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THE
CANADIAN AGRICULTURIST,

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VOL. VI

TORONTO, MARCH, 1854.

No. 3.

Reports, Discussions, &c.

TOWNSHIP OF YORK FARMERS' CLUB.

On Wednesday evening, 8th inst., a meeting of the members of the York Township Agricultural Society was held at Powell's Hall, on Yonge street, chiefly for the purpose of considering the propriety of forming a Farmers' Club. Considering the very unfavorable state of the weather the meeting was well attended; among the company present we observed Messrs. E. and Snider, E. W. Thomson, J. and B. Bull, Professor Buckland, H. and J. Ross, G. Murray, Harris, W. Belles, J. Shuttleworth, G. Ward, Hadley, J. Goulard, R. Wood, J. Stevenson, V. Lee, G. Cunningham, J. McClean, &c., &c.

E. W. Thomson, President of the York Township Agricultural Society, took the chair, and after having called the meeting to order, introduced the business of the evening with the following remarks:—

In assembling together this evening, we manifest a desire to mutually benefit each other; and although I feel my own inability to bring forward anything in the way of a speech, I am happy to be able to inform you that I have succeeded, in accordance with your wishes, in inducing our friend Professor Buckland to come amongst us this evening, for the purpose of giving us a short lecture on some of the numerous subjects in which we are all deeply interested. But before going away to Mr. Buckland, you will perhaps permit me in making a few desultory remarks. The object we have in view is the advancement of the agricultural interests of our country; and

when we consider the peculiar position of this country, and the fact that nine-tenths of the population are directly dependant upon agriculture for their support, and that the other tenth can only prosper, as the great majority prosper, when it can be of more importance to the whole mass of the population than the promulgation of that information which will have the effect of enabling the producer to obtain the largest amount of produce at the least possible expense from his soil; and to this end the assembling together on occasions like the present may be made highly conducive, because we have not only the opportunity of hearing theoretical opinions, but we have the benefits resulting from actual practical experience, which are no doubt of great use to hold in check sometimes, the fanciful flights of mere theorists; not that I apprehend there is any one of that description here on the present occasion, but we often meet with statements in the course of our reading, and sometimes in conversation, that are truly ridiculous; such for instance as a statement set forth in a catch-penny pamphlet published in Canada a short time ago, entitled, "Farming and Gardening made easy,"—in which, amongst other absurdities, was a method of destroying Canada thistles, by first cutting them down to the ground and then dropping a drop of spirits of turpentine into the hollow of each stalk; a mode about as practicable as the proposition to destroy fleas by catching them first and then choking them with Scotch snuff! Now, a Farmers' Club may be conducted in a way that will conduce to the checking absurdities of this kind, and bringing out useful information, by bringing forward at each meeting some important subject for consideration, by some one of its members appointed to do so at the previous meeting, in a written communication,—in which may be embodied not only his own views, but the opinions of others,

that he may be able to select from, authors that he may have it in his power to consult and make extracts from, always giving credit for the same, and stating the page upon which the extract may be found. This will induce a spirit of enquiry, and afford an opportunity in a conversational way, for all who choose to give their views on the subject under discussion, and also to refer to the opinions of such authors as they may have been induced, from having had a previous knowledge of the subject of discussion, to consult.— This seems to be the method successfully adopted by our brother Farmers in other parts of the country, and has had the effect of eliciting many highly interesting and useful remarks from the persons present, who perhaps have read very little. I am quite sure that every one will agree with me on this subject, who has read the interesting proceedings of the Farmers' Clubs established both to the east and west of us, and will be disposed to say as far as he has it in his power, to go and do likewise. Having made these few preliminary remarks, we will now, if you please, hear Mr. Buckland, and afterwards discuss the practicability of forming a permanent Farmers' Club upon a satisfactory basis.

Prof. BUCKLAND expressed his satisfaction at meeting so many farmers on such an occasion, and his willingness to render them any assistance in his power. He gave a brief sketch of the origin and history of agricultural associations in the British Islands, tracing their commencement to a small body of Scotch land owners,—who, upwards of a century ago, formed a Society in Edinburgh, for promoting the important art of agriculture. From that small and obscure beginning great results had followed; among them might be enumerated the Highland Society, which had now been near three-quarters of a century in active operation, giving birth to the present most influential national Societies of England and Ireland, and to the local Associations and Farmers' Clubs, almost without number. The impetus thus given to the agricultural mind of Britain had been immense, and its influences were now more or less felt throughout the wide range of our colonial empire, and by every nation of the civilized world. Mr. B. adverted to the advantages which had resulted from association to commerce, literature and art, and to all the varied appliances of a higher civilization; observing that Providence had remarkably favored this portion of the world in its agricultural and commercial capabilities, and that we inherited the same blood and indomitable energy, which had given to our father-land such an enviable distinction among the nations of the earth.

He had received from distinguished agriculturists, both at Home and in the United States, honorable and encouraging testimony to the value and interest attached to the proceedings of the few Farmers' Clubs that are already in existence in Canada. Agriculture in this country presented a field for practical and scientific culture that is constantly enlarging, and demands the best powers of both mind and body. The Professor concluded by offering a number of practical suggestions relative to the organization and management of Farmers' Clubs, and mentioned several subjects that might be advantageously discussed at such meetings, in the present state and wants of the country.

After some observations from Messrs. Bull, Snider, Lee, Ross, Powell, and others, it was Resolved,

1st. That a Farmers' Club be Established in the Township of York of which all members of its County and Township Agricultural Societies shall be members.

2d. That the object of the Club shall be to meet from time to time for the discussion of subjects connected with the interests of agriculture, that some member shall prepare and read a paper on a subject agreed upon at the previous meeting, taking care to give full references in all cases of quotations from books or other authorities.

The meetings are to be held monthly in different parts of the Township; political and theological subjects are to be excluded, and any member will be at liberty to take part in the discussion.

The following Officers were appointed:—

E. W. THOMSON, President.
J. P. BULL and W. LEE, Vice-Presidents.
W. JACKES, Secretary.
J. ROSS, Treasurer.

Committee:

J. DEW, J. McMULLEN,
H. JOHNSTONE, T. HALLEY,
T. L. HALLOWELL.

The officers are to prepare a set of rules and regulations in accordance with the spirit of the above resolutions, and present them to the next meeting of members, at Powell's Inn, on Yonge Street, the second Wednesday in March, at six o'clock,—when Professor Buckland has engaged to deliver an address on *The Relations of Science to Practical Agriculture*.

Some such peculiarities as the year 1854 possesses will not occur again for twenty-eight years. The year begins and ends on Sunday; there are five months in the year that contain five Sundays, and there are fifty-three Sundays in the year.

TOWNSHIP OF HAMILTON FARMERS' CLUB.

FARM YARD MANURE.

At the meeting of the Township of Hamilton Farmers' Club, held at Dickson's Inn Court House, on Saturday, December 31st, 1853. Mr. John Masson in the chair.

Present—Messrs. P. R. Wright, J. Wade, D. Black, G. Black, Ingerstol, Beatty, Pratt, Brown, Roddick, Sutherland, Bennett, Forsyth, &c., &c., &c.

The subject for discussion, viz., "The Management and Application of Farmyard Manure," was introduced to the meeting by P. R. Wright, Esq., as follows:

At a meeting such as this, composed almost entirely of practical farmers, it would be useless to allude to the importance of the subject on which I am privileged to make a few introductory remarks, and chiefly with the view of directing your attention to certain points profitable for consideration and discussion. We have all more or less practical experience, therefore the conversation may be expected to be general, and consequently my remarks shall be as brief as possible. The term manure was at one time chiefly confined to the excrements of animals, either mixed or unmixed with the straw of cultivated plants, but it has now attained a much wider signification, and includes every substance of an animal, vegetable, or mineral origin, which, when applied to the soil, has the effect of increasing its fertility. In practical agriculture manures are divided into two classes, natural, and artificial, the former derived from the soil itself in the various forms of the straw of cereals and grasses, roots, grains and so on, all of which being consumed by cattle of some kind or other, in fields, stalls, or straw-yards, yield that much prized substance, familiarly known as farm yard manure, the management and application of which, we meet this day to consider. The management of manure may be said, without exaggeration, to be the most important department of farm practice; and unfortunately one on which there is greater need for improvement than on any other, and notwithstanding the fact that the proper management of the dung heaps has been explained, and enforced by the teachings of agricultural chemistry for the last ten years; the practical application of the lessons remains yet in a great measure to be made. Farm yard dung still continues to be carried out from rain-soaked straw yards to the fields, and there deposited in heaps exposed to rain, wind, and sun, for weeks or months, without an attempt to stay the waste that must evidently arise from exposure, and very many farmers whose practice in other matters is unexceptionable, are strangely blinded to the great loss sustained by exposed manure heaps. On nine-tenths of the farms in Canada, even in districts where good manage-

ment generally obtains, there is a fearful waste of food producing material, and to this state of things badly constructed homesteads have greatly contributed, and even now in the construction of new buildings we seldom or ever see any attention paid to, or provision made, for the preservation of liquid manure, or for protecting the straw yard from being deluged every now and then by rain poured into it from the surrounding roofs. I would except, however, certain cases, when with wonderful ingenuity and engineering skill a site has been chosen on the highest peak of the farm, that the owner may enjoy the felicity of a dry straw yard! A loss of manure is equivalent to a diminution of produce, and this again by lowering the profits of farming necessarily depreciates the value of land; and in the construction of new buildings or repairing old ones, abundant provision ought to be made for the complete preservation and protection of manure—all manure ought to be made under cover, either in stalls, boxes, or sheds, if in the former it must be removed daily, which entails the necessity of a shed for its protection, if in the second it may be allowed to accumulate for some time, and by the latter mode it may be allowed to remain, until required for laying on the land, provided the roof of the shed will allow its being so accumulated. How is it we invariably find box feeding or stall feeding of some kind or other accompanied by bulky crops of grain, roots, and clover? Just because the manure so made is richer and more abundant than on those farms where the creek, ditch, or pond, receives the drainage of the strawyard—few who have not studied this subject are aware of the enormous quantity of fertilizing materials that accompanies the little black stream which oozes from the yard where no tank is provided to draw off the surplus liquid. The general practice of throwing the manure from the stable into the yard, in one point may not be objectionable, as loose cattle are fond of picking stable litter and thrive well on the refuse fodder; but the advantage thus gained would be greatly enhanced if the dung were placed under cover, and the expense of erecting sheds for this purpose would be amply repaid in a few years by the superior condition of the cattle, and the improvement of the manure. Where timber is both cheap and abundant it is astonishing to see the number of farms, where the only shelter to be found is the precarious and doubtful one, the lythe side of a zigzag fence. Having condemned the practice of laying down the manure in the field, I may be permitted to suggest a not original plan. Choose the least exposed portion of the field (consistent with a due regard to economy of time) for forming the heap, give it solidity sufficient to prevent violent fermentation, which to a certain degree is necessary, that the vitality of noxious seeds may be destroyed, cover the whole pile with earth six inches thick, and it is then in the safest state circumstances will permit. Having said thus much on the manufacture and management of manure, the next point for consideration is the principle which should govern its application, and first generally; It may be regarded as an axiom which holds good everywhere, and in all cases,

at the quicker farm yard manure is buried, the better, because when once covered up with three or four inches of earth there is no risk of its being lost, as the soil, (according to Way's experiments,) has both a physical and chemical power of retaining ammonia, while at the same time it yields it up readily to the growing plants. The wasteful practice of spreading manure on the surface, or laying it down in small heaps to be bleaching in the sun for weeks before being ploughed in, is not less absurd than the Syrian practice of making the dung of animals into cakes and sticking them on the walls of their houses to dry in the sun preparatory to their final destination of being buried as fuel! A farmer who imports his ammonia from the Chinese Islands, and dissipates to the four winds of Heaven that furnished by his own farm, is nearly as wasteful as if he gave away his straw for nothing and purchased what he required for his own use. If we lend our ear to science she will inform us that under exposure decomposition takes place, that the consequence is the liberation of that gas, (ammonia,) the essential spirit and vital agent in the production of our green and grain crops, from the body which we have been at the expense of collecting together, *taen truly a body whose spirit hath departed.*

