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THE

CANADIAN AGRICULTURIST,

AND

Transactions

OF THE

BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. V. TORONTO, DECEMBER, 1853. NO. 12

MEETING OF THE BOARD OF AGRICULTURE.

The Board met at their rooms in this city, on Wednesday and Thursday, Nov. 9th and 10th. In consequence of the rough state of the weather there were only five members present on the first day, viz: Wm. Matthie, Esq., President of the Provincial Association; R. L. Denison, Esq., Treasurer; Hon. Adam Fergusson; John Harland, Esq., and Professor Buckland, Secretary. The President of the Board, E. W. Thomson, Esq., being from home, was prevented from attending the first day. He was present on the second day, together with J. B. Marks, Esq., and David Christie, Esq., M.P.P.

The following is an epitome of the proceedings. The minutes of the previous meeting having been read and confirmed, the Secretary read a letter from Mr. Sheriff Treadwell of L'Original, referring to several suggestions relative to the management of the Annual Exhibition, which with a number of others were subsequently considered. Mr. Treadwell will enter upon his duties as President of the Provincial Association on the 1st of January next. The Secretary had received a letter on the second day, from the only absent member of the Board, Mr. Sheriff Ruttan, who was necessarily engaged on business in the United States.—A considerable portion of the time of the Board during the first day was taken up in the consideration and adjustment of matters of detail, arising out of the recent Provincial Exhibition, which need not be here enumerated.

The subject of having Canada fully and creitably represented in the Grand Crystal Palace, now in course of erection at Sydenham, near London, received due attention. Grains, grasses, woods, and raw productions generally, from the Colonies, will be arranged, exhibited, and taken care of, free of any charge in the above institution.—Professor John Wilson, one of the British Commissioners to the New York Worlds Exhibition, had explained the objects and regulations of the Sydenham Crystal Palace, to the members of the Board, at the late show in Hamilton. Mr. Wilson has been appointed to the Superintendance of the Agricultural and raw produce Department of the Colonies. The following resolution relative to this subject was agreed to:—

That the Board feel strongly impressed with the high importance of Professor Wilson's suggestions in regard to securing a proper and effective Exhibition, at the Sydenham Palace, of the natural productions of Canada; and consider the subject to be one which claims the best attention of the Bureau of Agriculture, and of the immediate action of the Minister of Agriculture. The Board beg leave to assure the Bureau that they are prepared to give immediate attention to any measure which shall be considered the most practical and likely to secure a fit and proper position for Canada, in the general emporium of art and industry, now preparing at Sydenham.

The Secretary was instructed to communicate at once with the Minister of Agriculture, the Board of Agriculture for Lower Canada, and with Professor Wilson, with a view to the speedy accomplishment of this object.

The Secretary read a letter of much interest and importance from Mr. Archd. M. Kellar of Chatham, on the desireableness of forming a joint

stock company, on an extensive scale, for importing improved breeds of Cattle. The Board after considering Mr. M. Kellar's proposition, t' ought it would be premature to take any decided action thereon at present; but instructed the Secretary to thank that gentleman for his communication, and to insert it along with the usual proceedings, in the *Agriculturist*, for the purpose of drawing the attention of Societies and enterprising individuals to the subject, who are requested to favor the Board with their views and wishes.

CHATHAM, 4th Oct., 1853.

To George Buckland, Esq., Secretary Board of Agriculture, Toronto.

SIR,—Having had the honor of being one of your associates as judge of Short-horn Durham cattle, at the Provincial Exhibition at Cobourg, I take the liberty of addressing you and submitting to your consideration a scheme for the importation of Durham cattle from England to this Province, which, I think, if carried into effect would prove beneficial to the agriculturists of Canada individually and collectively. At present the few Durham cattle in the country have been imported at a heavy expense by a few enterprising individuals, and they must sell for large prices or lose by their cattle,—consequently there are hundreds in the Province who would become distinguished breeders, if the animals could be got near themselves at what might be termed a moderate price, who are unable to bear the expense of importation for themselves, or paying the prices now demanded.

To obviate this difficulty, I would suggest that a Joint Stock Importation Society be organized, composed of the Board of Agriculture and such of the County Societies as wish to become stockholders. Let the Board of Directors of this Association be composed of two or more of the members of the Board of Agriculture, and the President of each County Society. Thus organized we shall suppose that the Board of Agriculture would appropriate at least £1000, and we might safely calculate upon £100 from each of the forty counties in Canada West, making a sum of £4000 from counties, in all £5000 as the capital of the Association. These funds should then be given to two respectable gentlemen who are good judges of stock, who would proceed to England and invest the whole in the purchase of Durham cattle: they could also charter a vessel and fit her up comfortably for carrying the stock, which would add greatly to their safety, compared to the manner in which private individuals have to ship stock. Immediately after their arrival (say at Toronto) they should be sold by auction, *confining sales to the representatives of the various Societies who had contributed to the fund*;—unless this precaution was used parties from the United States and Canada, who had not contributed directly or indirectly to aid the Association, might step in and reap all the advantages of the undertaking by purchasing the stock and taking them out of the country.

The sum which I have set down (£5000) is much smaller than might be got from the sources referred to—a little exertion on the part of a few enterprising, active men, would raise £10,000 instead of £5000, which would be all the better for the Association, as £10,000 worth would be attended with very little more expense than £5000 worth. I have no doubt the undertaking would be profitable to the stockholders, but that should be a secondary consideration, for the indirect advantages of getting good stock into the country would much more than pay for the loss of a few dollars on the money advanced. If the receipts of the sale would more than cover costs and charges, the surplus could be divided in proportion to the stock held by each Society. Or if the sales should not cover the cost, the deficiency could be made up without being felt by any one of the stockholders.

In addition to the few reasons I have given above, I would further state, that Canada is no longer a poor and dependant Colony, but is fast emerging from her obscure and humble position, to rank among the most enlightened and enterprising nations of the earth. Already has she become a formidable rival to our enterprising neighbors,—in education, commerce, manufactures and agriculture, we are fast treading on their heels; we must not flag in our exertions, but work unitedly and energetically in developing the vast resources of our noble Province, let us not rest satisfied with being a rival to the neighboring Republic, let us aim at being her equal and, if possible, her superior. She has for many years enjoyed the patronage of our people, purchasing stock, implements and goods which should be got at home; vast sums of money have thus been transferred from Canada to the States. Everything must be done to enable our farmers, above all others, to get implements, stock, or anything they need, at home, without the trouble and expense of going across the lines for them. And as stock is now in good demand and will pay the breeder to rear them for sale, they should be put within his reach. The Americans have made large importations of fine stock from England lately, and unless we do something in the way of importation also, our breeders must of necessity go to Ohio or some other State and purchase.

Should the Board deem my suggestion worthy of consideration, and think of carrying it into practice, they may rely on my co-operation in doing anything I can to assist them.

I am respectfully yours truly,

ARCHIBALD M. KELLAR.

The expense and risk of importing live stock from the mother country having been considered, and the best means of mitigating the same, it was

Resolved,—That it be suggested to the Bureau of Agriculture, the desirableness and importance making arrangements with the Canadian Ocean of Steam Navigation Company for a fair rate of charges on the importation of Stock, Implements and Seeds for the use of Agriculturists in Canada.

The Secretary read a letter from Mr. Charrock, recently from England, and now residing

in Hamilton, on the subject of a draining pipe Machine, for which a liberal prize had been published in the last Premium list. The Board was glad to hear that Mr. Charrock will have such a machine in operation, as soon as he can secure his patent.

In order to strengthen the bond of union between the Board and the various Agricultural Societies in Upper Canada, it was

Resolved,—That it is expedient to instruct Professor Buckland, to make, at such periods of the year when he is disengaged from his duties in University College, a tour among the Agricultural Societies of Upper Canada in such manner as the Board may direct.

The design of such tours is to bring the proceedings and objects of the Board, more specially under the notice of Societies and the public; to facilitate intercommunication; and generally to spread information upon Agricultural subjects by lectures, addresses, or such other mode as may suggest itself to the Secretary.

A communication had been received from the Patent Office at Washington, accompanied by two volumes of Reports, and generously offering to furnish the Board with specimens of native and foreign seeds, &c., on the condition that the overture be reciprocated. It was considered that such a proposal might be made highly advantageous to the Experimental Farm, and otherwise promote the Agricultural interests of the country generally: whereupon it was

Resolved,—That the thanks of the Board be communicated to Thos. Ewbank, Esq., of the United States Patent Office Department, for a copy of their report, and for their liberal offer in regard to seeds, plants, &c., which this Board gratefully accepts and will study to reciprocate.

In order to avoid the inconvenience of having more than one Prize report for the same county, it was

Resolved,—That the sum of £15 be given to the writer of the best Agricultural report, on each of the following counties; viz., CARLETON, WELLAND and PRINCE EDWARD; such reports to be sent in, addressed to the Secretary of the Board of Agriculture, on, or before *June the First*, 1854. That in case the best report should be written by the Secretary of the County Society, with a view to encourage so useful and important an officer the prize shall be £20.

The Board is of opinion that it is highly desirable that these prizes be continued, till reports have been prepared and published, on all the settled counties of this section of the Province; and that three or four counties should be selected for such purpose each year, till the whole be completed.

Mr. Matthie expressed a desire that the balance of £6 10s. remaining unappropriated in the hands of the Treasurer from his donation of £50, for extra prizes at the last exhibition, should be given to the Student in the Agricultural Class of University College, who may pass the best examination at the close of the course.

The President was instructed to communicate with the Minister of Agriculture, in order that final arrangements be made as speedily as possible, with regard to the Experimental farm.

After passing votes of thanks to G. P. Ridout Esq., M.P.P., for his services as one of the Auditors of the accounts, to the President, Secretary, and Treasurer, and Baron de Longueuil the Board rose.

PREMIUMS FOR AGRICULTURAL REPORTS.

In order to obviate the difficulties incidental to the conditions on which these premiums have been previously offered, the Board have determined to announce each year the names of those counties for which reports are solicited.

A premium of the value of £15, will be given to the best Report, on each of the following counties:—Carleton, Welland, and Prince Edward. If such report be written by the Secretary of the County Society of which it treats, the amount of the premiums will be £20. This difference is made simply with a view to call out and encourage that useful and important class of officers.

These Reports, in addition to the usual information required respecting the condition of Agricultural Societies within their range, should describe the various soils of the county; modes of Farming; value of land; amount of tillage and average of crops; breeds of live stock; implements and machines in use; methods of preserving and applying manures; sketch of past progress, with suggestions for further improvement. The manufacturing and commercial condition and capabilities of the county should likewise be stated, together with any other facts that would illustrate its past history or present condition.

All statistical information should be condensed as much as possible, and when practicable, put into a tabulated form. The main object of each report should be to afford any intelligent stranger that might read it, a concise, yet an adequately truthful view of the Agricultural condition and industrial pursuits of the county. While all unnecessary particulars are to be avoided in the preparation of these reports, completeness should as much as possible, be constantly kept in view. Such reports as contain the greatest amount of useful matter, will be preferred; and it is recommended that they be made sufficiently comprehensive, so as to occupy 20 or 30 printed octavo pages. The Board will not award the premium for any reprint, although it may happen to be the best sent in, unless it possess sufficient merit.

The Reports must be sent in to the Secretary of the Board of Agriculture, accompanied by a sealed note containing the name and address of he writ on or before the 1st of June, 1854; Such reports as obtain premiums will become the property of the Board.

TOWNSHIP OF HAMILTON FARMERS' CLUB.

CONSTRUCTION OF FENCES.

(Reported for the Cobourg Star.)

At the monthly meeting of the Township of Hamilton Farmers' Club, held at Dickson's Inn Court House, on Saturday, October 29th, 1853 P. R. Wright, Esq., President, in the chair.

Present—Messrs. Bourn, Newton, Masson, Bennett, Black, &c., &c., &c.

The minutes of last meeting were read. Mr. Wade introduced the subject for discussion, viz., the construction of fences, as follows:

MR. PRESIDENT AND GENTLEMEN,—

FENCING, although it may not occupy so prominent a position in the economy of farm management as many other operations, yet still must be considered of no secondary importance; for, without proper protection in this way, all other labors of the farm, no matter how skilfully or scientifically performed, are placed in constant jeopardy. And in no country in the Agricultural world are good fences required more than with us, from the great amount of our lands being still woods, or partially cleared and still in common, and also the great amount of road allowances set apart in our Township surveys, and which are in themselves a public convenience, yet, combined with all the other unfenced lands I have mentioned before, encourage our inhabitants generally to turn out a great proportion of their animals of all descriptions outside of their enclosures; consequently our fences must be of such a character as to stop a hunter from jumping, a bull or an ox from throwing down, or a pig from squeezing through; and our common rail fences seem made on purpose to encourage these depredations. As our horses are taught from infancy to leap after their mothers two or three rails high, and often five or six, and if they try higher, and should still hang on the fence, they find it will yield to their weight; our bulls and oxen soon find their horns effective enough to throw the fence so low as to make it quite easy to get over; and the porkers, if of the weasel-shaped variety we commonly see grubbing on our road sides, find very little difficulty in squeezing themselves through between; or if they cannot manage that, they have ingenuity enough to burst out a broken or rotten rail, in order to make their way into our fields quite easy; and for some generations to come, maugre all our Township By-laws for the punishment of trespassers, good substantial fences must be our only safeguard.

