate of soda, two drachms; currants, four ounces; eggs, two; sugar and butter, each three ounces; sour buttermilk, half-a-pint, or ten ounces. Mix the flour, soda, currants, sugar and butter well together, then beat up the eggs and mix with the buttermilk. Mix the whole together and bake in a tin one hour and a quarter.

Pastry for Tarts, &c.—Take of fine flour, one pound; bi-carbonate of soda, two drachms; butter, six ounces; buttermilk enough to bring it to the consistence required. This paste is much superior to that made in the common way.

To Cure Hams.—The following method of curing hams has been found most successful. The flavour is delicious and the meat tender and juicy. With six ounces of saltpetre rub

over the ham or hams, and so let them remain twenty-four hours. Then boil two quarts of strong old beer with one pound of brown sugar, half a pound of bay salt, and two pounds common salt. Pour this boiling hot over the hams. Turn them every day for a fortnight, after which smoke or dry in the usual way. The above is sufficient for forty pounds of meat, and may be used again if boiled up with a little fresh salt, and a little more beer.

Another Way.—(The quantity given is sufficient for from twenty-five to thirty pounds of meat.) Bay salt, one pound, common salt, one pound and-a-half, saltpetre, two ounces, black pepper, two ounces. All to be finely powdered, well mixed, and made thoroughly hot. With this mixture rub the hams over, taking care that every part is touched. So let them lie four days, turning daily, and rubbing till the whole of the ingredients have run to brine, then it is to be poured over each. After four days, pour over one pound and-a-half of treacle. Turn and rub twice a-week for a month, lading up the pickle and pouring it over; after this, lay them in cold water for a night. Afterwards hang them in a chimney, where a wood-fire is constantly kept. When the hams are to be dressed, put them into cold water over the fire; but do not soak them. Where sea-weeds are accessible, bacon and hams hung over the smoke of dried sea-weeds, acquire a rich and delicious flavor.

Fresh hay is very useful in preserving salted meat from rust. A hay-band may be twisted round each article, and the bacon fitches or other articles, be laid in a box on a bedding of fresh hay. A layer of hay also above each layer of meat, and one at top of all. Close tightly and keep in a dry warm place.

(For the Agricultural Journal.)

METEOROLOGICAL RESULTS FOR OCTOBER AND NOVEMBER, 1851, MADE AT ST. MARTIN ISLE JESUS. LAT. 45°32, N. LONG. 73°36 W.

(By CHARLES SMALLWOOD, M. D.)

OCTOBER.

Barometer.

	Inches.
Corrected and reduced to 32°.....F	
Highest reading the 17th day.....	29.954
Lowest do. do. 13th day.....	29.151
Monthly mean.....	29.608
Monthly range.....	0.803

Thermometer. (Dry Bulb.)

Highest reading the 10th day.....	78°5F
Lowest do. do. 28th do.....	25°5
Monthly mean.....	47°02
Monthly range.....	53°0
Mean Temperature of the Dew Point.....	45°22
Mean Temperature of Evaporation.....	41°96
Amount of Rain, in inches.....	49 15
Amount of Snow, (equal to 0.400 inches of Rain, nearly) in inches.....	3.950
Amount of Evaporation, in inches.....	1.470
Most prevalent wind.....	W
Least do. do.....	W. by N.

Most windy day the 23rd day, mean miles per hour, 10.70.
 Least do. do. do. 17th do. do. do. do. 0.01
 Rain fell on 11 days, accompanied with thunder on one day.
 Snow fell on 1 day.

NOVEMBER.

Barometer.

	Inches.
Mean reading of the Barometer corrected and reduced to 32°	F. 29.287
Highest, do., do.....	30.323
Lowest, do., do.....	29.030
Monthly mean.....	1.293

Thermometer.

Mean reading of the standard Thermometer, F.	28° 40
Highest reading of the maximum do.	45° 00
Lowest reading of the minimum do.	3° 00
Monthly mean.....	42° 00
Mean of Evaporation.....	27° 29
Mean of Dew Point.....	24° 00
Amount of Rain, in inches.....	0.346
Amount of Snow, do.	18.850
Rain fell on 2 days.	
Snow fell on 8 days.	
Most prevalent wind.....	W.
Least do. do.....	E.
Most windy day the 5th day, mean miles per hour	10.46.
Least windy day the 27th day, inappreciable.	
St. Martin, Nov. 1, 1851.	

LOWER CANADA AGRICULTURAL SOCIETY,

Office and Library at No. 25 Notre Dame Street,
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Over the seed-store of Mr. George Sheppard, the seedsmen of this Society,

THE Secretary and Treasurer of the Society is in attendance daily, from ten to one o'clock.

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All communication in reference to the Agricultural Journals from the first of January, instant, to be addressed post-paid to Wm. Evans, Esq., Secretary of the L. C. A. S. and Editor of the Agricultural Journals.

Members of the Lower Canada Agricultural Society are respectfully requested to pay up their annual subscriptions immediately.

WM. EVANS,

Secretary and Treasurer, L. C. A. S.

1st January, 1852.

Copies of Evans' Treatise on Agriculture, and the supplementary volumes both in English and French to be had at the office of the Society with complete files of the Lower Canada Agricultural Journal for the years 1844, 1845 and 1846.

MATTHEW MOODY,

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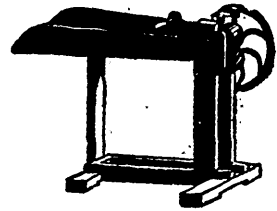
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