Professor Johnston, on the application of manure says, 'that when recent manure from a given quantity of straw is ploughed in, the greater the quantity of organic matter we add to the land when the only object thereof is the general enriching of the soil, this is the most expedient and economical way of using the manure, but when the soil is light and open, recent manure when ploughed in has a tendency to make it still more so, and may thus mechanically injure its condition; in such a case it may be better to allow the manure to ferment and consolidate in the barn yard with the certainty of considerable loss, than to diminish the solidity of the land by ploughing it, in in a recent state, the question for the practical man to decide is whether it would not be better generally to keep his manure in heaps till it is well fermented, and adopt those measures for preventing waste in the heaps which science points out. Whilst those evils may arise from the use of long dung on light soils—it is very different on clay or heavy land, this sort of soil will evidently be benefited by the opening tendency of unrotted straw, while at the same time the products of decomposition will be more completely retained, the soil more enriched and the crops following more benefited. On clay soil an excellent practice is to plough in the recent manure in the fall which will then reach its most fertilizing condition when the early spring causes the young plants to seek further supplies of food; the nature of the crops sought to be raised must guide the practical man in applying the manure, as well the nature of the soil; if the crop is one which springs up rapidly and attains an early maturity, he will apply the dung in an advanced state of fermentation and thus immediately benefit the growing plants, in this state it is generally considered best for turnips, and at least one important object is gained by it: forcing the young plant during the time it is tortured by

the fly, and also furnishing such supply of food as keep them growing till they have attained a profitable size. I must apologise for the length to which these remarks have extended, the subject is so fertile and all important to us as farmers, that I trust some of your forgiveness, and I trust the practical remarks which follow may be heard with due attention, and be productive of more good.

Mr. J. WADE said, there is a good deal of difference between this country and England in the application of manure, they could use it as a dressing to greater advantage in the most climates of England than we could do here in our dry climate.

There has been a good deal said about the advantage of putting manure under shelter, it was said by some to increase its value as much as twenty-five per cent; he had never tried keeping his manure under shelter yet; he had read lately an experiment made by a tenant farmer in England who had tried manure made under shelter and that made in the usual way, and had found but very little difference. It depended on what crop he wished to apply his manure as to how he prepared it, if it were not for the seeds of weeds, he would prefer applying his manure unfermented; he had been in the habit of applying the greater part to summer fallows; he generally applied from the barn yard just as it was (returned) before the second ploughing, so that any seeds that were among it would vegetate and be destroyed by the plough. On the other hand, if you wished to apply manure to green crops it ought to be put in a heap and fermented, as manure ought to be partly pulverized for green crops, he had often applied manure to turnips without turning, and with good success, but took care to take the shortest, that with least straw in it, he should it come a dry summer turnips would not do well on unfermented manure.

Mr. Wm. ROBDICK said, his general practice was to draw out all his dung in the fall for green crops, as he seldom summer fallowed any; he never turned his dung as he thought it was a great waste of manure to turn it, he threw up the manure round the sides of the yard where it was thin and allowed it to lie all summer in the barn yard; he had eave-troughs round his barn and sheds, which prevented the wash from running off them on the dung; he preferred manuring in the fall to the spring, he sometimes put a little dung in the drill for his turnips in addition to what he gave the ground in the fall.

Mr. BENNETT said, he was not much of a farmer, but as the chairman had desired him he would state how he had manured his carrot ground, (Mr. B's. carrots received the first premium last fall); his yard was small so that he had to throw his dung out and put it in heaps. The ground had been in potatoes the previous year, and he put the manure on after he had taken off the potatoes, and ploughed it down immediately, he thought that manure ought to be ploughed under almost as fast as it was taken out, as when manure was allowed to lie on the land in the sun for perhaps a week or two it was of very little

use; he thought that there was a great deal of manure wasted from the way in which many barn yards were constructed, allowing the liquid part to run to waste; if farmers were to make their barn yards hollow in the middle, so as to save as much of the liquid portion of the manure as possible, or if they would go to the expense of a tank, it would be a great benefit to them.

Mr. D. BLACK said, he applied his manure in the fall for root and green crops, except for turnips; for turnips he would prefer manure just rank from the barn yard and put in the drill before sowing, as he thought it did as well for turnips that way as when turned and fermented; he thought manure was best made under a shed to prevent it from exposure to the weather; for summer fallows he would put it on before the second ploughing; he would like it fermented to destroy the seeds of weeds before putting it on summer fallow.

Mr. SUTHERLAND agreed generally with Mr. Wright's remarks in the comprehensive and excellent speech he had heard read; his impression was, that the greater portion of the best of the manure made on the farm was wasted by negligence and the improper construction of our barn yards: he had reference more particularly to the liquid portion of the manure, which was in most cases allowed to run to waste, and was leached out of the solid manure by the volumes of water allowed to pour down upon it from the adjoining buildings, when a trifling expense for cave troughs to carry off the water would remedy this evil; his idea of a farm-yard would be, to have it so constructed that all the liquid portion from the different stables would converge to one point and be received into a tank or cess pool, in this state it might be employed as a fertilizer in its liquid state, or amalgamated with the solid portion of the manure by the various modes adopted for the purpose. He thought the less the solid portion of the manure was turned before putting on the land the better, except for root crops; his mode of doing was to draw it out of the yard after the spring work was done, and convey it to the field it was intended to be used on; by this means he saved the turning of it in the yard.

Mr. PRATT said, he generally put on his dung in the Fall; he turned over his dung in the barn-yard in the summer and let it rot; he did not approve of turning dung, but could not help it as he thought there was no other way to destroy the seed of weeds that were in it. For turnips he preferred well rotted dung and plenty of it in the drill before sowing.

Mr. GEORGE BLACK thought that dung would be the better of being made under cover. If all the water that runs from the roof of the barn and sheds was prevented from running on the manure it would be much better, as so much water running through the manure took a great deal of strength out of it, he thought it would answer best to have a place puddled solid in the middle of the barn-yard, and small drains to run from each of the stables to carry off the liquid into this hollow place, so that none of it might run to waste. He had seen at home where they drew out their dung in large heaps in the field; they laid down just

about two feet of earth and then drew out as much dung as they thought sufficient for the field, and then covered the heap with earth, then pumped the tanks over this heap, and then a short time (say three weeks) before they wanted to use this manure, they would turn it all over and apply it to their potatoes, turnips, and other green crops. For wheat on clay soils, he would apply dung rank from the barn-yard at the second ploughing, as it tended to keep such land open, but to light land for wheat, he would apply well rotted dung; he had never had a good crop of barley after wheat, nor ever seen one: he thought there must be something in the roots or stubble of the wheat that did not agree with the barley. Manure for turnips he would like well heated, and put it smoking hot out of the dung heap into the drill, cover and sow immediately, and there was little danger but you would have a good crop of turnips. He would rather have one ton of liquid manure than ten tons of barn-yard manure as it is usually made; he had found turnips as good after liquid manure as after either bone dust or fish oil on the same land. In drawing dung out in large heaps in the field, it ought either to be covered up with earth or trodden down solid to prevent it from over heating.

Mr. MASSON always found his barley do well after wheat, if he ploughed his wheat stubble early in the Fall; he would never put manure on summer fallow, but reserve it for his barley crop; he laid it on in the Fall and ploughed it down with the wheat stubble in this way; he had good crops of barley, and his young clover always took and did well in this way. With regard to making manure, since he had been farming near Cobourg, he had always had most of his cattle tied up, and he found the manure made from them better than that made in the usual way of the cattle running loose in the barn-yard. He would like his barn-yard with a basin in the middle, and fill this basin each season with earth, taking care when he turned his dung to shovel up this earth amongst it; he would turn all his dung as early as possible in the spring and then draw it out for his green crops, taking care to mix the wet and the dry well together; he thought that if dung was very hot when put on for turnips it would dry up before it could be covered in; he liked it as damp and as fine as possible.

A vote of thanks was given to Mr. Wright for his excellent Essay.

The next meeting of the Club was appointed to be held at Dixon's Inn, on the last Saturday of January, at one o'clock.

The subject for discussion to be draining. Mr. George Black to introduce the subject.

WALTER RIDDELL, *Secretary.*

TO TRY OUT BEESWAX.—Put the comb into a colander, or a tin pan with the bottom punched full of holes, and place it in a warm oven over another pan partly filled with water. The wax will melt and drop into the water below, perfectly clear.

DELAWARE AND CARRADOC TOWNSHIP SOCIETY.

At the Annual Meeting of the Directors and Members of the Branch Agricultural Society of the Townships of Delaware and Carradoc, advertised to be held in the Town Hall in Delaware, but adjourned to A. Montgomery's Hotel, on the 21st day of January, 1854. The following office-bearers were elected for the ensuing year:—

Wm. Livingstone, Esq., President, H. Johnstone, Esq., Vice-President, Horatio Jell, Secretary, and Dr. Francis, Treasurer.

The following gentlemen were elected to act as Directors, viz:—Major Heyne, Wm. F. Bullen, Jno. Johnstone, J. B. Burwell, Geo. Uxford, G. Gownlock, G. McKay, B. F. Bartlett, J. Tull.

The Annual Report of the office-bearers and directors of the Society for the past year, was then submitted to the meeting, together with these few remarks.

"It is with great satisfaction that we, the Office Bearers and Directors of the Society, submit a few remarks on the very evident improvement both Agricultural and Commercial, in the Townships of Delaware and Carradoc during the past year. Certainly the Agriculturists in both Townships have nothing to complain of, on the score of want of fertility of soil, it is notwithstanding of a very varied description. In the south-east part of Delaware and South part of Carradoc, it is principally a clay loam, and well adapted for Wheat; the "Flats" on the banks of the river Thames (which divides the two Townships) are assuredly of a very superior description of soil, although not so well adapted to the growth of wheat, the soil being a deep vegetable mould, yet they are not to be surpassed in the production of hay or root crops; in the north-west part of Delaware, and more particularly in the north part of Carradoc, the soil is generally a sandy loam, and with good management is made to produce excellent crops of wheat.

We may here remark, that it is most gratifying to us to observe the increased attention paid to the cultivation of roots in both Townships, and which are of such essential benefit, in the well-wintering of stock, in almost every country, more particularly in this; and we must own that within the last few years, the farmers here have advanced greatly in their entire system of culture, and the present high prices, will no doubt have the effect of stimulating the farmer to much more strenuous exertions to till his land properly.