The common zig-zag rail fence has been and will still continue to be, in spite of its unsightly appearance, while rail timber is to be got, our mainstay; and nothing but its expensiveness, when the rail timber or such timber as can be split is entirely exhausted on our own farms, and cannot be purchased under a certain price, within a given distance, will cause it to be superseded by something else: and on the front farms of our Township that time has already arrived. Split rails of cedar or pine or oak cannot be purchased for less than twenty-five dollars per thousand in the woods, and then probably to be drawn seven or eight miles, and when this is the case a rail fence costs as much or more than when made of boards or sawed materials.

Board or any description of straight fences, made by placing posts in the ground, are, in our frozen climate, subject to be hoven or raised out of the ground, and this has been hitherto a very serious obstacle to their more general introduction; however, this may be in a great measure obviated by raising a bank of earth at the bottom of the fence, say eighteen inches or two feet high, and which not only prevents the heaving, but also saves the lower board or rail, as well as making a gutter or water-course to lead off the surplus water that may collect on the field. I have myself tried this plan for several years with the greatest success, and many of my neighbors are following the example. The principle, in a philosophic point of view, is a true one, as the lifting of a post is simply done by the expansion of the ground by the post, and that in degree as it is wet or dry. If, for instance, the ground was entirely dry, no expansion could take place; but if wet at all, the expansion is in proportion to the amount of water the ground contains; consequently, by raising a dry bank at the foot of the post, even in rather low ground, when a post would in four or five years, in the ordinary way, be entirely thrown out, with this embankment it stands very well. This system of embankment is however attended with disadvantage on the road sides, from its liability to be rooted down by the hogs, which are always running on the roads; and while speaking on the subject, I must record my disapprobation of the common practice of

turning them out at all, and in fact it amounts to a species of dishonesty, for the owners must be well aware that they can get nothing or next to nothing there, and if they live at all it must be by trespassing on their neighbors; and there is probably nothing that tends more to keep up the too often hard feelings in a rural neighborhood than these petty trespasses. For instance, you may have a little cherished spot of green sward outside of your entrance gate, and which nearly always springs earlier than anything within your enclosure; and some fine spring morning, when you go to look, you expect on your return to have it gladden your eyes, when lo! instead of that, you find that a careless neighbor's hog has turned it upside down; and when you have been at the trouble to get all your own pockets supplied with those jewels, to see fifteen or twenty of your neighbors' hogs digging away with all their might in your meadow, mingle all your philanthropy, you cannot help but feel something that from choice you would rather not.

I myself introduce a sort of post and pole fence some five or six years ago, and which has already been copied from, to a considerable extent, and which makes a very neat as well as substantial fence—it is made by boring three inch holes through the post, and fitting the poles into them; it has the advantage of the labor of boring and turning the ends of the pole, being done by machinery, thereby saving a great deal of hand labor, which usually makes such fences expensive. But, as both round cedar posts and poles, are, as well as rails, getting scarce, I have been led to think on something as a substitute; and, as I had already got the boring and turning machine, I thought it possible to apply them to sawed materials; and, knowing well that we had a very great amount of durable timber, which could not be used for fencing in the ordinary way by splitting or being sawed into boards, such as oak, ash, birch, elm, or even maple and beech; I thought it might be sawed into a shape that would not only give it durability but strength. The common way of board fence requires nails, and if sawed into flat rails, has to be morticed into the posts, which requires so much hand labor as to make it too expensive. My plan is to saw the timber into scantling of a diamond shape, making it five inches the broadest way and three inches the other; placing the acute angle upwards, thereby putting it in the best shape for throwing off the water, rendering it next to imperishable from rot and at the same time making it sufficiently strong to resist violence both perpendicularly and laterally; the posts can be either round or square, and bored by an augur driven by power, and the rails can be cut to fit at each end, also by power, and by this means hand labor is almost done away with; and, it at the same time not only makes the most substantial fence I have yet seen, but one that pleases the eye; and what, I would ask, adds more to the beauty of the landscape than neat pretty fences? and what is more unpleasing to the eye of the old countryman, on his first arrival in our continent, than our hideous looking zigzag fences; and I know from my own feelings, after living here more than thirty years, that their appearance does not mend by time; as all who have seen the green lanes of England, and the beautiful hawthorn hedges in full bloom can abundantly testify. However, I most seriously consider after all our endeavors to make the natural timber of the country spin out as far as we can, that live fences must be our ultimatum. It will not probably be much attempted in our generation, but our successors will have to submit to the stern necessity, except where abundance of stone is found; and when we know so well that hedges are the principal fences in Britain, and have been for centuries, why should they not be here?—They not only make a permanent fence, but they afford protection to the fields they enclose, during our inclement winters not only by keeping the snow from blowing off the ground, but affording shelter in other ways. I have tried the English hawthorn to some extent, with moderate success, having half a mile on my own farm, and which will in two or three years be a good hedge. The English thorn not being a native of our country is subject to a great many disadvantages in the way of insects, the Aphis or plant louse being very destructive: the Slug also which has been so destructive to our Cherry and Pear trees, is equally injurious to the hawthorn; the field Mouse, in hard winters, destroy them by eating the bark; and I have now come to the conclusion when I try again, to get something indigenous or a native of our continent. There is a plant called Buckthorn, a native of the northern part of this continent, and which I think from what I have seen of it, more adapted for us than the English thorn—it is a thorny plant, and grows very thick with trimming, its appearance is more like what is called the Black thorn in England than any thing else I have seen. Another plant is used in the Midland States, called the Osage Orange, but is too delicate for our climate. The Basket Willow grows well on low lands, and can be made a first-rate fence by management; and where the ground is too wet for posts to stand, or other kinds of hedging plants to grow, it will flourish exceedingly well; and now, Mr. Chairman, having exhausted the subject, so far as my own limited knowledge of it extends, I give way to the other members of the club to state theirs.

Mr. Boran said, as regards Fencing he could say little, as he was obliged to be content with the common zigzag fence at present; he thought a stone fence the best where it could be had.

Mr. Masson said, he thought that Mr. Wade's plan would answer very well, as it could be made out of common timber; he was afraid that if the posts were made of hard wood they would rot soon. (Mr. Wade here stated, that good white oak posts would last nearly as long as cedar.) He (Mr. Masson) thought that the greater draw back to the board fences with a ditch on both sides was, that they took up too much ground, especially on dry land, which did not require ditches to carry off the water.

Mr. Black said, he had little experience in fences in this country; he thought Mr. Wade's plan much superior to the common zigzag fence; as it would neither take up so much ground nor be such a harbor for weeds as the common kind;

but, he would rather see good hedges than any kind of board fence; he thought that hedges would answer very well here, both for the ditches to carry off the water and the hedges for shelter to the fields; he thought that it would greatly improve our climate if all our fields were enclosed with good thorn hedges, and from what he had seen in the neighborhood he did not think it would cost much to raise hedges here.

A vote of thanks was given to Mr. J. Wade for his essay.

The next meeting of the Club was appointed to be held at Dickson's Inn, Court House, on the last Saturday of November, at 2 oclock.

W. RIDDELL, *Secretary.*

GUELPH FARMERS' CLUB.

SHEEP HUSBANDRY.

The monthly meeting of this institution took place at the British Hotel on Friday last, Colonel Saunders in the chair, when Lazarus Parkinson, Esquire, delivered the following address:—

MR. PRESIDENT AND GENTLEMEN,—In accordance with previous arrangements, we have met for the purpose of investigating and discussing the following subjects:—First, which is the best breed of Sheep adapted for this locality. Second, the most advantageous mode of wintering them. Seeing that it has devolved upon me to introduce the propositions intended to be considered on the present occasion, permit me to request you to keep before your minds a clear and definite apprehension of the questions before us.

Before I can rationally answer the first question, it will be necessary for me to state a few of the reasons on which my answer rests, or briefly to refer to the premises upon which my conclusions are based. The nature of the proposition before us shows that it is an admitted fact that no breed of sheep can be found that will prove themselves to be more profitable than any other under all circumstances, and on all soils, and in all the varied climates of the earth. We must therefore take into consideration the nature of our soil and climate—our present and prospective markets. Our soil, then, is of that description which renders it well adapted for a mixed system of husbandry; and that is the system which in the long run will prove the most profitable to us as farmers. When properly cultivated it will produce good crops of all the varieties of grain generally raised on the farm. It is also well adapted for the growing of roots, and when seeded down for the purpose of mowing or pasturing, it yields a good supply of clover and other nutritive grasses. This section of the country is generally well supplied with good water, which is very necessary for all kinds of stock—sheep not excepted,—for it contributes much to their health, and consequent thriftiness. From the facts before us, and with which you are all familiar, we come to the obvious conclusion, that the nature and quality of our soil evidently mark it out as being well qualified for the purpose of sustaining and bringing to maturity any variety of what is termed the large or long-wooled breeds of sheep.

With regard to our climate, it appears to agree well with the sheep: they are generally healthy, and are not subject to many of the diseases to *which they are liable in Britain, the only serious* drawback being the length of the winters; and this we must take into consideration, in order to arrive at a correct conclusion in relation to the subject under consideration. The profitable sheep for us, then, should possess sufficient hardiness of constitution and a good covering of wool to enable them to stand the severity of our winters, combined with *early maturity* and *aptitude* to fatten. In relation to our markets, I think we may safely say that the demand is fully equal to the supply, and that the present prices are remunerative; and there is every probability of their continuing to be so at least for some time to come. For I have no idea that the vegetarian notions of our republican neighbors will ever prevail in Canada to such an extent as materially to affect the demand for good beef and mutton. We generally have a good demand for early mutton. Sheep that are fit for the butcher in the months of May and June command the best prices. From the nature of our soil and climate, the present and prospective state of our markets, we come to the conclusion that the Leicester variety is the most profitable kind of sheep for us to breed. For in no other breed of sheep will be found in such perfection those qualities inseparably connected with the profitable sheep for us, namely, early maturity and facility to fatten. When kept thro' the winter in good store condition, they will be ready for the butcher by the latter end of May, or during the month of June, when the farmer will find ready sale for them at remunerative prices; and the additional advantage of having his pasture left clear for the benefit of his other stock. This variety has become so celebrated for their good qualities that many are called Leicesters that do not possess those qualities that would entitle them to the name.

In order that we may have a clear conception of the form and qualities that characterise the Bakewell or true Leicester breed, allow me to lay before you a description of them as given by that noted English writer on domestic animals, William Youatt. He says, "The head should be hornless; the eyes prominent, but with a quiet expression; the ears thin, long, and directed backwards; the neck full and broad at its base, and gradually tapering to the head; the breast broad and full; the shoulders broad and round; the arm fleshy through its whole extent, even to the knee; the bones of the leg small, standing wide apart—no looseness of skin about them, and comparatively bare of wool. The quarters long and full; the pelt moderately thin, but soft and elastic, and covered with a good quantity of white wool, not so long as in some breeds, but considerably finer." In speaking of their good qualities and their adaptation to certain soils, in the same work from which I have already quoted, he also says, "No other sort of sheep is fit for the butcher at so early an age; and although they are not calculated for the poorest soils, where the herbage is so scanty that the sheep must walk over a good deal of ground for the purpose of procuring its food, no other sort of sheep in soils of a moderate or superior quality, is so profitable to the breeder."

Considering it merely my duty to introduce the subject, I shall now leave to the meeting its further discussion.

The second subject for our discussion is, which is the best and most economical mode of wintering Sheep.

In relation to this subject, permit me to say, that I cannot speak with much assurance on account of not having practically tested the merit of any great variety of ways of accomplishing this desirable object. Still, there are some things connected with the subject before us, in regard to which we feel prepared to offer a few thoughts, which may not altogether be unprofitable, and I shall feel much gratified if the present discussion should have the tendency in any degree to lead some of the owners of those innocent and highly useful animals, to provide better shelter for them, and also to see that they are regularly and properly fed during the winter. For the way they are by some of our farmers left exposed to the cold piercing winds of winter, without shelter, and their feed thrown down under their feet, is a sad comment upon the intelligence and humanity of their owners. No plan that can be adopted for the purpose of wintering sheep will be found universally applicable, but must necessarily be local or sectional in its practical application; being dependant on the nature of the climate, and the capabilities of the soil, for the production of certain kinds of crops; and also upon the rotation or system which the farmer may adopt (all things considered) as being the best under the circumstances in which he is placed. Considering the length and severity of our Canadian winters, I think we may confidently affirm that, in order to winter sheep profitably it is absolutely necessary to provide comfortable sheds for them, and racks, and trough, for the reception of their food, constructed in such a manner that they may consume their allotted portion without wasting it, and with due regard to the keeping of their wool as clean as possible.

I shall now briefly lay before you the manner in which I have wintered my sheep for the last few years, and which has answered pretty well. In the beginning of winter I commence feeding them with pea straw. As the sheep will only eat a portion of it, I give it to them in larger quantities than if they were fed on good hay. I have my racks cleared of those portions of the straw which is left, after they have picked through it, once a day. When my pea straw has been good, it has been their principal food as long as it lasted. I say principal, because they also have had an occasional feed of hay. But when the straw has been injured by the weather, hay once a day in addition, and I would approve also of adding a few cut turnips. I would here state, that when breeding ewes are brought in to their winter quarters, in proper condition, it is not advisable to over feed them with turnips, or grain, or anything else, that will cause them to become over fat; for such a state is unfavorable to the production of strong, healthy lambs. When my supply of pea straw becomes exhausted, I then feed them with clover hay. As to quantity, as much as they will eat without wasting it. In order to prepare the ewes for the lambing season, I have begun some time in February to give them turnips once a day, then as they become heavier with lamb, say about the first of March, twice, moderately, until they have lambed.—After that, as many good cut turnips, as much good hay as they will eat until the grass comes. By following this plan, my ewes have had a better supply of milk, and the lambs have done better than they used to do when I was in the habit of feeding them after lambing, with scalded bran, chop-stuff, or boiled oats. When they will eat the hay and turnips no longer, and the fresh and tender grass becomes abundant, to prevent it from scouring them too much, I consider it a good plan to give them about a pint of oats, each, for about a week or ten days.

Having, in my imperfect way, briefly introduced the subject, without enlarging upon it, I shall now be happy to hear others, that I may benefit by their experience.

Mr. Harland coincided in the statements made by Mr. Parkinson, remarking on the propriety of giving succulent food to the sheep in Spring till the grass was well up. The great object of the farmer was to raise the breed that would suit the climate and produce both wool and mutton. He was persuaded that, in the present condition of the Province, the Leicesters would give nearly double the average return of any other breed, and were consequently the best adapted for the locality. It was all very well for the wool-buyers to cry out for *fine* wool, while they would scarce give a penny a pound more for it.

Mr. John Card was of opinion that the cross from the Leicester ram and the Southdown ewe came sooner to maturity, and was easier kept than the pure Leicesters. He was sorry the Agricultural Society had thrown the Southdowns overboard.

Mr. Harland said the Southdowns were no doubt well adapted for their native climate, and the short mossy pasture produced in some districts of England; but here, where we had no short downs, but long rank herbage affording a full bite, the case was different, and the full-wooled Leicesters were the best stock.

Mr. Card said that lambs from the cross he had mentioned were ready to kill off sooner and of greater weight than the Leicesters of the same age

Mr. Harland said that in order to keep up such a breed, it would be necessary to import Southdown rams continuously. Would it be advisable to do so, merely for the purpose of procuring early lambs for the butcher?

Mr. Wright thought Mr. Card's object—to procure good lambs for the butcher—might be obtained, if, in addition to good Southdown rams, there were plenty of pure Leicester ewes in stock, but forty-nine out of fifty farmers had only grades, common Canadian Sheep improved by crossing with Leicester rams. There were several points in connection with the subject which had not been noticed, which he would wish to hear discussed now, or which might form subject matter for another meeting, namely, What was the best time for having lambs dropped; whether early or late ones were most profitable; the best sort of food; and whether it were better to keep salt continually by the sheep,

or give it once or twice a week. He could wish to hear more discussion on wintering and general management.

Mr. PARKINSON said, if he understood Mr. Card aright, his object in keeping up two pure breeds was merely to obtain good lambs for the butcher. Such an object could be quite as well accomplished at less cost. The Leicester ewe was not a very good milker, but the common Canadian ewes were both good milkers and good nurses, and by putting these to Leicester rams, early and excellent lambs could be procured.

Mr. Harland considered the Leicesters the best breed for the country, and would have none other.

Mr. Parkinson had no desire for such crosses, none certainly for such a purpose—breeding lambs for the butcher. He could make five-fold more by bringing his lambs to maturity than by killing them. What he meant by maturity was, the full growth and fatness of the animal at the earliest possible age. Sheep, fit for the butcher when ready to shear, would command a good price.

Mr. Harland enquired what wool and weight were obtainable on an average from sheep 15 months old.

Mr. Parkinson said his shearings averaged 6 lbs of wool each, several had given 6¾ to 7¾. As to weight, he could not speak so definitely, having generally saved his best male lambs or rams; the few wethers he raised were not a fair average. He had now two pair of shearling twin wethers, which he believed would average 30lbs. a quarter. His ewes generally drop their lambs from the 20th to the 25th of March, so that these shearlings would be some nineteen months old. They had received a little extra feed during winter, a few turnips and a little hay daily, in addition to pea straw, and they had been shut up since the recent snow came on.

Mr. Harland said he would ask if any other breed would give such weight at the same age?

Mr. Card said his object was to produce early lambs, that could be well fattened and got off before winter. Last year he put his ewes to a Leicester ram; he had killed lambs of different breeds, and he found he had 3lbs. a quarter more from a Southdown and Leicester cross than from pure Leicesters. Two lambs of the former sort, at four and a half months old, averaged 13lbs to the quarter.

Mr. Parkinson could not say what his lambs would weigh at four months, as he never dreamt of killing at such an age. He remembered killing a lamb he did not think worth raising when six months old; it weighed 16 to 17lbs a quarter. As to salt, he did not think it beneficial to give it to them more than twice a week in summer, and perhaps once in winter. When left without salt for any considerable period, the sheep would have a strong desire for it, and it would be injudicious to put large quantities before them at irregular periods, when the younger animals, more especially, by eating too much, would be injured by scouring. Then, as to the best season for having the lambs dropt, he had no difficulty in raising lambs before the grass, by giving plenty of turnips. When formerly the ewes had twins, and were without succulent food, they generally lost one of each pair for want of milk. In 1852, he raised 33 lambs from 26 ewes, and in 1853, 32 lambs from 25 ewes. He thought the 20th of March was a very good season for lambs to be dropt; they then had a good start when the grass came. When a lamb chanced to come a month later, although it went a month younger to grass, its senior had got so much the start, it could not catch up to it all the summer.

Mr. Harland said, if lambs were starved and stunted by bad nursing in the early part of the season, it were certainly better to have them later, but if well milked, the early dropt had an obvious advantage over those that came late.

Mr. Wright wished to know if it was considered advantageous to keep sheep warm in winter.

Mr. Parkinson would keep them well sheltered and dry. One reason for his preferring early lambing was, that in the end of March and beginning of April, there was no great pressure of other farm work, and consequently more leisure to attend to this department.

Mr. Harland wished to know the period at which Mr. Parkinson put his ewes to the ram.

Mr. Parkinson—From 20th October to 1st November, and the lambs would then be dropt from 20th March to 1st April. He did not approve of giving mashes of warm food—good sound turnips, if the sheep were used to them, were much better, and he believed they were also better for cows than warm mashes, which were apt to give surfeits.

The Chairman had no doubt the meeting was quite of opinion that the Leicesters were the best sheep for the country.

Mr. Harland wished to know the best remedy for ticks.

Mr. Parkinson said that if the lambs were allowed to run with the flock for a week after shearing, it would be found that the ticks had left the ewes, and got on the lambs; then, if these suffered from ticks, he used a wash recommended by Mr. Thurtell, 2lbs of arsenic boiled in 2 pints of water, with a small quantity of soap to help the decomposition; the liquid to be diluted with 10 or 12 additional pails of water, and the lambs immersed. The process would perfectly destroy the ticks.

Mr. Harland spoke of a strong decoction of tobacco as an approved remedy.

Mr. Parkinson, in answer to queries, said he did not know how he would manage in the event of finding his sheep bad with ticks in the beginning of winter. He thought it would perhaps be best to let them alone.

Mr. Wright would prefer immersing them even at that period. [From consideration of the length of wool the sheep would at this season have obtained, this opinion did not appear to be generally acquiesced in].

Mr. Harland had heard of mercurial ointment being applied in such cases.

Mr. Parkinson thought the 1st of September a good time for weaning. The lambs would then be sufficiently strong, and the ewes would have time to make up before winter.

Mr. Harland thought the 1st of August would not be too early, only that from the condition of

the pasturage at that season, the ewes might be injured by an overflow of milk; 5 months' sucking was quite enough. He wished to impress it on all, that the common belief, that sheep could do without water, was very erroneous. *Sheep could not do without water.*

Thanks having been voted to Mr. Parkinson for his address, and to the Press for their attention in reporting, it was resolved that the subject for consideration at the next meeting should be, "The best and most profitable mode of Wintering Horned Cattle;" Mr. D. Stirton, of Puslinch, to open the discussion.

The next meeting of the Club takes place on Friday, the 9th of December, at 4 o'clock, P.M.

Mr. Harland stated, that at a recent meeting of the Board of Agriculture, it had been arranged that after the close of the College Session, the Secretary, Professor Buckland, should make a professional tour of the Province, to deliver Agricultural Lectures. Mr. Harland had made the request, which he had no doubt would be complied with, that the lecture in Guelph would be on the occasion of the next County Show.—*Guelph Herald.*

ON FEEDING HORSES AND PREVENTING GLANDERS AND FARCY.

A distinguished veterinary surgeon, Professor Dun, of the Edinburgh Veterinary College, calls attention to the following errors in the dieting of farm horses, which are not less common in this country than in Scotland.

1st. Much too long an interval is allowed to intervene between the times of feeding. Horses are frequently worked six hours consecutively, during which time they receive no food whatever. This practice has been found by experience to be prejudicial to their health, inducing debility and predisposing to diseases of the digestive system. The natural habits and digestive organs of the horse alike prove that he is not designed for long fasts; as the smallness of his stomach indicates the necessity of supplying it with comparatively small quantities of aliment at short intervals. When at liberty, he eats during twenty out of the twenty-four hours. This natural habit may be modified, but pains should be taken not to run into the opposite extreme. A horse or mule when at work through the day on the farm, should have some nutritious food every five hours at the outside, if the purpose is not to impair his constitutional powers. When a plow team is taken up early in the morning, and expected to work till noon before regular feeding, it is the present practice of the best Scotch farmers to give each horse a lunch of a pound or more of oat-meal or bean-meal between nine and ten o'clock. Some prefer to mix oat and bean or pea-meal, which is wet with water and "fired" or baked; the cooking enables the digestive organs to render the nutritive elements at once available for the support of the exactions of labor. Dr. Dun is acquainted with several farmers "who give these cakes whenever the work is severe and the hours long, and all of them agree that their horses are now in much better heart and condition, and less frequently attacked by indigestion and cholic, than they were when subjected to protracted abstinence, and without any intermediate meal."

2d. Food may be improper on account of over quantity, excess of nutritiveness, or bad quality. By taking too large a quantity of food into the stomach at once, the immediate bad consequences may be wind cholic, inflammation of the bowels and the surrounding membranes, a founder; and occasionally, the swelling of food eaten dry causes a rupture of the stomach or intestines.—An animal scantily fed from day to day, sometimes gets loose and finds access to a bag or bin of grain, and being hungry, gorges himself almost to suffocation; or a bad servant may feed to excess, and out of all reason. We have frequently wondered why grain or water taken into the stomach of a horse should so immediately affect his feet, producing the inflammation called *laminitis*—an inflamed state of the extreme vascular membrane or lamina of the hoof. Let us see if we can get at the philosophy of a common founder. A translation of a positive disease from one part of the system to another, by what doctors call *metastasis*, is common enough; but a horse may be foundered where there is no positive disorder in the digestive organs, and only an unnatural irritation from the presence of water or food improperly taken into the stomach. The exercise and heating to which he has been subjected on the highway or elsewhere, have brought the vascular and tender parts within the hoof into a condition approximating inflammation, before either water or food is swallowed. The antecedent hard service of the feet is a material fact in the case; for without previous driving, and too often hard driving, an acute founder is seldom seen. A sudden shock is inflicted on the nervous system in the stomach, which is sound, and its force shatters first, not the sound stomach, but the heated, enfeebled, and partially inflamed feet, which are connected with the stomach by abundant nerves. If the feet of a horse be covered with water this revulsion from the stomach to the lamina of the hoofs seldom occurs to an injurious degree. This brief explanation indicates the propriety of bleeding, and letting a recently foundered horse stand in a stream of water to cool his feet.—Give him rest and physic. Proper feeding implies the use of neither too much nor too little grain, and a due proportion of hay, corn blades, shucks, straw, pea-vines, or other forage, which had better be cut before it is consumed. If this forage is sound, bright, and was harvested at the right time, less grain will suffice to keep horses

in a good condition. Where one has neither hay, nor blades, nor straw, much care should be, had lest highly nutritive food, like corn, produce eruptions on the skin, enlargement of the liver yellow water, and other maladies. If no other bulky forage can be had, horses should have browse with their grain to aid in distending the stomach and intestines; for bulk is an important element in healthy digestion.