The crops in this section of the country were, on the whole, taking into consideration the extraordinary dry season, good, the fall wheat crop was considerably above an average one, but the spring crops were rather below.

The Great Western Railway being now in operation, and passing directly through the township of Carradoc, is of the greatest advantage to the farmer, in affording him by the facility of transit, good markets for all kinds of produce, and equalising the prices thereof more in unison with those of the markets in

Toronto and Hamilton. Even the construction of the line, was the means of benefitting the community at large, by causing a great circulation of money, and giving an impetus to trade generally.

The roads in both townships are gradually undergoing a thorough revision, by macadamising where practicable, and otherwise repairing others, and there seems to be an unanimity in the desire of all parties for improvement.

Property in and around the village of Delaware has within the last year, risen in value to a great extent, it certainly has as great advantages if not greater, than any other village or town in the Upper Province, in point of water privileges, and when the projected canal is completed (which will be the means of diverting the course of the river Thames, and causing it to flow through the village of Delaware, thus obtaining a great fall of a large body of water, capable of propelling machinery to almost an indefinite extent) the village, which has so long lain dormant, may then raise its head above any other manufacturing town in Canada West."

After passing a few resolutions relative to the affairs of the Society, a vote of thanks was then passed by the meeting, to the Office-bearers and Directors of the Society, for the able, energetic manner in which they performed their respective duties during the past year.

HORATIO JELL, *Secretary.*

BLLENHEIM AGRICULTURAL SOCIETY.

We have to record the proceedings of a meeting held at Drumbo, in the township of Blenheim, on Saturday the 21st of January, for the purpose of organizing a Branch Society, which was duly effected upon that occasion. JAMES WATSON, Esq., being called to the chair, explained the object for which they were met—and observed that it was gratifying to watch the progress of this young country. He would say, he was happy he had cast his lot in what will soon be considered one of the finest farming districts on this Continent. But a few years ago Canada was only known as a wilderness, furnishing timber for European Markets; at the present moment, we transmit annually, several hundred thousand barrels of flour and other products and with our present prospect of railroads, and other improvements, we shall soon be classed amongst the most important of the British possessions. He had long been desiring that such a society should be established in Blenheim, and would call on Mr. Alexander to explain more fully than he could do, the benefit it would be to the township.

Mr. ALEXANDER would have regretted much had he been prevented by other engagements, from being there to-day. All present would heartily concur with their respected Chairman in this, that while the markets for produce were becoming better, and the value of property rising everywhere, it would be desirable that all those means of further improvement should be adopted which had raised older countries to wealth and greatness. As the interests of this Province were essentially Agricultural, they had to study how the Farmer may become enriched, not only by the more successful cultivation of the soil, but by raising stock of the most valuable kind. Mr. Alexander here proceeded to illustrate, at considerable length, the good which had been done by Agricultural Societies in Scotland. He remarked, that no one could visit the meetings of the Highland Agricultural Society, and witness the beautiful stock exhibited there, without feeling that some powerful agent had been employed to bring about such results; not to mention the numberless ingenious implements of husbandry, constructed to save labour, and to enable the farmer to do his work in a more efficient manner. In a new country, such as this, where the scarcity of labour is the great difficulty, our Agricultural Societies would do well to study how they can best encourage all such improvements, not overlooking the importance of bringing into the country the new kinds of seed, some of which may be well adapted to our climate and prove a more certain crop. But the amount of good done by such societies, will depend upon the care which is taken to conduct all the proceedings, so as to preserve confidence in their management. No one should accept office who is not resolved to give much time and attention, to see that the By-Laws and regulations are well considered; to see that competent judges, from some other locality are secured, whose decisions will give general satisfaction. Properly speaking, the officers of the society should divide the labour of management, each undertaking to do his part *thoroughly*, that nothing may be neglected. Allowing their influence in their respective localities to increase the number of members. The arrangements for the annual show to be made in due time; and upon that day, every officer should have his post assigned to him, and in all cases where any dissatisfaction is expressed with the decision of the Judges, or any other thing, there should be an investigation of the matter at the time, so that confidence may be maintained in the management. Then, as to the manner of disposing of the funds of the society, the amount of the premiums to be awarded, and whether thorough-bred stock should be purchased, these are all questions requiring judgement, and a practical knowledge of the wants of the locality.

In conclusion, he rejoiced at the occasion of their meeting here to-day. The township of Glenbeim, with its rich natural resources, its unlimited water-power, and two railroads traversing its territory, must increase rapidly in wealth and population—and by continuing to give a liberal support to the cause of Educational and Agricultural improvement, you will most effectually be

laying the foundation of a solid and permanent prosperity.

The Chairman observed, that it now devolved upon the meeting to elect their officers for the present year, according to the provisions of the Statute, when the following gentlemen were unanimously appointed:—

JAMES WATSON, *President.*
HUGH ALLAN, *Vice-President.*
WILLIAM DICKSON, *Sec. & Treas.*

DIRECTORS.—John S. Lindsay; Francis Pickle; William Brown; Edward Bouchier; Walter; Martin; Andrew Laidlaw; Archibald McArthur; Christian Stauffer; Daniel Wakefield.

After a vote of thanks to the Chairman and Mr. Alexander, the meeting adjourned.

ETOBICOKE AGRICULTURAL SOCIETY.

To the Editor of the Canadian Agriculturist :

Sir—The annual meeting for the election of officers and directors of the Township of Etobicoke Agricultural Society took place on Wednesday, January 18, at Mr. Thomas Smith's Inn, Mimico, when the following gentlemen were unanimously elected to office for the current year:—

President—Edward Musson, Esq.
Vice-President—Donald McFarlane, Esq.
Secretary—Andrew Ward, Esq.
Treasurer—Edwin C. Fisher, Esq.

Directors—Messrs. Wm. Wilson, Reuben Fearnley, Thomas Mercer, Archibald Cameron, William Mead, John Moor, William R. Scott, Benjamin Johnston, Archibald Gallanough.

The meeting was large, being numerous, & attended by parties interested from all parts of the Township, which was highly gratifying to witness, showing that the farmers generally are becoming alive to their own interest, and are determined, in consequence, to put their shoulders to the wheel, to assist in advancing the cause of agriculture by liberally supporting Township Agricultural Societies, which of late have so clearly proved to be beneficial, not only to the Townships where they originate but to the Province generally.

A. WARD, *Secretary.*

PETERBORO' AGRICULTURAL SOCIETY.

The Annual Meeting of the County of Peterboro' Agricultural Society, was held at the Court House on Saturday, the 4th ultimo, when the following gentlemen were elected Officers for the ensuing year:

President—Mr. John Harvey.
Vice Presidents—Messrs. I. Garbutt and T. Bell.
Treasurer—Mr. R. Nicholis.
Secretary—Mr. J. W. Gilmour.

Directors—Messrs. John R. Milburn, John T. Milburn, Emanuel Mann, Christopher Burton, William Simpson, Joseph Walton, Isaac Milburn.

It would appear from the Report, which was read and adopted, that the funds of the Society are in a prosperous condition, there being a balance on hand of over £40. The Report also mentions the purchase of a quantity of Plaster, now ready for delivery at Port Hope, upon presentation of orders from the Secretary, which can be had on application to the Treasurer of the Society.

Communications.

ON THE MODERN SYSTEM OF DRAINAGE, AND ITS APPLICATION IN CANADA.

(For the Canadian Agriculturist.)

As in every other productive art, so in Agriculture, its progress, from primitive simplicity, to scientific cultivation, is the inevitable consequence of enlarged demand on the one hand, and increased competition on the other. The earlier or later development of the result may of course be affected by various circumstances—social, political, or geographical—but it is sure to follow: in Holland and the Low Countries, for example, these causes combined to render them at a comparatively early period, the best cultivated districts of Europe; whilst Great Britain, so long in a transition state, has at length entered in earnest on the great work of Agricultural improvement. France, Russia, and other parts of the Continent are still content to toil on in the apathy of pastoral primitiveness; although, in the former country, there have of late been indications of a conscious necessity for Agricultural progression, and it is more than probable that the recent internal changes, coupled with the effect of passing events, will stimulate a rapid advance in its rural economy.

Now as introducing to our subject, and as affording matter for reflection, as well as examples to be profitably followed and avoided, it may not be altogether uninteresting to trace briefly the progressive condition of Agriculture in the Mother Country, during the past half of the century. And if, in so doing, we should recall to mind those halcyon days when, with wheat at 15s. per bushel, the toast of "better times" was the cherished sentiment of the market tables, it will be assuredly with no longings after the evils happily passed, and of which, even to this hour, we, in common no doubt with many, retain familiar recollections; for it was our lot to be born under a Vicar's Root, in a midland county, and so in early life to witness and to feel those exemplary contrivances, for the elongation of incomes, which the necessities of the times established as fashionable, in order to their being admissible. The great feature of advance which characterised the first quarter of the century, was the inclosure of open commons, and uncultivated lands; than which nothing could more distinctively mark the desire to reap the more easily producible and abundant crops of a virgin soil, than attempt a systematic increase of the comparatively costly and precarious yield of the old-going lands. From the year 1800 to 1825, there were no fewer than 181 Acts of Parliament passed for Inclosures, comprising a total area of 3,400,000 acres, which were either fully or in part brought into increased productiveness. And yet it may be questioned how far the general amount of available produce was augmented by these means; and whether, in fact, they did not actually promote the neglect of the old inclosed lands, as well as conduce to a

considerable extent of the inferior soils being laid down most imperfectly and unprofitably in grass.

As an element which is supposed to materially affect the advance of cultivation, let us at this stage take a glance at the statistics of the prices of Agricultural produce, during the period under review, in order to form some definite idea of the influence which from time to time they practically exercised.