Glanders and *farcy* have a common origin, the vitiated state of the blood; and are regarded as only different stages of a progressive disorder. As induced by insufficient or bad food, farcy usually appears first; and may continue for some time before any symptoms of glanders present themselves. Farcy is characterized as an unhealthy inflammation of the absorbent vessels and glands, which become swollen from the deposition of lymph, and soon ulcerate and discharge matter of a morbid and varying character. The poison from farcy-buds is carried in the blood to all parts of the body, and under favorable circumstances, rapidly produces itself. Tubercles are formed in all the lymphatic glands and in the substance of the lungs. Ulcerations appear on the mucous membrane of the nostrils, which is attacked on account of its high vascularity. Those parts first undergo disintegration which requre for their healthy existence the largest amount of blood. Between the first symptoms of farcy and glanders, and the fatal termination of the disease, a very variable time intervenes, according to the strength or feebleness of theconstitution, and the virulence of the malady. Whatever impairs the general health, or in any way vitiates the integrity of the system, may be regarded as a cause of glanders.—It follows colds, influenzas, strangles, diabetes, and perhaps all other debilitating affections incident to bad shelters, over work, and insufficient food. Like all other diseases that mark the premature loss of vital power, farcy and glanders are much easier prevented than cured. When from any cause the glands, mucous or serous membranes of an animal become inflamed, while its general health and constitution are yet unimpaired, the purulent or aqueous secretions that may ensue, as in colds or common distempers, are of a healthy nature, and they serve to work off the inflammatory action, which results in a speedy and perfect recovery. To maintain the stamina of life in full vigor in all animals of any value, is an object of great importance; for the principle applies to persons as well as to beasts and birds. Proper care and protection, avoiding all extremes and unnecessary exposures, and feeding regularly, that the system may never be surfeited by any excess of nutrient matter in the digestive and assimilative organs, and never weakened by a deficiency of the same, are the cardinal points in animal physiology to be kept constantly in view. All infected animals should be removed from those still undiseased, lest the exhalations from the former, and perhaps direct contact, communicate the distemper to the latter. In systems pre-disposed to any malady, it requires the least possible poison, acting as leaven, to excite a morbid action in organs previously in an apparently sound condition. Under skilful treatment, glandered horses sometimes live and perform labor for a number of years.—This, however, only proves what every close observer must have witnessed, that had the same care been taken of health before it was partially sacrificed, that was exhibited afterwards, no injury of the kind would have occurred. When medical men shall come to understand their noble mission, and the people comprehend their true interests, the *prevention* of maladies, not their *cure*, will be the grand purpose of what is now the Healing Art. Physicians ought to be better paid for the patient study and wisdom that prevents sickness, with its pains, loss of time, and other incidental expenses and misfortunes, than for the less skill of treating diseases according to the prescribed rules and theories of the profession.

THE BREEDING, REARING, AND FATTENING OF SWINE.

There is abundant room for the exercise of of skill and talent in the breeding, rearing, and fattening of swine. Of all nations, the United States have the greatest facilities for prosecuting this branch of husbandry in the most economical manner, by reason of the fact that Indian corn may be grown by American farmers on which to feed hogs. cheaper than in any other country. It is our superior natural advantages for keeping this class of animals that makes the swine of American husbandmen excel their sheep in numbers nearly ten millions. Tennessee has four times more hogs than sheep; and the business of producing pork, lard, and bacon for foreign consumption, extends much more rapidly than wool-growing, although a pretty high tariff has been brought to bear in favor of the latter.

Less attention is paid to the breeding of hogs generally speaking, than to any other domestic animals. This neglect leads to their deterioration in many districts, particularly where pork or bacon is not a staple of agriculture. The remedy lies in keeping a smaller number, selecting both males and females with the greatest care as to form, quiet habits, tendency to take on flesh, and the females should be good nurses. Breeding in-and-in, or in too close relationship, is a common error with farmers who allow their hogs to run in large herds, and with little regard

to males. Carelessness in the propagation of swine can not be too severely censured; for beyond all question it imposes a needless loss on the country of many millions of dollars every year.

One should breed large, or small, or medium sized hogs, according to the market, and the cheapness with which they can grow the food consumed by this kind of stock. As a general rule, hogs of medium size, well fatted, are most desirable, although instances are not rare where packers and hog buyers pay a premium for heavy porkers. They are said to cut up to a better advantage, and yield a larger cash return per 100 pounds. The intelligent farmer will readily learn what his market calls for, and meet it in the most economical way. Having wisely selected that breed which suits his circumstances best, he will not allow his sows to bring up more pigs than they can fairly supply with milk, unless he has the milk of cows to aid in pushing them forward in the first two months of their existence. Where hog-raising is prosecuted on an extensive scale, pigs are wholly dependent on their mothers for nutriment for some weeks when young; and then is the time when their constitutional powers and habits are mainly fixed for life. A pig once seriously stunted, is irreparably damaged; and we cannot too earnestly insist on the policy of attempting to rear no more than one can feed well all their days. Cheap meat—that is, meat made at a small cost to the producer, is that which is the product of cheaply grown food, not that obtained from half starved pigs, shoats, and stock-hogs. It is all-important to the farmer who makes fat-hogs his principal crop, that he understand the art of producing clover, peas, oats, and corn in the cheapest possible manner. Fresh clover seeds are exceedingly valuable as ranges for large herds of swine; they may even be wintered on good clover hay, although corn, peas, oats and roots are cheaper winter feed. To produce meat at the minimum cost, whether pork, beef, or mutton, one must have rich land. The farmers of New York and New England cannot compete successfully with those of the richest portions of Ohio and Indiana in producing fat hogs, because they neglect to improve their lands with a view to have them equal to the best on the Scioto and Wabash rivers. To make millions of fat hogs on lean land as cheaply as it may be done on fat land, is an impossibility. But if the farmers in Atlantic States will first fatten their land, it may be continued so as easily as any land at the West. One great advantage of pork-making is, the facilities it affords for the improvement of one's farm; for all the crops being consumed on the land, it regains not only the mineral elements of said crops drawn from the soil, but a considerable share of the organic elements taken from the atmosphere. It is impossible to rear and fatten hogs and not make a good deal of rich and valuable manure; but it is easy to allow manure to be dropped in the woods, or in low swampy grounds, where it is not needed, and where hogs are allowed to run. The art of rearing hogs at the greatest profit includes the husbanding of all the dung and urine produced by them in the best possible manner. In this way alone can one economically fatten his corn and clover fields as well as his hogs. Let them have both shelter and water in the lots where they feed or are fed. While young they need a reasonable amount of exercise to develop muscle and bone, and for their health. In a state of nature in forests, swine take considerable exercise in searching for their daily food; and in this way they acquire great strength of limb and muscle, and remarkable constitutional powers of endurance. Many families of swine are injured by too high feeding when young; and this remark will apply to shoats, horn cattle, and some of the large mutton sheep, as kept in England. Excessive fatness is so unnatural a condition as to amount to a positive disease; and if long continued from birth till death in a family, its constitutional powers will gradually fail, and the race become extinct.

There is a golden mean in this matter, which the stock-grower will do well to study and follow. If allowed to range in a good clover, pea, or oat field, growing hogs will take just the exercise that is best for them, and salt as well as water should be provided, adding a little sulphur and ashes. When put up to complete the fattening process, if one cannot conveniently grind as well as cook the grain consumed, it should, at least, be boiled in large kettles. This is not an expensive operation, and cooking, by rendering the starch in corn or other feed soluble, like gum, materially increases the nutritive value of all grain and tubers fed to swine. This does not impair the quality of the manure, while it augments the yield of fat in the animal. Hogs should be kept reasonably warm, dry, and be regularly fed. As a matter of profit, care should be taken not to feed too long before selling or killing them. On the other hand, one may not feed long enough to attain the maximum profit. As in other departments of husbandry, experience and observation can alone make one skillful in the breeding, rearing, and fattening swine.—*Genesee Farmer.*

NEW VARIETY OF WHEAT.

Plants as well as animals are sometimes improved by cross-breeding. A new kind of wheat has been formed in this way which has received the gold medal of the Highland Agricultural So-

ciety of Scotland, and a prize medal of the Great Exhibition, London, in 1851. The following remarks are from a pamphlet published in England describing the origin and properties of the hybrid variety:—

"New varieties of our cultivated plants generally owe their introduction to accident rather than to a systematic plan continued through a long series of years. A farmer is struck by the appearance of a few ears of corn, either growing in the field, or what is more generally the case, in some place where the soil and circumstances are favorable for a luxuriant growth. He preserves and cultivates the seed, and in a year or two introduces it as a new and improved variety, or he may select a large and well shaped root from his turnip field, and raise stock of seed from it; such is the usual method, and it is one that has been adopted with much success; but though careful selection and cultivation may alter the appearance and growth of a plant, and improve its produce and quality, yet it can hardly be adopted as a means of introducing new varieties, but rather to improve those we already possess. In the same manner as the judicious breeder selects his cattle for those properties which experience tells him will be imparted to their offspring, in greater or less perfection in proportion as the system of feeding is judicious or the reverse, just so the seed farmer finds the acquired luxuriance or quality of a single plant is continued by its seed *in the production* of similar plants, in greater or less perfection according as the soil, climate, and season are favorable to the growth of that plant.

Much has been done by improving the various breeds of cattle, yet, with the same care in the judicious selection of agricultural seeds as of live stock, no doubt the result would be equally satisfactory. It is a matter that demands our serious attention, for if we can by this means add but one bushel per acre to our produce, it will, in the aggregate of the whole country, become an item of vast importance. In very many cases I have seen the production from seed of a good variety exceeding to the extent of seven or eight bushels that of another kind grown near it, under exactly the same circumstances of soil and tillage, and the same with roots, to the extent of as many tons; thus it seriously affects the individual farmer, and it becomes of vast importance to the public generally that only the best and most productive of agricultural plants should be cultivated.

But whatever may be done by selection and cultivation, it is by hybridization alone that varieties capable of permanently retaining their peculiarity of form can be obtained: and on any that are so constantly brought before the public must either be old sorts with fresh names, or owe their origin to accidental impregnation. Cultivation and selection may for a time alter the form of plants, but under a different system of treatment they return to their original state: with hybrids it is otherwise. It is a matter of some importance that the form and character of plants may be combined or altered with so much ease; the operation merely requires patience and careful selection.

The Hybrid wheat, which is now offered to public notice, is a red wheat, with stiff straw of a medium size, and is similar to one of the best specimens shown at the Great Exhibition. It owes its origin, as a distinct variety, to the following circumstances:—

In the year 1846, I grew in a garden at Hengrave, near Bury St. Edmonds, a few plants of Piper's Thickset wheat, a red variety, then recently introduced by Mr. Piper of Colne Engain, in Essex, and remarkable for its short, thickly clustered ear, its stout stiff straw, its productiveness in a favorable season, and its liability to blight in an unfavorable one, rather than for the quality of its produce. I thought that some of these bad qualities might be neutralized, and new varieties be obtained, partaking more or less of the good qualities of both parents: and with this view I inoculated (as described in the Illustrated Official Catalogue of the Great Exhibition) the Thickset wheat with pollen chiefly taken from the Hopetown variety, a well known white wheat of fine quality, with long straw, and with an ear much longer, though not so closely set as that of the Piper's Thickset.—in fact, forming to the latter a perfect contrast. From this I obtained a few shrivelled grains, which I planted early in the autumn of the same year, and by division of the roots I greatly increased the number of plants. The produce was many kinds, both of red and white wheat; some of the ears bore a perfect resemblance to the Piper's Thickset: others partook of the character of the Hopetown in everything *except in the color of the chaff*; others had had the ear thin and open; and the remainder close set, thus, in the same ear showing the same characteristics of each kind.

The cultivation of the Hybrid wheat has been continued up to the present time, and by careful hand-picking an even sample is now obtained.

WHAT IS THE BEST MODE OF CASTRATION?

BY T. HURFORD, M. R. C. V. S., 5TH KING'S HUSSARS

Which is the best mode of castration? If you ask the question of five or six men, you will probably receive as many different answers. I have tried the actual cautery, the clams, the ligature, and scraping; and I prefer the last; it being simple, safe and speedy.

You have, doubtless, tried it, and perhaps most of your readers have, performed the operation. However, at the risk of telling a twice-told tale, I will endeavor to describe *the mode of scraping*. You begin as to castration in the ordinary way. Face the testicle, and grasp it with the left hand; *divide the seminal* part of the cord, and, with a tongue-edged knife, *scrape* the *vasculer* cord lengthways, until you scrape through it. Simple *enough, and speedy, too*, since from first cut to last scrape takes rather less than twenty seconds. I have done it in sixteen, and safely, for I never knew a horse bleed more than I wanted, and you have a simple wound without any foreign substance to deal with. The horses stand quiet for nearly three days, being merely rubbed down. On the third day, the coagulum is washed away, and the parts cleaned, and nothing more is required after than to con-

time to keep them clean. Tetanus is *no'* a frequent sequel to castration; though I saw last month you had put a "?" after what I wrote: as to the time most likely for an attack, I have always found it to come on just as the wound has healed, no matter in *what* part of the body it may be. Those attacks arising from castration, generally manifest themselves from the fifteenth to the twentieth day; but I have seen them both earlier and later. As a rule, I do not castrate during the hot months, nor during the heavy rains. Wounds and ulcers generally take on an unhealthy action at those seasons, and particularly during rains. But I have operated in every month of the year.

Will Mr. Gavin excuse me, if I say in any future cases of tetanus, "use *camphor*." I think he will find it one of the most useful medicines. He will, I venture to say, agree with me, that blisters are of no use in tetanus.—*London Veterinarian.*

HINTS AS TO MANURE.

Hoofs, hairs, feathers, skins, wool, contain more than fifty per cent, of carbon, and from thirteen to eighteen per cent, nitrogen, besides sulphur, salts of lime, of soda, and of magnesia. These substances hold, therefore, the first rank, as it were, among manures; and as a long time is required for their decomposition, their action may often last for seven or eight years. They yield excellent results, especially when made into a compost for potatoes, turnips, hops, hay, and, generally on meadow land. Hairs spread upon meadows, are said to augment the crop three fold; and the Chinese, we are told, are so well aware of the very great value of that manure, that they carefully collect the hair every time that they have their heads shaved—and the operation is performed every fortnight—and sell it to their farmers. Now, the crop of hair which every individual leaves at the hair cutter's yearly, amounts to about half a pound; reckoning, therefore, at thirteen millions, the number of individuals who in great Britain and Ireland, are undergoing the process of shaving and hair cutting, we have a production of about three thousand tons of hair—that is, of manure of the most valuable kind—since it represents, at least, one hundred and fifty thousand tons of ordinary farm yard manure—which might be collected almost without trouble, but which on the contrary, such is our carelessness or indolence in those matters, is, I believe, invariably swept away in our streets or sewers, and utterly wasted.—*Farmer's Manual of Agricultural Chemistry.*

SHOEING HORSES.

The following are the regulations of the British Army upon this subject. They were prepared by a mixed commission of officers and eminent experienced professional men, and have recently been issued:

1. The shoe is to be bevelled off so as to leave a space and prevent pressure to the sole.

2. It is not to be grooved or fettered, but simply punched, and the nails countersunk.

3. Caulking is to be applied to the hind shoe only, and is to be confined to the outside heel. The inside heel is to be thickened in proportion.

4. The weight of the shoe is to be from twelve to fifteen ounces, according to the size of the horse.

5. Horses are to be shod with not less than six nails in the fore, and seven in the hind shoe; nor is the shoe to be attached with less than three nails in each side.

6. In preparing the foot for the Shoe, as little as possible should be pared out; and the operation should be confined to the exfoliating parts of the foot only.

7. Both the fore and the hind shoes are to be made with a single clip at the toes.

WINTER FLAX.

The Secretary of the New York State Agricultural Society, has received from a Russian gentleman by the name of Falkersaborf, a sample of the seed of a variety of winter flax. A larger quantity is promised, which is expected to arrive in the fall. The same gentlemen also proposes to send some of "the seed whose weed furnishes the persiese powders for killing insects of all kinds."

The advantages claimed for the winter flax, are set forth as follows:

a. Besides it has the advantage to be sown in the fall, nor subject to be sown either too early or too late, as this is often the case with the spring seed, and has always a failure of the crop in its train.

b. That the winter seed shoots sooner, yet before the weeds come out, which latter are kept back by it; it is earlier ripe, and can be brought in before the hands are wanted for other agricultural operations.

c. In order to prevent the shooting in the fall the seed must be worked in by the plough, as late as possible, and then the seed is not damaged neither by 20 degrees of cold (Reaumur). In the spring, as soon as the field is dry, it must be lightly harrowed. It shoots with the first rays of the warm sun, and is already in flower when other spring seed is sown, and before the insects can do it any harm.

d. This winter seed is glossy, but dark and mixed with black grains, yet all shoot. It is a great deal more oily than the common seed.

COMMUNICATION OF IDEAS AMONG CATTLE.

There is a large shallow inlet on the Prussian shore known as the Frische Haff, crossed for the first time by steamers ten or twelve years ago. Upon their way the vessels paddle by a common near the Elbing river, upon which the townspeople turn cattle out to graze. When the first steamers passed this common they caused every flank of beef to quake; such fiends in dragon shape had never appeared before to try the nerves of any cow, or to excite wrath in the bully bosom of the most experienced among the warriors of the herd. With tails erect, therefore, and heads bent down the whole colony upon the common charged over dykes and ditches inland, roaring

horribly. Every appearance of the steamer, to the great joy of the crew, caused a panic and a scattering of oxen, until, after a few days, the animals had become hardened to the sight, and took it as a thing of course, which meant no harm to them. Now, all the horned beasts on the common during that first year were in the usual way placed there to be fa ted. In the following spring they had gone the way of beef, and their places was filled by a new generation altogether. So soon, therefore, as the Haff was clear of ice, and the steamers again began to ply daily upon the route between Elbing and Konsibeig, the sailors were on the alert again to witness the old scene of uproar by the water side. But they were disappointed. Though there was the pasture ground well stocked with new recruits for the market, who had come from distant inland farms or out of stalls within the town, though scarcely one of them—if any one—had ever seen the apparation of a steamboat, not a cow flinched, The members of the whole herd went on grazing or stared imperturbably at the phenomenon. It was a new thing no doubt for them to see—but they had already been told of it. Every spring the first passing of the steamers is in this way regarded by a fresh generation on the common with complete indifference. The experience acquired by its forefathers ten or twelve years ago seems to be now added to the knowledge of every calf, born in any corner of our province. And yet, in what way have these calves been educated ? or, if this fact has been taught to them at all what else may they not know ?—*Dickens' Household Words.*

The Agriculturist.

TORONTO, DECEMBER, 1853.

TO OUR SUBSCRIBERS.

The present number completes our annual volume for 1853, and for the support which has been extended to it, we beg our subscribers and correspondents to accept our grateful acknowledgments.

It will continue to be the aim of the *Agriculturist* to assort and register the more important and interesting facts and improvements in relation to general Agriculture, more especially as they bear upon the present state and future prospects of Canada. The reports of Agricultural Societies and Farmers' Clubs, will continue to receive our best attention, and our readers may confidently reckon upon having in the pages of the *Agriculturist*, in a condensed form, whatever occurs from time to time, that is generally interesting and instructive. We shall study for the future to procure shorter articles, and of greater variety, for each monthly issue. As the Board of Agriculture intend incorporating Prize Essays and Reports, of which they are in possession, with their own Transactions and Annual Report, and to lay the whole before Parliament at its next Session, we shall not overload our pages with h avy matter, such as generally characterizes more or less, productions of the above description. We shall be able, however, to lay before our readers sufficient information on all matters of immediate interest, pertaining to the Board of Agriculture; so that whatever is novel or of pressing importance, with which it is desirable individuals or Societies should be made early acquainted, will be certain to find a place in our pages.

As it is our desire to make the *Agriculturist* a still more general and efficient medium of communication between individuals and Societies interested in agricultural pursuits, than it has hitherto been, we earnestly solicit contributions for its pages, from all whose reading, observation, or experience, enables them to impart useful information, or to offer such suggestions as may aid the realization of the important objects, which our humble periodical seeks to promote.—Few things would tend more to advance the solid improvement of our rural population, than the practice among farmers of reducing to writing, the knowledge which they have obtained as the result of observation and experience, for the consideration and benefit of others.

Arrangements have been made, or are in progress, for improving the *Agriculturist*, both as relates to matter and the mechanical execution, during the next year. Valuable assistance has been procured in the Editorial department, and such an increase in the number of subscribers is anticipated as will enable and justify the proprietors in incurring an additional expense in obtaining cuts, and therefore better to illustrate the work.

The full realization of these objects, must, it is obvious, depend in no small degree on the support which the paper may continue to receive from the public. Two thousand additional subscribers would afford us the means of carrying

into effect what we feel to be needed, and so ardently desire. And after all such an addition to our subscription list, in a country so prosperous and expanding as Upper Canada, could be rapidly accomplished, if Agricultural Societies, and enterprising and patriotic individuals, would only take up the question in earnest. When it is considered that the "Agriculturist" is supplied to Clubs and Societies at the very small charge of *half a dollar per annum*, that it is the only periodical in Upper Canada, exclusively devoted to the Agricultural interest, surely a little extra exertion by the friends of rural improvement in different parts of the country, would easily secure the object to which reference has been made.

IMPORTANT TO AGRICULTURAL SOCIETIES.

As the period for holding the Annual Meetings of the Agricultural Societies is approaching, it may be useful to offer a few timely hints to the managers of these useful and important organizations; particularly as a considerable number of new Societies were formed at the commencement of the present year.

We would strongly recommend the office-bearers to read carefully the Agricultural Act—16 Victoria, Cap. 11—where they will find all that is now legally in force relative to the whole of our existing Agricultural institutions, comprising the Bureau, the two Boards and the Societies, both county and township, of each section of the united Province.

The Act requires all Township Societies to hold their annual meetings sometime during the month of *January*, for the adoption of Reports, the election of officers, &c. Each Township Society is required to send a copy of its report to the Secretary of the Society of the county in which such township is situated, in time for the annual meeting of the county society; which, according to the Act, should take place some time in the month of *February*. Sections 30, 31 and 32, set forth the duties of the officers of county societies; among them may be here mentioned that of transmitting to the Board of Agriculture, with their own report, those of the townships, with such remarks thereon as may appear necessary or desirable. *The reports of all Societies must be sent to the Board, in Toronto, by the 1st of April next.* Societies neglecting to comply with these and other conditions required by the Act, *will forfeit all claim to any portion of the Government grant.* We urge therefore upon all Secretaries and Treasurers of Agricultural Societies, the importance of having their reports timely and properly prepared, that no delays, or any kind of irregularity may occur, so that both the letter and spirit of the law may be strictly fulfilled.

We would remind such as are entrusted with the drawing up of reports, of the desirableness of stating, in addition to the usual items of income and expenditure, whatever has occurred during the year, within their respective spheres of operation, that may possess an agricultural or economical interest. It is particularly important that whatever progress has been made in live stock, grains and grasses, implements and modes of cultivation, manures, &c., should be fully sketched; or if,—as we trust in no part of Canada is the case—a stationary or retrograding state of things exists, the fact should be frankly acknowledged, the remedies faithfully pointed out, and their immediate application urgently enforced. We believe that our Canadian agriculture—using the term in its widest acceptation—is steadily, and in some localities, *rapidly advancing;* the prices of all kinds of produce are now highly remunerating; the means of transit constantly increasing and improving; and the public is certainly entitled to anticipate that the forthcoming agricultural reports will do justice to the great interest on which the continued prosperity of the country in the main depends, and that they will embody such an array of facts as to convince the most sceptical that the future of Canada is—provided we be faithful to duty—full of hope and blessing.

The members of each *County* Society, at their annual meeting in February next, will have to nominate four fit and proper persons to be members of the Board of Agriculture, in the place of the four retiring members, and to transmit the names of the persons nominated to the BUREAU OF AGRICULTURE, at Quebec, [*vid.* Section 12 of Agricultural Act.]

The following members of the present Board will retire, unless re-elected :—Messrs. E. W. Thomson, York; R. L. Denison, Toronto; Sheriff Ruttan, Cobourg; and John Harland, Guelph.

AGRICULTURAL IMPLEMENTS.

THE DOG CHURN.

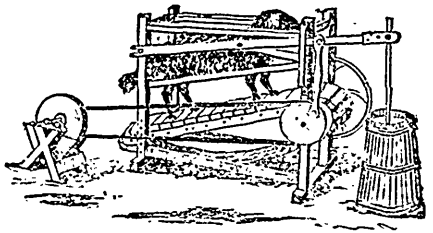
It is very encouraging to those who have laboured to introduce improvements into Canadian Agriculture, to witness the very general desire now manifested by farmers of every class to avail themselves of these improvements as fast as their means will allow. Not only do our Annual Shows give evidence of such a feeling and of its progressive increase, but in every town and village in the country, manufactories are springing up to furnish the farmer new and improved implements. A few years ago the common wheelright and the common blacksmith were able by their united skill to supply the entire demand of the Province. But their coarse and heavy productions will not answer now. Mechanical ingenuity has found out many inventions to expedite and lighten the labours of the tiller of the soil. It is gratifying to know that he is every day finding out their utility and adopting them.

The domestic labours of the "good wife" have also been rendered much less toilsome than formerly. The operations of washing, churning, milking, and *rocking the cradle* are now disposed of by machinery! Manual labour seems to be going out of fashion altogether. All this shows, not the "wisdom of our ancestors," but our own, yet much as we may think of our own attainments, we doubt not our immediate descendants will employ the natural forces in a thousand operations that we have not dreamed of.

The following is a most useful little contrivance in very general use among the farmers of New York, and we have been surprised to find it in so few farm houses in Canada. The butter-maker has been bored with all sorts of new fangled churns for the last few years, but we believe the old-fashioned *dash* has, notwithstanding its laborious up-and-down motion, kept its ground against all competitors. Now, with a dog, or sheep power, like the following, which any ingenious farmer could make for himself in a few winter evenings, the dash churn is really without a rival. This power may also be applied to the grindstone to the infinite satisfaction of "the boys."