From 1800 to 1810	the average price of wheat was	81s 8d per q
do 1810 to 1820	do do do	91s 4d do
do 1820 to 1830	do do do	65s 9d do
do 1830 to 1840	do do do	66s 8d do
do 1840 to 1850	do do do	55s 11 d do
The 1st period, the highest price was, in 1801—	119s 6d	
do do do lowest do do	1803—	68s 10d
Difference.....		
		60s 8d
The 2nd period, the highest price was in 1812—	120s 6d	
do do do lowest do do	1815—	63s 7d
Difference.....		
		60s 11d
The 3rd period, the highest price was in 1825—	68s 6d	
do do do lowest do do	1822—	41s 7d
Difference.....		
		25s 11d
The 4th period, the highest price was, in 1829—	70s 6d	
do do do lowest do do	1830—	39s 4d
Difference.....		
		31s 1d
The 5th period, the highest price was in 1847—	68s 8d	
do do do lowest do do	1849—	44s 3d
Difference.....		
		25s 6d

The first noticeable feature is the ruinous depression of 1803, and again in 1815, both occasioned by the transition from war to peace, and both alike producing serious consequences. It is curious to observe how very nearly the percentage of depression was the same in both instances. In the three successive years of 1822, '23, and '23, comparatively low prices prevailed; so also in 1834, '35 and '36, the result for the most part of favorable harvests. In 1835, the price of wheat was as low in England as ever has been since. If the higher range of prices was conducive, as some have contended, to improved cultivation, its manifestation was of indefinite and partial a character, as hardly assume any perceptible form. Isolated instances certainly were not wanting of tracts of land rendered productive by improved management which heretofore had been of little or no value in the Counties of York, Lincoln and Norfolk afforded some memorable examples—nevertheless there was not, prior to 1821 (when lower prices set in) such an aggregated desire for advances would undeniably have left behind it some undeniable evidence, had the opinion been entertained that high prices ensure improved cultivation. In some justification, however, of what at first sight seems paradoxical, it must be borne in mind that in Great Britain, there were, till recently, other causes which interposed barriers to improvement, that no prices of produce, however high, could counterbalance; and, as the chief of these, may be mentioned the law of entail—settlement, whereby life owners and life tenants—some from prudential considerations, and others from necessity—were ever discouraged from investing money in improving property which descended perhaps to an already wealthy heir, to the prejudice of all the junior members of the family. In Scotland, where more

three fourths of the entire area is under strict entail and settlement, the evil was felt to be so serious that an Act of Parliament, entitled "The Montgomery Act," was many years ago obtained, enabling life owners of estates to lay out money in permanent improvements, and make it a mortgage charge upon the inheritance. It is to this Act that Scotland mainly owes the high agricultural position she has attained; and it is not a little strange that, seeing the benefits tangibly exemplified, England should have been content to remain so long under the disabilities, without an effort to obtain the same facilities; for it was not till the Session of 1812, that Mr. Pusey's first Act for the Drainage of entailed and settled estates, in England, was passed.

What high prices failed to promote, in any prominent or effective degree, lower rates have as invariably necessitated: for to the great body of "juges consumere nati" it matters little what the prevailing influence be, so the essential object, of food at reasonable prices, be obtained. Now the use of bones as a fertilizer, is one of those practices, the introduction of which is a landmark in the history of English Agriculture, and is singularly concurrent with improved culture, based, as its adoption was, on sound chemical deductions. And not only so, but, curiously enough, by comparing the declared value of bones imported into the United Kingdom, with the average price of wheat in the respective years, it will be seen that their increased use was during, or immediately following, the successive periods of depression in the value of produce:—

In 1821 the value of bones was	£15,893
1821 it increased to.....	45,914
1827 it was.....	77,956
1830 it declined to.....	53,223
1833 it advanced to.....	97,900
1834 it again advanced to.....	127,131
1836 it was.....	171,806
and in 1837 it had reached.....	251,600

Thus the use of this manure commenced with the low prices of 1821, '22 and '23; it decreased considerably under the higher averages of 1825, '29 and '30; and again pressed into the field, by the low rates of 1834, '36 and '36. Its importation became a settled and greatly extended traffic, which has gone on increasing ever since.—Guano was introduced at a later period, and will alike justify the same conclusions. It also forms a prominent datum of Agricultural progression.

It may be readily inferred that the extension of mechanical appliances, to the various operations of the farm, was, in a great measure influenced by the same causes which tended to the use of artificial tillages; and that their more general application and usefulness were secured by slow and gradual steps, as examples of their efficiency and economy, were from time to time afforded by those whose energy and intelligence led them to incur the risk of trial. These examples produced their fruit, and in due time Thrashing Machines, fixed and portable; Seed Drills; Straw Cutters; Cultivators; Horse Hoes; Improved Ploughs; and finally fixed and portable Steam Engines: Drain Tile and Pipe Machines, &c., &c., made their appearance, and are realising all the advantages that were anticipated.—

The Royal Agricultural Society of England was established in 1838, and held its first Annual Exhibition of Implements, Cattle, &c., at Oxford, the following year: and since there is, perhaps, no more certain indicator of the progress of Agricultural Mechanics, than the Meetings of this Society afford, we will give the number of implements entered and exhibited at each successive show:—

Entries of Implements and Machines:

In 1838 at Oxford, there were	23 entries.
1840 at Cambridge.....	56 do
1841 at Liverpool.....	312 do
1842 at Bristol.....	455 do
1843 at Derby.....	608 do
1844 at Southampton.....	918 do
1845 at Shrewsbury.....	912 do
1846 at Newcastle.....	735 do
1 47 at Northampton.....	1321 do
1849 at York.....	1509 do
1849 at Norwich.....	1976 do
1850 at Exeter.....	1202 do
61 merged in the Great Exhibition.	

As showing, at the same time, the increasing anxiety of the landowners to commence their part of the great work, in a primary improvement of the strong and wet lands of the country, it may be noticed that no machine for Drainage purposes, or the manufacture of the materials for drainage, was exhibited till 1843, when two were shown, from which time they gradually augmented to 17, as the largest number. By these machines the cost of Drainage work has not only been reduced one half, but its extension has been rendered effective and durable; and when we assert that no single machine was ever introduced into Agricultural operations, which has produced the same extent of beneficial results in so short a time, we do not exceed the truth, or do more than common justice to the patriotic intelligence of those who have appreciated and applied them. Speaking of Drainage in his deservedly popular article, "*On the progress of Agricultural knowledge during the last eight years*," Mr. Pusey remarks, "Drainage, at whatever depth, for some years known to be profitable, is now indispensable, being only checked by want of means; and it is well that the cost of materials is so greatly reduced by Tile-machines, which can deliver their goods like the new printing-press of the *Times*, at a score in a minute—that instead of paying, as I have done, 90s. per 1,000 feet, we now get pipes at 15s.—one-sixth of the former rate."

With the single exception, perhaps, of Railways, there is no operation which has received a greater share of public attention, or been more thoroughly and ably handled, than that of Drainage. It is now about ten years since its great practical advocate, the late lamented Mr. Smith, of Deanston, infused new life and impetus into the subject, by recording his own experiments, and giving directions for the better performance of the work. He was soon afterwards induced to co-operate with the writer, and others interested in the subject, in an endeavor to establish a Public Company, with fitting legislative provisions, for the Drainage of lands; and it was from

the various exertions made on that occasion, in directing general attention to the attempt, and by calling the special attention of the Government to the present necessities of the landed interest, that Sir Robert Peel was induced, on the repeal of the Corn Laws, to pass an Act for the Drainage, in a permanent and efficient manner, of estates, with a grant of two millions sterling to be applied, by way of loan, to the purpose.— Under this Act, as some recognition of services in the cause, the writer was the first Assistant Commissioner that was appointed. This grant was soon appropriated, and subsequently a further grant of two millions was made, the whole of which also has been taken up. In the mean time two public companies—"The West of England Drainage Co.," and "The General Land-Drainage and Improvement Co.," were established with suitable powers and capitals; and a third Company, under influential auspices, is at this moment in the course of formation. The business of the two existing Companies has been very extensive and satisfactory to all parties; and in a subsequent No. we purpose, in the further prosecution of our subject, to speak more at length on their mode of conducting operations, and the benefits which have resulted, as perhaps suggesting matter worthy of consideration for Canadian capital and enterprise.

(To be Continued)

ON THE EDUCATION OF YOUTH.

To the Editor of the *Agriculturist*.

DEAR SIR.—Doubtless most of your readers will agree with me when I assert, that the proper education of the young and rising generation is a matter of no small importance. It is to a great extent true, that "Just as the twig is bent the tree is inclined," or in other words "Train up a child in the way that he should go, and when he is old he will not depart from it." A proper education is of as great importance to farmers as to any class in the community. They are often said to be "the bone and sinew of the nation." The prosperity of every other class in the country is intimately connected with, and essentially depends on, the prosperity of the farmer. If the farmer's crops are good and prices remunerating, all the other classes of society partake of the benefit, and rejoice in the consolation. If, on the other hand, the farmer's prospects are gloomy, all trades and professions languish. If, therefore, the prosperity of the country depends on the prosperity of the agriculturist, it must be a matter of no small consequence, that farmers' sons be properly trained for their vocation; and not only farmers' sons, but their daughters too, in order that they may be, "help-meets" for their husbands, should have an education calculated to fit them for that important station in society which, in all probability, they will be called to occupy. I commenced this article with a design to offer a few remarks, by your permission, through the medium of the *Agriculturist*, on the education of farmers' daughters. In writing a few lines on the

proper training of this class of persons, let it be distinctly understood, that my observations will be confined, almost exclusively, to such education as is calculated to promote the happiness of farmers' lives, and the usefulness and comfort of farmers' wives. About that kind of education which is thought to be suitable to the fashionables of towns and cities, I do not intend to write. The writer, in introducing himself to the acquaintance of your readers, would just state that his head is gray with age, and his hands hardened and calloused by the use of the axe, spade, flail, scythe, grain cradle, hoe, and plough-handles;—that he spent his youth in England, his manhood's prime in the United States of America, and is now bringing his years to a close in Western Canada: that he claims to be a little acquainted with the educational institutions of each of the above countries, and knows as much, perhaps, as a country farmer may be expected to know, how far those institutions are adapted to make good farmers and good mechanics, good husbands and good wives, good Christians and good citizens. I am now speaking of their common-schools;—with their higher educational establishments I am not familiar. Again, in treating on female education, I do not pretend to be able to write on the subject in a scholar-like, elaborate and critical manner. I can hope only to make a few common-sense remarks, such as might reasonably be expected of a homely country farmer, who has dedicated most of his days to the labors of the field.

I have now finished taking three volumes of the *Agriculturist*, and I do not recollect seeing more than a few short extracts on female education, and those extracts appear to me not to be suited exactly to the wives and daughters of farmers. A certain writer, whose communication is dated "Toronto, 23rd of March, 1848," and who signs himself "H." gives—in the *Agriculturist* for that year, page 68—an outline of what he conceives female education should be, and as the greater part of our present subscribers may not be in possession of that volume, I shall transcribe so much of the article as is suitable to my purpose.

"I would," says he, "give the pupil a thorough knowledge of the common English branches as the foundation of all solid learning. These are subjects in every-day life and must be learned. After the-c, or at the same time with them, the pupil ought to study general history, giving the outlines of the rise, progress and decay of the various nations, from the earliest antiquity, with the distinguished personages who have flourished in each, followed by the history of particular nations, and the history of the Jewish and Christian Churches. Bacon has remarked, that "histories make men wise." How many lessons of wisdom may be drawn from the history of the past? From the constant examples of the great, the wise, and the good, kept before the pupil, he is led sometimes, it may be unconsciously, to emulate them. By furnishing entertaining reading the mind is also guarded against that most fascinating and pernicious of all kinds of reading, *Novel reading*. Next may be introduced the natural

history of animals, from the insect, the object of microscopic vision, through all their gradations, giving an account of their appearances, number, habits, ages, &c. Geology, imparting a knowledge of the crust of the earth, with the various formations; changes, hills and valleys, rocks and mountains, rivers, lakes, and oceans, the changes of climate, fossil remains, &c. Chemistry, pointing to the ultimate elements of which all things are composed, and which regulate their composition and decomposition. Natural Philosophy, treating of the laws of motion and rest, in masses or bodies of matter. Astronomy, teaching the magnitude, motions, distances, periods of revolutions, and eclipses of the heavenly bodies,—unfolding to the mind the most stupendous works of God. Physiology, showing us the wonderful mechanism of our frames, with their organs, and the laws of health. Botany, giving a knowledge of the curious structure of plants, with their uses, and showing the wisdom and goodness displayed in their formation. The evidence of the truth of our holy religion. Intellectual and Moral Philosophy, treating of the powers and reflections of the mind, and showing our duties towards God and man." Excellent as the above outline may be, it is not well adapted, we think, to the daughters of farmers.

AN OLD FARMER.

Yarmouth, Jan. 20th, 1854.

To be continued.

ON FATTENING ANIMALS.

To the Editor of the Canadian Agriculturist.

DEAR SIR,—The insertion of the following remarks in your columns, would much oblige the writer.

Having, through a few years of observation, become cognizant to a certain degree, of the way in which animals are generally fed for the slaughter, and being led by these observations to the conclusion, that, in one or two points at least the farmer seriously neglects his own interests. I have thought that it might be advantageous to some to point out these errors, and to explain their detrimental mode of action.

The first to which I will allude, is the want of cleanliness and dryness; and this is more especially overlooked in the case of pigs, which are generally placed in very disadvantageous circumstances in this respect—so much so, indeed, that I am of opinion no small quantity of their food is, owing to neglect of this indication in the fattening process, completely wasted.

In order that the reason of this waste may be made palpable to all, it is necessary to state that the fat which is to be deposited in the interstices of the body of the animal, to render its meat marketable, is composed chiefly of hydrogen and carbon, the very elements which support almost entirely the animal temperature; and in the care of animals which are kept shut up, where the disintegration of the muscular structure is small, these elements must be derived directly from the

fatty deposit; so that anything which has a tendency to lower the temperature of the animal, must detract in a corresponding ratio from the fat, which is in this case taken up by the circulating blood,—conveyed by it to the lungs, and is thereby, being brought in contact with the inspired oxygen of the air, burnt off—by which means, as in ordinary combustion, heat is eliminated, and a mean temperature continually kept up, while the products of the combustion are expired in the form of carbonic acid gas, and watery vapor.

Now it is obvious from this, that if the animal be exposed to the keen blast of a wintry wind, the loss of heat by radiation must be great, and consequently the waste of food must be great also. But although from this cause (exposure) the principles of the economist must suffer great damage, yet there is another which far surpasses it in its injurious and wasteful tendency,—and this is, allowing animals to remain in a damp state, either by the non-removal of their own excrementitious matter, or by the non-prevention of the ingress of extraneous moisture upon them.

But it may be asked, "How does this moisture reduce the temperature?" It is thus:—

The animals lie down in a damp place, the animal heat warms the moisture in contact with them, and at this increased temperature it is turned into steam, it rises into the ambient atmosphere, a fresh modicum of water takes its place by the animal, and in a similar manner is also raised into steam. Now if water be at the temperature of 212° , in order that it may be turned into steam, it is necessary that it should first absorb a thousand degrees of heat, and this becoming latent in the water, imparts to it the property of elasticity,—in fact it becomes steam. But if the water is not so hot as 212° , more latent heat will be required to produce steam, and it is found that the quantity of latent heat is always in an inverse proportion to the sensible heat at which the steam was made; so that to produce steam at ordinary pressure of the atmosphere, the same quantity of heat is used whether the sensible heat be high or low.

What heat does this exist in steam is easily proven, for it is only necessary to put a certain quantity of water, in a suitable vessel, upon a fire which is sufficiently hot to raise the temperature of the water one degree per minute; its temperature will continue to increase until 212° are obtained, then no matter how much the heat be augmented, the water will become no hotter; but it will be observed that after the lapse of a thousand minutes, all the water will be converted into steam; but one degree per minute must have been taken up by the water, and as its presence cannot be detected by a thermometer, it is but reasonable to suppose that it must exist in the steam, in a latent or hidden state; and other experiments indeed, fully demonstrate this to be the case—for example: if steam be suddenly condensed into water, a great quantity of heat is let free, sufficient, under favorable circumstances, to set fire to tinder or other easily ignited substances.

Now it must be strikingly apparent that if a thousand degrees of heat are continually being lost in this way, it must detract considerably from the substance which is used to keep up the temperature of the animal. And as this is fat, how great must be the loss to the farmer! who thus, for want of a few armfuls of dry straw, a good raised floor, and a light roof, throws away so much valuable grain (in food), for such wastepurposes.

Believe me, &c.,
IOTA.

Agriculture, &c.

THE THRIFTY FARMER.

The Provident and thrifty farmer, adopts three rules for regulating his business, which he observes himself and enforces on those around him, viz: to do everything in the right time, convert everything to its proper use, and put everything in its proper place.

He buys only the improved breeds of cattle, horses, sheep and swine, and keeps no more than he can keep well, either in summer or winter.

He always drives on his work and never lets his work drive him.

His animals are never under fed or over worked.

His outhouses, Wood-shed, Poultry-house, Pig-pen, Wagon-house, Spring-house, and Corn-crib are nicely white-washed on the outside, and kept clean and neat within.

He has a tool house, and a place for every tool in it, which may be wanted for any ordinary farm purposes, such as mending implements, making ax: or hoe or fork handles, &c., and also for stowing carefully away, such as will not be wanted for another season.

He has sheds around his barnyard, to protect his cattle from the weather, and warm, ventilated stables for his cows and young stock, and also a shed, to protect his manure heap.

He has leaves or other refuse vegetable matter, to gather with soil from his headlands, convenient to his barn yard, to compost with his manure heap through the winter.

He does not allow the liquid manure to escape into the nearest stream, a quarter or half a mile from his barn yard.

His barn, and sheds, and dwellings are all supplied with good spouting.

His fences are always in good order, and materials for repairing or renewal, are collected and made during winter.

His woodshed is supplied with wood cut in August, always one year ahead.

His wife never scolds, because she never has occasion to.

Her cellar and pantry, are always supplied with the useful *raw material*, which she works up into a palatable form to fill up vacuums at meal times.

Heavy bread, cold buckwheat cakes, and rancid butter, are novelties which her gude man and the children have heard tell of by some of the neighbours, but have never seen.

He considers it a duty to promote the circulation of agricultural papers, and has saved himself some hundreds of dollars by following their advice.

His crops are always equal, and often better than any in the neighbourhood, and are kept clear of weeds.

He watches the market and sells his crops at the highest prices.

He makes it a rule always to spend a little less than he makes.

Himself and wife are both industrious, the children are brought up in the same way, and are not allowed to shoot the birds, smoke cigars, or chew tobacco.

He buys and sells on the cash principle, and thus saves himself from losses and bad debts.

He has a large fruit orchard, well supplied with every variety of fruit to ripen in succession.

He studies the *theory* as well as the practice of farming, has cleared off the last \$100 of mortgage, and is seriously talking of making a bid for his neighbour Sloven's farm which is up at Sheriff's sale.

He goes to church on the Sabbath, minds his religious duties, and brings up his children to do the same, lives respected, and dies regretted, as a useful man and good christian.

THE THRIFTLESS FARMER.

The thriftless farmer provides no shelter for his cattle during the inclemency of the winter; but permits them to stand shivering by the side of a fence, or lie in the snow, as best suits them.

He throws their fodder on the ground, or in the mud, and not unfrequently in the highway; by which a large portion of it, and all the manure is wasted.

He grazes his meadows in fall and spring by which they are gradually exhausted and finally ruined.

His fences are old and poor—just such as to let his neighbour's cattle break into his field, and teach his own to be untidy and spoil his crops.

He neglects to keep the manure from around the sills of his barn—if he has one—by which they are prematurely rotted and his barn destroyed.

He tills, or skims over the surface of his land, until it is exhausted; but never thinks it worth while to manure or clover it. For the first, he has no time, and for the last he "is not able."

He has a place for nothing, and nothing in its place. He consequently wants a hoe or a rake, or a hammer, or a auger, but knows not where to find them, and thus loses much time.

He loiters away stormy days and evenings when he should be repairing his utensils, or improving his mind by reading useful books or newspapers.

He spends much time in town, at the corner of the street, or in the "rum holes," complaining of hard times, and goes home in the evening, "pretty well *lore*."

He has no shed for his fire wood—consequently his wife is out of humor, and his meals out of season.

He plants a few fruit trees, and his cattle for- with destroy them. He "has no luck in raising fruit.

One half the little he raises is destroyed by his own or his neighbors' cattle.

His plough, harrow and other implements, lie all winter in the field were last used: and just as he is getting in a hurry, the next season, his plough breaks because it was not housed and properly cared for.

Somebody's hogs break in, and destroy his garden, because he had not stopped a hole in the fence, that he had been intending to stop for a week.

He is often in a great hurry, but will stop and talk as long as he can find any one to talk with.

He has, of course, little money; and when he must raise some to pay his taxes, &c., he raises it at a great sacrifice, in some way or other, by paying an enormous share, or by selling his scanty crop when prices are low.

He is a year behind, instead of being a year ahead of his business—and always will be.

When he pays a debt, it is at the end of an execution; consequently his credit is at a low ebb.

He buys entirely on credit, and merchants and all others with whom he deals charge him twice or thrice the profit they charge prompt paymasters, and are unwilling to sell him goods at any cost. He has to beg and promise, and beg, to get them on any terms. The merchants dread to see his wife come into their stores and the poor woman feels depressed and degraded.

The smoke begins to come out of his chimney late of a winter's morning, while his cattle are suffering for their morning's feed.

Manure lies in heaps in his stable; his horses are rough and uncured, and his harness trod under their feet.

His bars and gates are broken, his buildings unpainted, and the boards and shingles falling off—he has no time to replace them—the glass is out of the windows, and the holes stopped with rags and old hats.

He is a great borrower of his thrifty neighbor's implements, but never returns the borrowed article, and when it is sent for, it can't be found.

He is, in person, a great sloven, and never attends public worship or if he does occasionally do so, he comes sneaking in when the service is half out.

He neglects his accounts, and when his neighbor calls to settle with him has something else to attend to.

Take him all in all, he is a poor farmer, a poor husband, a poor father, a poor neighbour, and a poor Christian.

COAL ASHES.—The best purpose which coal ashes can be applied to in town or country is in making garden walks. If well laid down, no weeds or grass will grow, and by use they become as solid and more durable than brick.

CURING GRASS BY STEAM.

In this age of wonderful inventions and bold innovations of old customs, it will not do to pronounce any new project absurd or impracticable before trial. One of the latest "improvements" we have seen suggested in hay-making, is that of curing grass for hay—that is, discharging the water from it—by steam instead of the slow, imperfect process of drying it in the sun, often interrupted by rains, and the product injured or spoiled. A writer in the *New York Tribune* thus develops the new plan:—"If saturating grass with steam will have the effect, as we believe it will to cure it, so that an hour of sun will dry it, or so that it may be preserved with salt, it opens a new era in the use of steam for agricultural purposes. The process need not be a very expensive or laborious one. Let the grass be heaped up as fast as cut and covered with India rubber cloth. Then a pipe from a steam boiler, mounted upon a waggon, may be inserted under the center of the pile, and steam applied to a degree of heat strong enough to almost cook the whole heap; at any rate to prepare it for very rapid sun-drying. We believe, from some experiments which we have seen in drying other vegetable substances, that green clover may be prepared in three hours for safely stowing away in the barn. By using metal caps, instead of cloth, the process of steaming may be continued to a degree sufficient to expel all the moisture. Whether it can be economically used upon the farm, is the point which we wish to see settled, and that is what the agricultural societies should determine. Steam has already been applied to carry manure to the field, ploughing the ground, and thrashing the crop. No doubt it will be soon applied to sowing the seed and reaping, as well as mowing, and it only remains to cure the green grass as fast as cut, by the same powerful agent.