They are sold by American manufacturers for about $12. The cut sufficiently explains the principle.

DOG POWER.



COMMUNICATION.

CANADIAN FARMING.

Cayuga, Oct. 11th, 1853.

DEAR SIR :—I believe there are many highly respectable, sound, practical agricultural men in some parts of this fine country, although I have not the honour of knowing them, but as I have been an agricultural and horticultural man at heart, for more than half a century (without going to a chymist to learn, as I never knew one who studied either yet,) I think I may talk and even write about horses, cows, sows, ploughs and harrows, as Bloomfield has it. Agricultural men used to talk about the good points of horses, cows, oxen, &c., and as I have had in my time near one hundred of the former, and several hundreds of the latter, I beg leave to say a little about them, particularly as a *fair profit* (which we are all entitled to) now requires great care and attention to be obtained in these times when we are called upon to compete with the labor and machinery of the whole world in every production. Our Canadian horses are able to do farm work that *ought to be required of them*--as the work of a well and regularly cultivated farm, need not be made so hard as it was before the use of real labor-saving, profitable machinery and implements were in use, (Hussey's Reaper cuts 110 sheaves in five minutes)—although they are not so strong as the Suffolk-punch, as they are called, as *they* have good points and are very strong, they have a well formed head, neck and shoulders, wide in the chest with short clean legs, short in the back and wide over the loins and hips, with good eyes and hardy constitution, many of dark chesnut and bay colors. They are far superior to the Yorkshire, Lincolnshire and Flanders horses, as the latter could not stand this climate so well as the Quebec and Montreal

horses do Oxen of the medium size (polled) seem to answer very well for all purposes, *and yield the most profit for the low keep of this country*, and are generally very quiet to every thing around them. Cows are an excellent stock but require much more attention than is usually given here to have them *good*, as they; are often raised and kept *indiscriminately* As all your readers may not know the good points of what is called a good cow in England, the following may very generally be depended upon, viz.: rather a thin head with a placid countenance, as a sign of good temper, thin in the neck, and not too wide in breast and shoulder points, with little dewlap, short legs and wider behind not too full along the chine, the udder should be quite large, round and full, (with milk veins or vessels *protruding*,) yet thin skinned, but *not hanging too far behind*, the teats should stand square, all pointing out at equal distances and of the same size, not *very* large towards the udder, but long and tapering to a point; such *will pay well according to what they eat*, whether great or small, (but I have not seen Durham cows have these points.) I think that, although we have not the Holderness cows, nor the pasture of Yorkshire or the Netherlands here, there should be *a prize given to the dairy man or woman who* makes *the most good butter or cheese* from a cow, in the months of May, June and July, as the Canadian pasture is fair then; the owners to state what they have cost to keep through the winter. I do not mean that they are to be fed with new hay, bran and shorts, as some have been doing here this summer, as I think it paying too dear for butter, like giving an additional three tons of hay, &c., to a cow in winter. I think a good parcel of cows if well managed and kept as near as possible to calving time in April, May, or not later than June, would give *more profit* than growing grain. I find here several cows of the common hardy kind, *in common pasture*, have produced from seven to nine pounds of good butter per week, and with a little care in selecting the calves to be reared, probably ten to thirteen pounds per week *might* be made, as in 1828 to 1834. I had one that made seventeen pounds per week, giving three large pails of milk per day for some time after calving. I think she was a Holderness cow, but our Suffolk home-bred cows justly stood very high, they paid well for their keep; I think many good ones might be had here considering the climate and keep of the country; and oxen for the yoke, and good beef also, without fancy prices, as farmers cannot afford to pay them.

Some of our farmers make me think of a sailor on horseback, who rides until the horse can go no further and then he stops; and they sow wheat on the same land so often, that it will grow no more, and then stop, until they can get some fresh or new land. I have not seen a farm, well cultivated, in Canada, yet, nor a good plough or other implements to do it with. If I am not *taking up too much of your valuable time*, I beg to say a few words upon this subject. Since the true mechanical principle of the plough has been departed from, I believe there have been few or none made here, but it is said they are to be superceded by a steam digging machine, but it never can be done effectually, I believe: I have had many good ones and good scarifiers also, which nearly doubled my crops; as for spring crops, I had not an acre of clay land ploughed in the spring, in England, since 1799. I think the land was ploughed in the fall, sown and scarified in, or drilled and harrowed; and out of 3000 acres thus done, I am not aware that I ever lost half an acre. It does well here. To me it seems odd, that farmers here, instead of pulverizing and fertilizing their land to obtain an *immediate crop*, should plough up a good deep furrow, nearly half of which is sterile clay, which takes from seven to ten years to fertilize, this is the worst of theory, as it doubles the labor, encourages weeds, by burying their seeds, and spoil their crops, thus losing thousands of dollars. It is not necessary to plough the land more *than twice*, and *scarify it three times*, (no great cost) with or without a few loads of dung or lime to get a good crop of fall wheat, except where the land is worn down. General Beetson used the scarifier and harrow *only*, except drawing furrows two or three yards apart, to convey superfluous surface-water off, and added *100 sheaves to the acre of wheat, and increased* all other grain. This summer took some clay from a furrow ploughed nine and ten inches deep; beat it fine, put it into some garden pots, and raised six plants in each pot, which produced as follows, viz., six oat plants *sixty-one kernels*; six more thirty kernels; six of barley fifty-five kernels; six of club-wheat fifty kernels; six of peas *five kernels*; these plants were regularly watered, the straw was a little mildewed and the grain thin; the food of the plants seemed to lay in the first four or five inches of earth, and it is not necessary to plough the land deeper than six inches for any kind of plant that I know of; it is the horizontal roots that support all plants with good food—not the perpendicular ones; it was proved near eighty years ago, that an oak tree trained with horizontal roots, grew as large in eighteen years, as others near it, with perpendicular or tap-roots, grew in forty-five years; and I once trenched a piece of ground, twenty inches deep, and planted it with acorns, which produced but little. While the Frenchman makes a field a common fallow, sows it with wheat and acorns, reaps off a good crop of wheat

just above the oak plants, shuts up the field, and in five years has a better oak plantation than I had in fifteen years. In Jersey and Guernsey they plant their fruit trees *on the top of the ground* and grow the finest fruit; and a common carnation grower takes four bushels of rotten manure, three bushels of good *surface loam* and one bushel of coarse sand; mixes them well together, and grows the most splendid flowers; but no clay is used for horticultural purposes that I am aware of, I never used any; and no grain farm requires more than fifty to sixty per cent of clay; thirty per cent of good sandy soil; ten of lime particles, with four to ten of vegetable matter. I would not have a farm with eighty to ninety per cent of clay; it would not meet the labor, dilapidations, sinking value of some live stock, and all dead stock, such as implements, &c., not omitting fences, and bad seasons, even with the greatest care.

I am glad to see your correspondent, Hedger and Ditcher, desirous of getting up his fences, but although I have had many miles of ditches done on this kind of land, five feet wide by four feet deep, it would not do in this country; nor is it *necessary*, for it is said that drought does more harm here than all the rain that *falls upon the land*. This is not the wet climate of England, (in this country, where a broad deep furrow is ploughed, and consequently the stitch laid high with a deep furrow, the land wants *a heavy shower every week* to produce little more than half a crop.) A ditch three feet wide and two feet deep, would do well to begin with; the white thorn plants to be laid in the first, spade over the best earth, which ought to be set seven or eight inches back, as the intense frost would run it down before the quick had taken root; *a young tree plant, every two rods will do*, it is a slow process; the white thorn berries should be gathered as soon as ripe, and laid *six inches thick*, if thicker they would *heat*, in a shallow pit of sand, for one year, to rot the pulp off; then take them out and sow them in rows twelve or fifteen inches apart, on some good nursery or garden ground, and some at two years' old will be fit to plant out into the fences. But here are no bushes to protect them, which they require the first few years; or sheep and cattle would eat them down. A good thorn hedge, with a moderate-sized ditch to every field, ought to be had, the same as in England, with a pond of water; as all cattle, sheep and pigs must be kept in with fences, or they may be killed by railroad cars, as has already been the case.

I am glad to see the improvement that has taken place in sheep and pigs. Leicester and Southdown sheep suit this climate best, and they produce good wool and good mutton; they are better to keep than the alpaca sheep of South America, or even the Buffalo with his good beef, and African sheep, which I have seen running in gentlemen's parks in England. I am an advocate for all hardy cattle and hardy plants, as you know, Mr. Editor, that *the best agricultural countries* do not lay in or very near the *tropics*. I observe in my last note you omitted the words *they left*, after a little hay and straw, which the older horned bulls would not eat; I think still, that this animal (*a North Wales polled bull*) whose sire was sold a year-old calf at Niagara, for fifty-five dollars, about ten years ago, when cattle were selling cheap, as a *profitable kind of animal* for this climate, would not be sneered at even by a fancy Durham breeder; they always paid me better than any other for their keep, (they girth pretty well) and this should be a great object with those who raise cattle for any purpose. Every man has his fancy or opinion, but I never knew theory give much profit; I have known it lose thousands of pounds. As this land requires good dressing, I think the Rhomboidal harrow, three or four inches in the set, covering ten or eleven feet, to harrow a stitch nine feet wide, with the horses in the furrows the most effective that are used; a light set of seven harrows will do well on softer lands. As I am desirous of seeing my neighbors flourish in their honorable calling, I have written these lines, and if any one profit by perusing and practicing my old plans herein contained, I shall feel highly gratified, as their balance-sheet will bear looking at almost as well as that of Tiptree Hall, probably.

I remain, Dear Sir,
yours very faithfully,
ROBERT F. Cooke.

MISCELLAEOUS.

HARD WATER.

What waters are pure—From whence natural hard water is produced—The cause—The philosophy of cleansing—Its effects—Error in the use of lime—Its benefits and virtues.

None of the waters produced by nature are entirely pure and soft; artificially distilled water alone is so, and often then, without care and some chemical knowledge of the process, it is not free from impurities.

The waters from primitive formations, particularly from mountainous districts, are almost pure, and springs and wells on sandy plains are nearly —owing to the rocks and soils being wholly composed of silicious and other constituents—insoluble in water. All streams and springs in secondary, or limestone countries, contain more or less materials constituting what is called *hard* water, and often the waters from sudden showers, which have been produced by evaporation from extensive regions of like formation, are sensibly affected.

All waters known as hard, result from some of the acids or their salts being held in solution. The most common are the carbonic acid and the carbonates, and sulphurous and chloric acids and their combinations. All the waters containing carbonic acid gas, and sulphurated hydrogen (the material that makes the sulphur springs of the country), uncombined with the earths, are rendered soft by simple boiling, as the gases are expanded by heat and thrown off, and no deposit is left; but when united with *lime*, *alumina* (clay) or the metals, boiling deposits a portion by releasing the solvent, in the form of a hard, stony concretion.

The process used by washing-women to *cleanse* the hard water, by adding lye, ashes, or potash, is a strictly correct chemical process. Acids and alkalies are antagonistical principles; one destroys or neutralizes the other, and renders both inert and harmless. The sulphurated waters are more difficult to cleanse, or purify, than any other class, except the muriates (acid of common salt, now called chlorates), as they adhere to their combinations with greater tenacity.

The effect produced on hard water in washing, where soap is used, is very simple when investigated. Soap is a compound of an alkali and animal fat, or vegetable oils and resins, and when added to water containing any acid, or acidulated substance, the acid, by its chemical affinities, seizes and neutralizes the alkali of the soap, disengaging the fatty substance in the same shape it was originally, and in the worst possible for cleansing the person or clothing.

There is a vulgar error prevailing among the people generally, that it is dangerous to add lime to wells and cisterns, on account of its rendering the water *hard*. There is no greater fallacy among our traditionary beliefs. Lime is strictly an alkaline substance, and as such, is a neutralizer of all the acids which water contains, and may be freely used when in a *quick* or unslacked state; old and airslacked is hurtful, as it has become a sub-carbonate. One ounce of fresh quick lime, dissolved in water, will soften two barrels of ordinary hard water, and render it fit for washing purposes. It is also advantageously used to sweeten cistern water when it becomes stagnant, and of bad odor, and the cheapest and most ready deodorizer of all unpleasant, unhealthy effluvia.—*Rural New-Yorker.*

MOTION OF SAP IN TREES.

What a curious hallucination is that which supposes the sap of trees to fall or settle in the winter into the roots! One would have thought that the notorious difficulty of cramming a quart of water into a pint measure might have suggested the improbability of such a phenomenon. For it certainly does require a very large amount of credulity to believe that the fluids of the trunk and head of a tree, can, by any natural force of compression, be compelled to enter so narrow a lodging at the roots.

We shall assume the word sap to signify the fluids, of whatever nature, which are contained in the interior of a tree. In the spring the sap runs out of the trunk when it is wounded; in the summer, autumn and winter, it does not, unless exceptionally make its appearance. But in truth the sap is always in motion at all seasons and under all circumstances, except in the presence of intense cold. The difference is that there is a great deal of it in spring and much less at other seasons.