"This is not a chimera unworthy of thought. It is a subject which sooner or later will attract the serious attention of that portion of farmers who do think. Try it, if you please, on a small scale; take any succulent plant and subject it five minutes to steam, and then place it in the sun, and see how quick it will become as dry as well-cured hay. Apples, peaches, &c., can be dried by steam in one day. If grass cannot be cured by steam, let us know why.

"Will it be any more wonderful than it is now for a farmer to leave home at Buffalo in the morning and sell his crop the same day in New York—for him to get up in the morning and call for John to get out the mowing machine and small locomotive, and cut down that fifty-acre lot of clover to day, and tell George Henry to fire up the hay-maker and follow Alexander and William with the steam-raking machine, and cure that grass as fast as it is out, and I will come down with the four wagons, and let us see how much of that crop we can have safe in the barn before night. Peter!" "Yes, sir."

“ Peter, you may fire up the barn engine, and see that the hoisting machine is all right on both sides of the floor, for I shall bring two tons at a load, and while one ton is going up into the right-hand mow we can hitch on to the other, and have that up directly, so it will not take over fifteen minutes to get off a load. In the intervals between loads, keep the engine at work filling the great water tank; that last planting of potatoes needs watering, and as soon as the water is warmed in the sun a little, we will give them a shower. Ah, boys, this is the age of steam; you don't have to work to cure hay as I used to when I was a boy; when we used to cut all the grass with a scythe—” “ By hand, father?”

“ Yes, my son, by hand, slow, hard labor; and then we had to spread the grass dry, and then turn it over and over in the sun, with sticks and wooden forks, or clumsy iron ones; we had no steel ones then; and then we raked it by hand, and made it up in cocks, which had to be opened and spread out to dry again, and again raked up; then we pitched it on and off of the wagon, and sometimes it was a fortnight after it was cut before we could get it cured enough to stack or put in the barn.”

“ And all that by hand-labor?”

“ Yes, hand-labor and hard-labor.”

“ Well, father, it does appear to me as though people must have been very stupid when you were a boy, not to have any steam-engines on their farms.”

“ No, not stupid exactly, but very hard to believe, or make improvements, or farm their lands any way but just as did their fathers and grandfathers.”

STEAM AMONG THE FARMERS.

From Chambers's Journal.

Those who visit Christmas cattle-shows, simply in a grazing frame of mind, do justice neither to themselves nor to the show. There is something more to do than to admire fat pigs which cannot see out of their eyes, and fat sheep which look more silly even than lean sheep, and fat bullocks which measure an unlimited number of yards round the body. Unless a man roams also among the agricultural implements, he cannot rightly judge a matter which is well worthy of attention—the wonderful energy and activity of the farmers since the repeal of the corn-laws. It is no part of our business to dilate upon political combats, but it is unquestionably a part of every Englishman's business to know that the agriculturists are bravely ‘putting their shoulders to the wheel,’ and applying all modern improvements in furtherance of their labors.—The gradual spread in the use of steam-power is not among the least remarkable of these appliances. A year or two ago, we happened to meet with a ‘Song of Steam’ in an American newspaper; the name of the writer does not appear; but we feel inclined to reprint here three of the stanzas, partly because there is really a dash of sparkle and spirit about them, and partly because

we must beg that farming operations should in future be included in some measure among the labors of steam.

In the darksome depths of the fathomless mine
My tireless arm doth play,
Where the rocks never saw the sun decline,
Or the dawn of the glorious day,
I bring earth's glittering jewels up
From the hidden cave below.
And I make the fountain's granite cup
With a crystal gush o'erflow.

I blow the bellows, I forge the steel,
In all the shops of trade;
I hammer the ore and turn the wheel
Where my arms of strength are made.
I manage the furnace, the mill, the mill;
I carry, I spin, I weave;
And all my doings I put into print
On every Saturday eve.

I've no muscle to weary, no breast to decay,
No bones to be laid on the shelf;
And soon I intend you may all go and play
While I manage the world by myself.
But harness me down with your iron bands,
Be sure of your curb and rein;
For I scorn the strength of your puny hands,
As the tempest scorns a chain.

Without going so far as to expect that we may all ‘go and play,’ while steam manages the world by itself, we may undoubtedly expect that many hard and laborious kinds of field-labor will, more and more every year, be effected by steam, which has ‘no muscle to weary, no breast to decay.’ We have only to look at the groups of implements and machines proceeding from the well-known firms of Ransome, Wedlake, Garrett, Crosskill, Hornsby, Dray, &c.; or to look through the lists and catalogues of those manufacturers: the evidence of the fact becomes then very apparent. Let us very briefly glance at the matter.

Here are the productions of Messrs. Clayton and Shuttleworth, of Lincoln, among which, a three horse-power portable steam-engine is conspicuous. This compact affair is shaped something like a locomotive; it weighs about a ton and a half, and its provender consists of three hundredweights of coal, and 270 gallons of water per day of ten hours. With this moving power, it will thrash out twenty quarters of corn per day, and when it has done its work in one barn or thrashing-floor, a horse will easily draw it to another. Similar engines are made of four, five, six, seven, eight, and nine horse-power, all presenting this analogy—that the number of horse-power produced is about equal to the number of hundredweights of coal consumed in a working-day of ten hours—a convenient rule for estimating the efficiency of the power. The larger of these portable steam-engines require two horses to draw them from place to place; but in return for this, they will thrash out a larger quantity of corn per day, and become applicable also to grinding, sowing, pumping, and other operations necessary on a large farm. The seventy-horse engine is large enough to be made available for a remarkable system which has sprung up in some districts—namely, the *letting out of steam-power*: a portable steam-engine travels about from farm to farm, doing the thrashing and sowing, and grinding and pumping for each in succession—a system susceptible of wonderful expansion. Then there are fixed steam-engines

for farm-work, of four to ten horse-power each.—Another ingenious apparatus is a portable thrashing-machine. This is not a steam-engine, but a capacious vehicle on four wheels, having thrashing mechanism within, and pulleys and bands on the outside to enable it to be worked by a steam-engine, either portable or fixed. The facilities thus afforded are remarkable; for you may either take the steam-engine to thrash, or bring the corn to be thrashed, according to the arrangements of the farm. The corn is bundled into the vehicle: the steam-power commences its activity, and revolving arms proceed to thrash out the grain with great rapidity. In one form of the machine, the whole of the process of thrashing, straw-shaking, riddling, winnowing, and baling, are performed by steam-power, and in their proper order. How there must be certain revolving arms, and certain revolving cylinders, and certain wriggling or vibrating troughs, will be evident to those who consider the nature of these operations. Then there are straw-shaking machines, and corn-grinding mills, and bone-crushing mills, all worked by steam-power, and all applicable to farm-labor.

Here are Messrs. Dray's portable steam-engines; and here Messrs. Hornsby's; and here Messrs. Garrett's, and Messrs. Barret's, and Messrs. Ransome's; and so on. The relative merits of each and the trade competition between them, we have nothing to do with here. The great point is to know that there are a dozen firms or more manufacturing these powerful aids to agriculture. Some excel in the rapidity with which steam is got up: while others excel in the amount of horse-power produced by the consumption of a given weight of coal.

The Royal Agricultural Society was mainly instrumental in bringing forward the moveable steam-engines for farms, in the interval between 1811 and 1851. Mr. Pusey, a great authority on all these matters, has thus noticed the advantages of portable over fixed engines for farm-work: 'If a farm be a large one, and especially if, as is often the case, it be of an irregular shape, there is great waste of labor for horses and men in bringing home all the corn in the straw to one point, and in again carrying out the dung to a distance of perhaps two or three miles; it is therefore common, and should be general, to have a second outlying yard; and this accommodation cannot be reconciled with a fixed engine. If the farm be of a moderate size, it will hardly—and if small, will certainly not—bear the expense of a fixed engine; there would be waste of capital in multiplying fixed engines to be worked but a few days in each year. It is now common, therefore, in some counties, for a man to invest a small capital in a moveable engine, and earn his livelihood by letting it out to the farmer. But there is a further advantage in these moveable engines, little, I believe, if at all known. Hitherto, corn has been thrashed under cover in barns; but with these engines, and the improved thrashing-machines, we can thrash the rick in the open air at once as it stands. It will be said: How can you thrash out of doors on a wet day? The answer is simple: neither can you move

the rick into your barn on a wet day: and so rapid is the work of the new thrashing-machines, that it takes no more time to thrash the corn than to move it.'

But steam does something more than this for the farmer: it helps to make pipes for draining his land; and it helps to steam potatoes and other roots as fodder for animals; and it helps to plough his land—although it must be owned that ploughing-machines have not yet come much into use. In respect to steaming potatoes for pigs, it has been remarked that even diseased potatoes, if not too far gone, by being thus treated may be rendered wholesome, and may be stored up for months.

If the visitor to a cattle-show, who spends a reasonable time in the implement-galleries or yards, would choose to extend his thoughts a little from steam among the farmers, to machinery among the farmers, he would soon find how wonderfully the use of such machinery has spread within the last few years. In nearly everything which can be called a machine in respect to farming, one of these three things is observable—that a man turns a handle, that a horse exerts its pulling force, or that a steam-engine puts forth its multiform power; and it is only those who have watched the progress of recent improvement, who can form even a guess of the wide extent to which the simple hand-instruments—such as the spade, the rake, the hoe, the dibble, the flail, &c.—have been superseded on large farms by skillfully constructed machines.—The old ploughs, with wheels and gallews, required four horses to draw them; but two horses can now do as much work with a plough of lighter and more scientific construction. The old harrows had their tines or teeth at a definite distance apart; but our farmers can now obtain expanding harrows, which can be adapted to the state of the land. The old rollers, in many cases, were simply tree-trunks, rudely fashioned into cylindrical shape, having their framework loaded with rough materials to give them weight; but now we have iron rollers, which will last for ever. The old farmers were wont to attempt, sometimes hopelessly, to break heavy clods by the alternate use of the roller and the harrow; but the farmers of the new school have now their powerful and efficient clod-crushers, whereby turnip-land can be prepared for corn with celerity and success. The old plough was expected to do more work than it could do well; but the scarifiers, and grubbers, and cultivators of the present day are analogous to a large party of ploughs, all working at once, whereby a large percentage of horse-power is saved. The old seed-hp and dibble deposited the seed very slowly; but the modern drill does this with astonishing quickness; and not only so, but it will even deposit manure and water with the seed in the hollows made for its reception. The old hoe was 'slow,' both figuratively and really; but the modern horse-hoe is a compound of four, six, or eight hoes at once, each working more quickly than the original hand-implement. The old sickle was the only instrument used by our fathers and grandfathers for cutting corn; but the

M'Corrick's, and Hassey's, and Bell's have shown us what can be done by reaping-machines. The old rake was the only implement for gathering stray hay and corn; but the modern horse-rake will do the same work ten or twenty times as rapidly. The old hay-fields exhibited simply the handicraft labor which supplied so many Daphnes and Coriis to the pastoral poets; but the haymaking-machines now give a different aspect to the affair. The old carts and waggons in which the farmer conveyed his produce from the field to the barn, and from there to market, were a terrible drag to the horse; but now, like clippers on another element, they weigh less, carry more, and move more quickly. The old flail beat about the corn in a rude way on the barn-floor; but the new thrashing-machine enables either horses or steam to do the work more conveniently and more expeditiously. The old process of winnowing left the wind to blow away the chaff in a blind and capricious manner; but the modern winnowing-machines have such a discriminating power, that they can separate the grain into 'good corn,' 'good tail,' 'tail,' 'whites,' 'screenings,' and 'chaff,' thus enabling the farmer to carry to market, produce, the quality of which can be exactly determined. The sheep and lambs of old days had to munch away at whole turnips, as best they might; but the modern turnip-cutter, by presenting the root in nice mouthfuls, economises the muscular power of the animal, and gives him an increased value in the market. The old chaff was cut by hand, with a sort of chopping or guillotine action; but the chaff-cutters now made, perform the work with far greater celerity. The old farmers drained their land, if at all, by using hand-made ties, and pipes laid in hand-made grooves and gutters; but the new farmers can reap the advantages of the ingenious tile-machines, and can lay down the pipes by the still more ingenious draining-plough.

Nay, not only do farmers now display all this ability, but they have actually become poetical, which the world in general is perhaps not aware of. That Messrs. Moses and Hyam, as Messrs. Warren and Day & Martin formerly did, throw around their business proceedings a halo of poetry, everybody knows; but it has, until lately, been new to us that an agricultural implement-maker thinks it worth his while to lisp in numbers; and as it is not to be supposed that he would bring ploughs and poetry together, unless the farmers were pleased therewith, the latter must also have a share of the credit. Listen:—

Iron-ploughs as Kumbles, as Howard's, and Ball;
 Two narrow-axle scuffles, made large or small;
 Have ploughs too, for draining for riding and hoeing;
 Chisel-sharps and rollers, to prepare for sowing.
 With iron-rollers or with I make drills,
 Fit in one to ten coulters, Bean, cake, or malt mills,
 Then as to carts—

The tipping apparatus is simple and sound,
 So, passing all others its service is found.
 The re-acting tail-board is, too, a good plan,
 As I must be approved of by a master and man,
 Its hinges upon hinges—no need to take off—
 Feeds under the cart-frame, and catches aloft,
 To York I first saw it to need no put in eyes;
 The Royal Society to me gave the prize;
 Prince Albert and a blenheim all did declare,
 'Tis the best one-horse cart that I have seen here.'

With a little chaff, we have done —

Sir, have you chaff-machines now worked by man?
 I recommend horse-power, my late improved plan;
 Many of them I have just lately put down,
 That give satisfaction to farmers around.
 And if you should doubt—hear what I now say—
 You can go to see them; they're at work to-day.
 I fix it for cutting about if you please;
 And one horse can work us—an old hack with ease.
 Without e'er a driver, one man with two boys,
 Can cut eighty bushels an hour without noise.

Opinions may possibly differ as to the merits of this poetic effusion; but there is no difference of opinion as to the simple fact—that agricultural implement-makers have placed the means of great advancement within the reach of farmers.—In 1851, Mr. Pusey made this important statement—that the improvements in farming-implements made within the preceding dozen years, had been such as to insure a saving on outgoing, or an increase of incomes, of not less than one-half on all the main branches of farming-labor.

Natural History.

THE OX.—HISTORY, MANAGEMENT, &c.

(Continued from last number.)

[The cuts illustrative of the following remarks, not being ready, we are obliged to go to press without them. They will appear in the next number.]

THE MIDDLE HORNS.

THE HEREFORDS.

The Hereford white-faced breed, with the exception of a very few Alderney and Durham cows, have almost exclusive possession of the county of Hereford. The Hereford oxen are considerably larger than the Devons. They are usually of a darker red; some of them are brown, and even yellow, and a few are brindled; but they are principally distinguished by their white faces, throats, and bellies. In a few the white extends to the shoulders. The old Herefords were brown, or red-brown, with not a spot of white about them. It is only within the last fifty or sixty years that it has been the fashion to breed for white faces. Whatever may be thought of the change of color, the present breed is certainly far superior to the old one. The hide is considerably thicker than that of the Devon. Compared with the Devons, they are shorter in the leg, and also in the carcass; higher, and broader and heavier in the chine; rounder and wider across the hips, and better covered with fat; the thigh fuller and more muscular, and the shoulders larger and coarser.

Mr. Marshall gives the following account of them; it is tolerably correct, but does not sufficiently distinguish them from their kindred breed. "The countenance pleasant, cheerful, open; the forehead broad; eye full and lively; horns bright, taper, and spreading; head small; chap lean; neck long and tapering; chest deep; bosom broad, and projecting forward; shoulder-bone thin, flat, no way protuberant in bone, but full and

mellow in flesh; chest full; loin broad; hips standing wide, and level with the chine; quarters long, and wide at the neck; rump even with the level of the back, and not drooping or standing wide and sharp above the quarters; tail slender and neatly haired; barrel round and roomy; the carcass throughout deep and well spread; ribs broad, standing flat and close on the outer surface, forming a smooth, even barrel, the hindmost large and full of length; round bone small, snug, not prominent; thigh clean, and regularly tapering; legs upright and short; bone below the knee and hock small; feet of mackle size; flank large; flesh everywhere mellow, soft, and yielding; leanly to the touch, especially on the chine, the shoulder, and the ribs; hide mellow, supple, of a middle thickness, and loose on the neck and huckle; coat neatly haired, bright and silky; color, a middle red, with a bald face, characteristic of the true Hereford breed."

They fatten to a much greater weight than the Devons, and run from fifty to seventy score. (A tolerable cow will average from thirty-five to fifty score.) They are not now much used for husbandry, though their form adapts them for the heavier work; and they have all the honesty and docility of the Devon ox, and greater strength, if not his activity. The Hereford ox fattens speedily at an early age, and it is more advantageous to the farmer, and perhaps to the country, that he should go to market a three years old, than to be kept longer to be employed as a beast of draught.

They are far worse milkers than the Devons. This is so generally acknowledged, that while there are many dairies of Devon cows in various parts of the country (none of which, however, are very profitable to their owners,) a dairy of Herefords is rarely to be found.

To compensate for this, they are kindly feeders. Their beef may be objected to by some as being occasionally a little too large in the bone, and the fore-quarters being coarse and heavy; but the meat of the best pieces is often very fine grained and beautifully marbled. There are few cattle more prized in the market than the genuine Herefords.

The Devons and the Herefords are both excellent breeds, and the prejudices of the Devonshire and Herefordshire farmers for their peculiar breed being set aside, a cross for the yoke or beef of the one will often materially improve the other. The Devon will acquire bulk, and the Hereford a finer form and activity.

The Herefords are evidently an aboriginal breed, and descended from the same stock as the Devons. If it were not for the white face, and somewhat larger head and thicker neck, it would not at all times be easy to distinguish between a heavy Devon and a light Hereford. Their white faces may probably be traced to a cross with their not distant relations, the Montgomerys.

The Hereford cow is apparently a very inferior animal. Not only is she no milker, but even her form has been sacrificed by the breeder. Herefordshire is more a rearing than a feeding county, and therefore the farmer looks mostly to the shape and value of his young stock; and, in the choice of his cow, he does not value her, or select her,

or breed from her according to her milking qualities, or the price which the grazier would give for her, but in proportion as she possesses that general form which experience has taught him will render her likely to produce a good ox. Hence the Hereford cow is comparatively small and delicate, and some would call her ill-made. She is very light-fleshed when in common condition, and beyond that, while she is breeding, she is not suffered to proceed; but when she is actually put up for fattening, she spreads out and accumulates fat at a most extraordinary rate.

The breeder has been taught by experience, that when the cow, although she should be somewhat roomy, is too large and masculine, the ox will be brawny and coarse, and perhaps a little sluggish at work, and even somewhat unkind and slow in the process of fattening, and these are objections which, most of all, he would be unwilling to have justly made. The Hereford cow is therefore somewhat undersized; and it not unfrequently happens that she produces a bull-calf that grows to three times her own weight.

Kindly as the Hereford ox fattens, very few are grazed in their native county: even the leases which the home consumption requires are principally heifers and old cows. The oxen are sold at five and six years old, in tolerable condition, at the Michaelmas fair in Hereford, to the graziers of Buckinghamshire and the neighbouring counties, by whom they are principally preferred for the London market.

The fertility of the soil in Herefordshire has been very much over-rated. The traveller and the superficial observer have been misled by the luxuriant woods and rich alluvial soil upon the banks of the rivers. The pasture-grounds are generally poor, and the herbage is not nutritious, and therefore the farmer naturally confines his chief attention to his rearing-stock. The dairy has been comparatively neglected; for experience has proved that the breeding qualities of a cow are materially lessened, and even her form is deteriorated, by her being inclined to give a large quantity of milk.

THE SUSSEX CATTLE.

Some of the ancient Britons sought refuge from the attacks of their invaders, amid the fastnesses of the Weald of East Sussex. Thither they drove, or there they found, some of the native cattle of the country; and they anxiously preserved them free from all admixture.

The resemblance between the Sussex and the Devon oxen is very great. They unquestionably betray the same origin.

The Sussex ox has a small and well formed head compared with many other breeds, and even with the Hereford, but evidently coarser than that of the Devon; the horns pushing forward a little, and then turning upward, thin, tapering and long—not so as to confound this breed with the long horns. The eye is full, large and mild in the ox; but with some degree of unquietness in the cow. The throat clean, and the neck, compared with either the long horns or the short ones, long and thin, yet evidently coarser than that of the Devon.

At the shoulder is the main difference, and the principal defect in the Sussex cattle. There is more wideness and roundness on the withers—it is a straighter line from the summit of the withers toward the back—there is no projecting point of the shoulder when the animal is looked at from behind, but the whole of the fore-quarter is thickly covered with flesh, giving too much weight to the coarser and less profitable parts. This is counterbalanced by many admirable points. If there is more weight in front, the fore legs are necessarily wider apart, straighter, and more perpendicular than in the Devon; they are placed more under the body rather than seeming to be attached to the sides. The fore-arm is large and muscular, but the legs, although coarser than those of the Devon, are small and fine downward, and particularly below the fetlock. The barrel is round and deep—the back straight—no rising spinal processes are to be seen, but rather a central depression; the line of the back if broken, is only done so by a lump of fat rising between the hips. The belly and flank are capacious—there is room before for the heart and lungs to prepare and circulate the blood, and there is room behind, in the capacious belly, for the full development of all the organs of digestion; yet the beast is well ribbed home, the space between the last rib and the hip-bone is often very small, and there is no hanging heaviness of the belly or flank. The loins of the Sussex ox are wide; the hip-bone does not rise high, nor is it ragged externally; but it is large and spread out, and the space between the hips is well filled up.