When a tree falls to rest at the approach of winter, its leaves have carried so much more fluid than the roots have been able to supply, that the whole of the interior is in a state of comparative dryness, and a large portion of that sap which once was fluid, has become solid in consequence of the various chemical changes it has undergone. Between simple evaporation on the one hand, and chemical solidification on the other, the sap is, in the autumn, so much diminished in quantity as to be no longer discoverable by mere incisions. The power that a plant may possess of resisting cold, is in proportion to the completeness of this drying process.

When the leaves have fallen off, the tree is no longer subject to much loss of fluid by perspiration, nor to extensive changes by assimilation. But the absorbing power of the roots is not arrested; they, on the contrary, go on sucking fluid from the soil, and driving it upward through the system. The effect of this is, that after some months of such an action, that loss of fluid which the tree has sustained in autumn by its leaves is made good, and the whole plant is distended with watery particles. This is a most wise provision, in order to insure abundance of sap for the new born leaves and branches, when spring and sunshine stimulate them into growth.

During all the winter period the sap seems to be at rest, for the re-filling process is a gradual one. But M. Biot many years ago, proved by an ingenious apparatus, that the rate of motion of the sap, may be measured at all seasons, and he ascertained it to be in a state of inactivity in midwinter. Among other things he found that frost had considerable influence upon the direction in which the sap moves. In mild weather the sap was constantly rising, but when frost was experienced the sap flowed back again—a phenomenon which he referred to the contracting power of cold on the vessels of the trunk and branches, the effect of which was to force the sap downward into the roots, lying in a warmer medium; then, again, when the frost reached the roots themselves and began acting on them, the sap was forced back into the trunk, but as soon as the thaw came and the ground recovered its heat, the roots out of which a part of the sap had been forced upwards, were again filled by the fluids above them, and the sap was forced to fall. A large poplar tree in the latter state, having been cut across at the ground line, the surface of the stump was found to be dry, but the trunk itself dripped with sap. Sap, then, is always in motion, and if it ever settles to the root in a visible manner, that is owing to temporary causes, the removal of which causes its instant re-ascent.

As to the idea that the bleeding of a tree begins first at the root, and in connection with this supposition, that what is called the rise of the sap is the cause of the expansion of buds and leaves and branches, nothing can well be more destitute of

any real foundation. If in the spring when the buds are just swelling, a tree is cut at the ground line, no bleeding will take place, neither will the sap flow to some distance upwards, but among the branches the bleeding will be found to have commenced. This was observed some years ago by Mr. Thompson, at that time the Duke of Portland's gardener, who thought that he had discovered that the sap of trees descends in the spring, instead of ascending; a strange speculation enough it must be confessed. The fact is, that the sap is driven into accelerated motion first at the extremities of a tree, because it is there that light and warmth first tell upon the excitable buds. The moment the buds are excited they begin to suck sap from the parts with which they are in contact; to supply the waste so produced, the adjacent sap pushes upwards; as the expansion of the leaves proceeds, the demand upon the sap near them becomes greater; a quicker motion still is necessary on the part of the sap to make good the loss; and thus from above downward is that perceptible flow of the fluid of trees, which we call bleeding, affected.

The well known fact of trees sprouting in the spring, although felled in the autumn, proves that the sap had not at that time quitted the trunk to take refuge in the roots. Such a common occurrence should put people on their guard against falling into the vulgar errors on this subject.—*Professor Lindsey.*

MEMORY QUICKENED IN DROWNING.

The following circumstance, vouched for as true, is one among many instances in which the memory has received a remarkable quickening in apparent drowning. Such facts are incontestible; the solution has never been satisfactorily given:—

"Some years since, A held a bond of B for several hundred dollars, having some time to run At its maturity he found that he had put it away so carefully that he was unable to find it. Every search was fruitless. He only knew that it had not been paid or traded away. In this dilemma, he called on B, relating the circumstance of its disappearance, and proposed a receipt as an offset to the bond, or rather an indemnifying bond against its collection if ever found. To his great surprise, B not only refused to meet the terms of difficulty, but positively denied owing him anything, and strongly intimated the presence of a fraudulent design on the part of A. Without legal proof, and therefore without redress, he had to endure both the loss of his money and the suspicion of a dishonorable intention in urging the claim. Several years passed away without any change in the nature of the case, or its facts, as above given, when one afternoon, while bathing in James River, A, either from inability to swim or cramp, or some other cause, was discovered to be drowning. He had sunk and risen several times, and was floating away under the water, when he was seized and drawn to the shore.—The usual remedies were applied to resuscitate him and although there were signs of life, there was no appearance of consciousness. He was taken home in a complete state of exhaustion, and remained so for some days. On the first return of strength to walk, he left his bed, went to his book case, took out a book, opened it and handed his long lost bond to a friend who was present. He then informed him that when drowning and sinking, as he supposed, to rise no more, in a moment, there stood out distinctly before his mind, as a picture, every act of his life, from the hour of childhood to the hour of sinking beneath the water, and among them the circumstance of his putting the bond in the book; the book itself and the place in which he had put it in the book case. It is needless to say that he recovered his own with usury. There is no doubt that this remarkable quickening of memory results from the process which in such cases is going on—the extinguishment of life. It is somewhat analagous to the breaking in of the light of another world, which in so many well attested cases of death-bed scenes, enables the departing spirit, even before it has absolutely left its clay tenement, to behold and exult in the glories of the future state. Is it not a fair inference, that when the soul shakes off the clogs and incumbrances of the body, it will possess capacities for enjoyment of which on earth it was unsusceptible? As regards the memory, it will be observed by most persons, how readily in life we forget that which we do not desire to remember, and in this way we get rid of much unhappiness. *Can we do this after death?*—This is an important practical question.."—*Cist's Adv.*

CONDITION OF HUMBLEST CLASS OF LABORERS.

As things now stand it cannot be doubted that the daily corporeal labor which is the lot of this class of men supplies that kind of occupation which is consequently more productive of happiness than any other would. I even question if the diminution of the period of daily labour, when excessive as in many cases it doubtless is, would add to their happiness. Unable for the most part to read books of instruction or amusement with understanding or profit; ignorant of all the sciences even in their very rudiments; uninstructed in any art that has relation to the higher faculties with the imagination and the fancy, and all the other ministers of taste unawakened from their sleep; unacquainted even with most of the little arts having relation to their domestic state; nay, unskilled in the very games which might innocently fill up a vacant hour—what could they do with more leisure? Alas, I fear we have an answer in what we all see around us in the proceedings which too generally characterise the haunts most frequented by them in the intervals of their weekly labour by day; in the evenings; and even in their Sundays and other holidays! Is such a state of things as this to last forever? Is it even to last long? I believe not; certainly not long, according to the measure by which we mete out the time in relation to momentous changes in man's condition on earth; once fairly asssailed it must gradually vanish before that progress which has never yet ceased, in some degree or other, to animate and advance the race, and material bodies in motion, will gain force as it proceeds. When the period arrives, labor will then take its just place and degree among the acknowledged elements of

happiness; and the business of the world will be carried on, even in the lowest forms, not by unthinking, unreasoning, unenjoying machines in human form, but by man worthy of the name, men with minds as capable of labor as their bodies, and having the means and opportunity of exercising the one as well as the other in that active, earnest, but *temperate* manner which seems to have been ordained as the best manner for man in all his relations. The means whereby this happy change is to be brought about, as far as our feeble power can foresee, seem to lie mainly in the general cultivation of men's minds —in other words, in the imparting of knowledge to all those capable of receiving it.—*From a Lecture on Happiness in its Relations to Work and Knowledge —By John Forbes, M.D.*

THE CHURCHYARD BEETLE.

Fraser's Magazine has lately contained a number of very interesting papers called "Episodes of Insect Life," from the last published one of which we make an extract, as follows:—

"A German, named Gleditsh, who had laid some dead moles upon the beds in his garden, whether as examples of retributive justice for their delacement of his borders and walks, or for other good reasons, or for none at all, does not appear, observed that the bodies of the little gentlemen in velvet disappeared mysteriously. He watched, and found that the agents were beetles, which having first deposited their eggs in the carcases that were to be the provision for their larvæ, buried the bodies, so that they might be safe from predatory birds and quadrupeds. Into a glass vessel he put four of these insects, having filled it with earth, on the surface of which he placed two dead frogs. His sextons went to work, and one frog was interred in less than twelve hours—the other one on the third day. Then he introduced a dead linnet. The beetles soon began their labors, commencing operations by removing the earth from under the body, so as to form a cavity for its reception. Male and female got under the corpse, and pulled away at the feathers to lower it into its grave. A change then came over the spirit of the male, for he drove the female away, and worked by himself for five hours at a stretch. He lifted the body, changed its position, turned and arranged it, coming out of the hole, mounting on the dead bird, trampling on it, and then again going below to draw it down deeper still. Wearied with his incessant efforts, he came out and laid his head upon the earth beside the object of his labors, remaining motionless for a full hour, as if for a good rest. Then he crept under the earth again. On the morning of the next day, the bird was an inch and a half below the surface of the ground, but the trench remained open, the body looking as if laid out upon a bier, surrounded by a rampart of mould.

When evening came, it had sunk half an inch lower. The next day the burial was completed, the bird having been completely covered. More corpses were now supplied, and in fifty days twelve bodies were interred by the four beetles in this cemetery under a glass case."

COWS HOLDING UP THEIR MILK.

It is well known that many cows when they come in, when their calves are taken from them, will hold up their milk, sometimes to such a degree is almost to dry themselves before they will give it down.

"A few years ago," writes a correspondent of an English newspaper, "I bought a young cow which proved to be very wild, and when I took her first calf she would not give her milk. I had heard it remarked that putting a weight on the cow's back would make her give her milk down. I accordingly drove her into a stable, got a bushel of grain and put it on her back. While in this position, she had no power to hold up her milk, for it came down freely. After doing this a few times, and afterwards putting my hand on the back of the cow, it would give way and she would immediately give down her milk. The rationale of this treatment appears to be that the weight counteracts the upward tendency of the animal's muscular action.

THE SOAP PLANT.

From a paper read before the Boston Society of Natural History, it appears that the soap plant grows all over California. The leaves make their appearance about the middle of November, or about six weeks after the rainy season has fully set in; the plants never grow more than a foot high, and the leaves and stock drop entirely off in May, though the bulbs remain in the ground all summer without decaying. It is used to wash with, in all parts of the country, and by those who know its virtues, it is preferred to the best of soap. The method of using it is merely to strip off the husk, dip the clothes into the water, and rub the bulb on them. It makes a thick lather, and smells not unlike brown soap. The botanical name of the plant is Phalangium pomaridianum. Besides this plant, the bark of a tree is also used in South America, for the purpose of washing. Several other plants have been used in different countries as a substitute for soap.

AFRICA.

We find by a series of levellings recently carried across the Isthmus of Suez, that instead of there being a difference of thirty feet between the level of the Red Sea and that of the Mediterranean, as has so long been believed, there is in reality little or none—an interesting fact, which will be still further verified during the progress of the railway works to be set on foot in that locality under the superintendence of Mr. R. Stephenson.—How the past and present will be brought together by having light thrown on ancient geography by modern enterprise! Besides this, an attempt is being made to solve another important problem in the Valley of the Nile. Lepsius has stated in his great work on Egypt, that this river formerly flowed at a much higher level than now, having in the course of ages worn away its bed to a depth of twenty-seven feet; and this statement being disputed, a deep pit or well is to be sunk at Heliopolis, with a view to examine the strata and deposits through which it flows, and thereby determine if any and what change has

taken place. The work for this purpose is under the direction of Mr. Leonard Horner, who defrays the cost with a portion of the annual grant placed by government at the disposal of the Royal Society, which has lately received a consignment of cases filled with specimens of the earth taken from the excavation. Meanwhile it appears that, like Sweden, the Arabian Gulf region and Abyssinia are undergoing slow and gradual upheaval. In addition to these researches, active explorations are going on in the north, east, west, and south of Africa, and more than one treaty of commerce has been signed between England and the petty monarchs of the interior. The Rev. Mr. Livingston announces the existence of another large lake, 200 miles northwest of that now known as Ngami; the great lake Tchad is being navigated by European boats; and efforts are being made to reach those mysterious mountains in which the Nile is supposed to rise, for, as Captain Smyth observes, "no European traveller, from Bruce downwards, has yet seen its true source."—*Chambers' Journal.*

FRUIT TREES.

Pruning.—The practice commonly pursued is to plant a tree, and let it grow in its own way. The consequence is, that it runs up to a long naked stem, with two or three naked limbs, having a few weak branches at the top. In order to obtain a well-formed tree, cut it down after planting to within two feet of the ground, with a sloping cut close to a bud. In this space there will be many buds which will send out shoots. When the shoots make their appearance, rub them all out but three. Leave the top one, and one on each side, not directly opposite each other, at a suitable distance. These will form limbs. The next year shorten the upright shoots that come out of the top bud, so as to produce other horizontal branches, in a different direction from those produced last year. In this way the tree will assume a spreading form. The aspiring shoots must be kept down, and some of the weak ones cut out as well as all dead ones, that the tree may not be overburthened with wood. If the tree get thin of branches near the trunk, cut some of the limbs back,—these will send out shoots, and fill up the naked space. The lowest limb should proceed from the trunk, at not more than fifteen inches from the ground. Large limbs should not be cut off unless absolutely necessary; they should always be pruned when small—less injury will then be done to the tree.

LOVE OE READING.

The Love of Reading Emancipates us from the Dominion of the Passions.—When the intellect is not cultivated, the power of the passions is likely to prevail. They who cannot enjoy the pleasures of mind will naturally seek the gratification of the senses. They who can never spend time in the acquirement of knowledge and of delight from books, will commonly be disposed to give the leisure which they can spare from the bodily toils of life to those means of amusement and kinds of indulgence which have a tendency to corrupt the heart and debase the character. They who have little knowledge of moral duty, and of the physical evils of which many of its violations are productive, and who come into contact with but few of the motives which prompt to the cultivation of virtuous habits, can only be expected to become the slaves of vice. Where the range of desire and enjoyment is limited, and is confined almost entirely within the sphere of animal appetite and passion, and where pleasure depends chiefly, if not wholly, on companionship and personal intercourse with others, it is scarcely possible to escape from intemperance and impurity, and from the contaminating influence of evil example. But it is otherwise when the mind has been instructed and trained by reading. He who loves the good and useful book has within his reach, at all times, mental, moral, and religious enjoyments which, by occupying his hours of leisure and contributing to his happiness, preserve him from multitudes of temptations to immorality. He can sit down at his own table, and by his own hearth, and have his interest there awakened, his thoughts excited, his curiosity gratified, and his joys increased. He can look there upon mental pictures and scenes of beauty, which the bodily eye can never behold, listen to mental voices and conversations which the bodily senses can never experience. He may be alone and surrounded with little that is attractive; but he can fill his mind with ideas of grandeur and loveliness, and hold fellowship with multitudes of the wisest, the greatest, and the best of his fellow men. He becomes more and more acquainted with the duties which he owes to God and to his brethren of mankind, and feels with increasing force the obligations under which he lies to flee from vice, and to practise virtue. And being thus employed, the operations of evil passion are counteracted; the enticements of sinners are avoided; the taste is refined; the love of home, with its quiet and pure pleasures, is fostered; and habits of thought and restraint, of regularity and propriety, are formed and confirmed.—*A Lecture to Young Men, by Dr. M'Kerrow.*

DEATH OF THE ROBIN.

BY MRS. EMELINE SMITH.

From his sweet banquet, 'mid the perfumed clover,
A robin soared and sang;
Never the voice of a happy bard or lover
Such peals of gladness rang.
Lone Echo loitering by the distant hill-side,
Or hiding in the glen,
Caught up, with thirsting lip, the tide of sweetness,
Then bade it flow again.

The summer air was flooded with the music;
Winds held their breath to hear;
And blushing wild-flowers hung their heads, enamored,
To list that "joyance clear."
Just then, from neighboring covert rudely ringing,
Broke forth discordant sound,
And wily fowler from his ambush springing,
Gazed eagerly around.

Still upward, through the air that yet was thrilling
To his melodious lay,
One instant longer, on a trembling pinion,
The robin cleared his way.
But, ah, the death-shot rankled in his bosom—
His life of song is o'er!
Back, back to earth, from out his heavenward pathway,
He fell, to rise no more.

A sudden silence chilled the heart of nature—
Leaf, blossom, bird, and bee,
Seemed each instarted hush, to mourn the pausing
Of that sweet minstrelsy,
And Echo, breathless, in her secret dwelling,
Like love-lorn maid, in vain
Waited and listened long to catch the accents
She ne'er would hear again.

Oh, bird! sweet poet of the summer woodlands!
How like thy lay to those
Of tuneful bards, whose song, begun in gladness,
Have oft the saddest close,
Thus many a strain of human love and rapture,
Poured from a fond full heart,
Hath been, in one wild moment, hushed forever,
By sorrow's fatal dart.

EDITORIAL NOTICES.

UNIVERSITY COLLEGE, TORONTO.

Professor Buckland has commenced a Course of Lectures on Scientific and Practical Agriculture. Fee for the Course $2. These Lectures are open to occasional Students, who can enter the class immediately or at the commencement of the New Year. A Prize of the value of £6 10s., has been offered by William Matthie, Esq., President of the Provincial Association, to the Student in the Agricultural Class, who shal pass the best examination; and a second Prize of the value of £3, is likewise offered by a member of the Board of Agriculture.

December 1st, 1853.

LIST OF HORTICULTURAL AND AGRICULTURAL BOOKS FOR SALE, BY JAMES FLEMING SEEDSMAN, TORONTO.

Gardening for Ladies. By Mrs. Loudon.....	6s. 3d.
Breck's Book of Flowers.....	3s. 9d.
Buist's Kitchen Gardener.....	3s. 9d.
Buist's Flower Garden Directory.....	6s. 3d.
Bridgeman's Young Gardener's Assistant....	7s. 6d.
——— Florist's Guide.....	2s. 6d.
——— Kitchen Gardener's Instructor...	2s. 6d.
——— Fruit Cultivator's Manual.....	2s. 6d.
Downing's Fruits and Fruit Trees of America	7s. 6d.
Coles Fruit Book.....	2s. 6d.
The Gardener's Text Book. By A. Schenck..	2s. 6d.
The American Kitchen Gardener.....	1s. 3d.
The American Rose Culturist.....	1s. 3d.
Every Lady her own Flower Gardener.....	1s 3d.
Domestic Fowl and Ornamental Poultry.....	1s. 3d.
Elements of Agricultural Chemistry and Geology. By Professor Johnston. New Ed.	5s. 0d.
An Essay on Manures. By S. L. Dana.....	1s. 3d.

[Among the several excellent works in the above list, that of Professor Johnston's "Elements of Agricultural Chemistry," is deserving of the special notice of young and enquiring farmers. It is an exact reprint of the last (the 6th) English edition, and is offered at a price which places it within the reach of all. We know of nothing more important to farmers than the proper selection of a few really good books for their own and family's reading.—Editor.]

SCOBIES CANADIAN ALMANAC, AND REPOSITORY OF USEFUL KNOWLEDGE, FOR 1854. TORONTO: HUGH SCOBIE.

The eminent and deserved success which has attended this most useful and valuable publication for several years past, is a sufficient guarantee that the Almanac for 1854 will sustain the high character of its predecessors. In looking over its pages we find them crowded with matter, which every man of business must have frequent occasion to refer to; while its general and scientific information is of a kind that cannot fail to interest all classes of the community. Nearly ninety octavo pages of the exact information with which it is everybody's duty and interest to become familiar, collected and condensed at much labor and expense, together with a well executed map of a portion of the Province, for the marvellously low price of 7½d! No family ought to be without it.

THE POPULAR EDUCATOR: A. H. ARMOUR, TORONTO.

This cheap and excellent monthly serial well sustains the important position which it assumed at its commencement, and will doubtless prove a useful auxiliary to such young persons as are pursuing a course of study, unaided by a teacher, as well as to domestic and school education. The widest possible diffusion of publications of this sort, cannot fail to prove an inestimable blessing to society.

We have received the First Report of the Secretary of the Board of Registration and Statistics, on the Census of the Canadas for 1851-52. We are indebted to Mr. Hutton, the able and indefatigable Secretary of the Board, for the above interesting Report, to some of the results of which we may hereafter refer.

AGRICULTURAL PRIZE.

We publish with pleasure the following communication. It is gratifying to see Mr. Harrington's interest in the progress of Agriculture displayed in this tangible form. The gift is not only valuable in itself, but is beneficial as a stimulant to others to look around them to see whether they can in any way lend a helping hand to progress. In these days we stand not still, and it is well to move in an honest, upright course:

Toronto, 9th Nov., 1853.

Dear Sir.—I was much pleased with the late Fair of the Township of Etobicoke, as well with the exhibition of the products of the soil, cattle, horses, implements, &c., as with the men, whose energy, good will and ambition, were so easily seen.

As a small token of acknowledgment of such very good qualities, I will be happy to give, as a premium, one of Grey's double-mounted iron Scotch ploughs, to be competed for by farmers or their sons, in a ploughing match, to take place at the time of holding your next Fair, leaving the matter in the hands of such zealous friends of the farmer, as yourself and the other officers of the Township Society, to arrange.

I remain,

Yours very truly,

John Harrington.

Edward Musson, Esq.,
President of the Etobicoke Agricultural Society.

At a meeting of the Board of Directors of the Agricultural Society of the Township of Etobicoke, held at Mr. Thomas Smith's Inn, Mimico, Dundas street, on the 11th instant, it was moved and carried unanimously,

That the thanks of this Society be returned to John Harrington, Esq., of Toronto, for his very handsome presen, to the said Society, of one of Grey's double-mounted iron Scotch ploughs, as a premium to be competed for, at a ploughing match to be held the ensuing season, to be left in the hands of the present President and Directors of the Society, as they may think proper.

By order of the Board,

Alex. Campbell,
Secretary E. A. Society.

Etobicoke, 26th Nov., 1853.

TORONTO MECHANICS' INSTITUTE

We have much pleasure in publishing the Mechanics' Institute programme of Lectures for the ensuing season. A more imposing list of Lecturers could not easily be provided. We trust that in spite of all the fascinating entertainments generally provided to beguile the long winter nights, that this course of Lectures will be well attended.

LECTURES

To be delivered in the Hall of the Institute, during the Winter of 1853-4.

1853, Friday, Dec. 2nd—"Opening Lecture," T. J. Robertson, Esq. 9th—"The Augustan Age of English Literature," Rev. Dr. Burns 16th—Rev. Dr. Burns. 1851, Jan. 6th—"The connection of Natural Science with Agriculture," Professor Hincks. 13th—"Indians' Languages and Legends," Rev. A. Lillie. 20th—"Self-Education," Patrick Freeland, Esq. 27th—"The primitive state of man;—was it civilized or savage?' Thomas Henning Esq. Feb 3rd—"Magnetism," Rev W. Ormiston. 10th—"Nitre, its nature and uses," Professor Croft. 17th—"On some characteristics of the Ancient and Modern Drama," Dr. Wilson. 24th—"Philosophy—falsely so called," Rev Dr. Pyper. March 3rd—"Geology." Professor Hind. 10th—"Geology of Canada West," Professor Hind. 17th—"On the Earth's Epochs, with Paleontological Illustrations," Professor Chapman. 24th—"Ancient Bibliography," Rev. Dr. McCaul. 31st—"On Heat." Rev. Dr. Taylor. April 7th—"Concluding Lecture,' Rev. Dr. Ryerson.

Tickets for the Course, 5s. For a Single Lecture, 7½d. Ladies, and members of the Institute, admitted free.

TORONTO RETAIL MARKETS.

December 1, 1853.

Flour—Millers' extra superfine, per barrel	0	0	a	32	6
do Superfine do	0	0	a	31	3
Farmers', per 196 lbs	27	6	a	28	9
Wheat—Fall per bushel, 60 lbs	5	3	a	5	7
Spring, per bushel, 60 lbs	0	0	a	0	0
Oatmeal, per barrel	0	0	a	35	0
Rye, per bushel 56 lbs	4	0	a	4	3
Barley, per bushel, 48 lbs	2	0	a	3	6
Oats, per bushel 34 lbs	2	6	a	3	0
Peas, per bushel	3	6	a	4	0
Potatoes, per bushel	2	6	a	2	9
Apples, per bushel	1	6	a	2	6
Grass Seed, per bushel, 48 lbs	7	5	a	0	0
Clover Seed, per bushel	27	6	a	28	6
Hay, per ton	70	0	a	85	9
Straw, per ton	50	0	a	60	0
Onions, per bushel	5	0	a	7	6
Butter—Fub, per lb	0	8	a	0	9
Fresh, per lb	0	10	a	0	11
Lard, per lb	0	7	a	0	7½
Turkies, each	2	6	a	3	6
Geese, each	2	9	a	3	3
Ducks, per couple	1	6	a	1	9
Fowls, per pair	1	0	a	1	6
Cheese, per lb	0	5	a	0	0
Pork, per 100 lbs	22	6	a	26	3
Fresh, per lb	0	0	a	0	5
Beef, per 100 lbs	22	6	a	27	6
Beef, per lb	0	2½	a	0	5
Hams, per 100 lbs	45	0	a	50	0
Bacon, per 100 lbs	35	0	a	40	0
Wool, per lb	1	2	a	1	6
Sheepskins fresh slaughtered	5	0	a	5	8
Calf-skins, fresh, per lb	0	0	a	0	6
Hides, per 100 lbs	22	6	a	25	0
Eggs, per dozen	0	10	a	1	0
Veal, per lb. by the quarter	0	3	a	0	4½
Mutton per lb. by the quarter	0	3	a	0	5
Coal per ton	37	6	a	40	0
Firewood, per Cord	20	0	a	22	6