The tail, which is fine and thin, is set on lower than in the Devon, yet the rump is nearly as straight, for the deficiency is supplied by a mass of flesh and fat swelling above. The hind quarters are cleanly made, and if the thighs appear to be straight without, there is plenty of fineness within.

The Sussex ox holds an intermediate place between the Devon and Hereford, with much of the activity of the first, and the strength of the second, and the propensity to fatten, and the beautiful, fine grained flesh of both. Experience has shown that it possesses as many of the good qualities of both as can be combined in one frame.

The Sussex ox is of a deep chestnut-red—some, however, prefer a blood-bay: deviation from this color indicates some stain in the breed.

The hide of the true Sussex is soft and mellow; a coarse, harsh, thick hide denotes here, as in every other district, an ill-bred or unthrifty beast. The coat is short and sleek. There is seldom found on the Sussex ox that profusion of soft and wavy, and, occasionally, long hair, which, although it may have the appearance of roughness, is consistent with a mellow and yielding hide, and one of the truest indications of more than usual propensity to fatten.

The Sussex cow, like the Hereford one, is very inferior to the ox; she seems to be almost another kind of animal. The breeder has endeavored, but with comparatively little success, to give to the heifer the same points that the ox possesses.

The Sussex cow ought to have a deep red color, the hair fine, and the skin mellow, thin and soft;

a small head, a fine horn, thin, clean and transparent, which should run out horizontally, and afterwards turn up at the tips; the neck very thin and clean made; a small leg; a straight top and bottom, with round and springing ribs; thick chine; loin, hips and rump wide; shoulder flat—but the projection of the point of the shoulder is not liked, as the cattle subject to this defect are usually coarse; the legs should be rather short; carcass large; the tail should be level with the tump.

The Sussex cow does not answer for the dairy. Although her milk is of very good quality, it is so inferior in quantity to that of the Holderness or the Suffolk, that she is little regarded for the making of butter or cheese.

There is one great fault about the Sussex cows, seemingly inconsistent with their propensity to fatten, and which cannot be remedied. Their countenance indicates an unquiet temper; and they are often restless and dissatisfied, prowling about the hedge-rows, and endeavoring to break pasture, and especially if they are taken from the farm on which they were bred.

They are principally kept as breeders, all the use being made of them at the same time as dairy cows of which circumstances will admit. And it cannot be denied that they are generally in fair condition, even while they are milking; and that no beasts, except their kindred, the Devons and Herefords, will thrive so speedily after they are dried. The secretion of milk being stopped, the Sussex cow will fatten even quicker than the ox. It must, however, be acknowledged that the Sussex cows are not perfect, even as breeders; and that, unless a great deal of care is taken that the cow shall not be in too good condition at the time of calving, she is subject to puerperal fever, or "drooping;" while many a calf is lost from the too stimulating quality of her milk.

W A L E S.

To the Principality we naturally look for some trace of the native breed of cattle, for the Welsh were never entirely subdued by any of the early invaders. The Romans possessed merely a portion of that country; the Saxons scarcely penetrated at all into Wales, or not beyond the county of Monmouth; the Welsh long resisted the superior power of the English under the Norman kings; and it was not until late in the thirteenth century that the Principality was annexed to the crown of England. We therefore expect to find more decided specimens of the native productions of our island: nor are we altogether disappointed.

The principal and the most valuable portion of the cattle of Wales are the middle horns. They are, indeed, stunted in their growth, from the scanty food which their mountains yield, but they bear about them, in miniature, many of the points of the Devon, Sussex, and Hereford cattle.

THE PEMBROKE CATTLE.

Great Britain does not afford a more useful animal than the Pembroke cow or ox. It is black; the great majority are entirely so; a few have white faces, or a little white about the tail, or the udders; and the horns are white. The latter

turn up in a way characteristic of the breed, and indeed the general form of the cattle undeniably betrays their early origin. They have a peculiarly lively look and good eye. The hair is rough, but short, and the hide is not thick. The bones, although not small, are far from large; and the Pembroke cattle are very fair milkers, with a propensity to fatten. The meat is generally beautifully marbled. They thrive in every situation.

THE GLAMORGANS.

The Glamorganshire farmers of half a century ago, took great pride in their cattle, and evinced much judgment in their breeding and selection. There was one principle from which they never deviated:—*they admitted of no mixture of foreign blood*, and they produced the Glamorgan ox, so much admired for activity and strength, and aptitude to fatten; and the cow, if she did not vie with the best milkers, yielded a good remunerating profit for the dairyman.

They were of a dark brown color, with white bellies, and a streak of white along the back from the shoulder to the tail. They had clean heads, tapering from the neck and shoulders; long white horns, turning upward; and a lively countenance. Their dewlaps were small, the hair short, and the coat silky. If there was any fault, it was that the rump, or setting on of the tail, was too high above the level of the back to accord with the modern notions of symmetry. Their aptitude to fatten rendered them exceedingly profitable when taken from the plough at six or seven years old, and they were brought to great perfection on the rich English pastures—frequently weighing more than twenty scores per quarter. The beef was beautifully veined and marbled, the inside of the animal was well lined with tallow, and the Glamorgan commanded the highest price both in the metropolitan and provincial market. Among the Glamorgan-vale browns good cow-beef weighed from eight to ten score pounds per quarter, although some weighed as much as twelve or thirteen scores. Ox-beef is from twelve to fourteen scores per quarter; some, however, reached eighteen and even twenty scores.

During the French revolutionary war, the excessive price of corn attracted the attention of the Glamorganshire farmers to the increased cultivation of it, and a great proportion of the best pastures were turned over by the plough.

The natural consequence of inattention and starvation was, that the breed greatly degenerated in its disposition to fatten, and, certainly, with many exceptions, but yet, in their general character, the Glamorganshire cattle became, and are, flat-sided, sharp in the hip-joint and shoulders, high in the rump, too long in the legs, with thick skins and a delicate constitution. Therefore, it must be acknowledged at present, and perhaps it must long continue to be the fact, that the Glamorgans, generally, are far from being what they once were. They continue, however, to maintain their character for stoutness and activity, and are still profitably employed in husbandry work. The beef is still good, marbled and good tasted; and in proportion as the value of the ox to the grazier has decreased, the value of the cow has become

enhanced for the dairy. He who is accustomed to cattle will understand the meaning of this; and the kind of incompatibility between an aptitude to fatten in a little time, and on spare keep, and the propensity of yielding a more than average quantity of milk.

This is the breed which is established in the populous districts of Glamorgan. The Glamorgan cattle bear a close resemblance to the Herefords in figure, although inferior to them in size; they feed kindly—the flesh and fat are laid equally over them—the beef is beautifully marbled, and they yield a more than average quantity of milk. They are fattened to perfection at five years old, but not often at an earlier age: and they will become sufficiently bulky on the good pastures of the vale without any artificial food.

The cut is the portraiture, and gives a faithful representation of the present improved breed of Glamorgan dairy-cattle. The average quantity of milk given by the cow is about 16 quarts per day.

Although we place the cattle of North Wales as “middle-horns,” we confess that we are a little approaching to the next division, the “long-horns.” There is, however, a great deal of the character of the “middle-horns” about them, and marking their common origin.

THE ANGLESEY CATTLE.

The Anglesey cattle are small and black, with moderate bone, deep chest, rather too heavy shoulders, enormous dewlap, round barrel, high and spreading haunches, the face flat, the horns long, and characteristic of the breed with which we will still venture to class them, almost invariably turning upward. The hair is apparently coarse, but the hide is mellow: they are hardy, easy to rear, and well-disposed to fatten when transplanted to better pasture than their native isle affords.

The Anglesey cattle are principally destined for grazing. Great numbers of them are purchased in the midland counties, and prepared for metropolitan consumption; and not a few find their way directly to the vicinity of London, in order to be finished for the market. In point of size, they hold an intermediate rank between the English breeds of all kinds and the smaller varieties of Scotch Cattle; and so they do in the facility with which they are brought into condition. If they are longer in preparing for the market, they pay more at last; and, like the Scots, they thrive where an English beast would starve.

To be continued.

EDUCATION.—This beautiful passage occurs in a late article in *Fraser's Magazine*—“Education does not commence with the alphabet. It begins with a mother's looks—with a father's nod of approbation or a sign of reproof—with a sister's gentle pressure of the hand or a brother's noble act of forbearance—with handfuls of flowers in green and daisy meadows—with birds' nests admired but not touched—with creeping ants and almost imperceptible enemies—with humming bees and glass beehives—with pleasant walks in shady lanes—and with thoughts directed in sweet and kindly tones, and words to mature to acts of benevolence, to deeds of virtue, and to the sense of all good, to God himself.”

Editorial, &c.

G. BUCKLAND, ESQ., EDITOR.

H. THOMSON, ESQ., ASSISTANT EDITOR.

HINTS FOR THE MONTH.

March is nominally the first month of Spring, but is sometimes, in Canada, of almost as wintry a character as either of its predecessors. From the increasing altitude of the sun, however, the days when unclouded, are frequently of a genial warmth, and the snow wears gradually away while the advent of spring birds, and the gradual swelling of the buds on the trees, give sure indications of the approach of the joyous and busy season of Spring. We have even known the frost out of the ground, and ploughing commenced in the first week of March, but as a general rule this work cannot be performed till after the first of April. The following old proverbs in reference to March will be familiar to most of our readers. Some of them are, however, rather less applicable to Canada than to the old country, where as the result of long experience, their accuracy is generally acknowledged.

"March back ham, comes in like a lion, goes out like a lamb.

A bushel of March dust is worth a king's ransom.

March grass never did good.

A windy March, and a showery April, make a beautiful May.

March wind and May sun,

Make clothes white and maids dun.

So many frosts in March, so many in May.

March many weathers.

March birds are best."

The work to be performed in March will to a great extent be merely a continuation of that for the past three months, thrashing and delivering grain, tending the stock, getting out firewood and rail timber, &c., with the difference that the farmer must now keep more immediately in view the near approach of Spring, and so shape his operations that he may be fully prepared for that season when it does arrive. The importance of this in this country, where the season in which the soil and the weather are in the most desirable state in which to get in the crops is generally short, cannot be too much kept in mind. Let the horses or working cattle be well fed and in good heart to meet the work they have to go through; the harness well oiled and

repaired, the ploughs, harrows, whippetrees &c., in proper working order, the seed grain thrashed, thoroughly cleaned and stored in the granary, hay brought in from the stack or barn to the stable for the horses, and oats in the bin, clover seed and gypsum brought home to be ready for use when required, &c. By attending to all these things beforehand, instead of losing a day, or a week in doing them, just when the implement, the seed, or the fodder, is wanted for actual use, and thus perhaps losing the most favourable time for getting in the crop—all the spring work will go on much more pleasantly and satisfactorily, the farmer will be ahead of it instead of behindhand with it, and will find the advantage in the whole season's operations, and to a moral certainty also, he will reap the benefit in the produce of his crops at harvest time.

Cattle now require continued care, and a good quality as well as quantity of food, to enable them to keep up their condition through the changeable and trying weather of spring. But do not for the sake of economizing fodder, allow them to ramble in thawing weather, over the meadows. It may be doubted whether the little, withered herbage they could so obtain would be of any real benefit to them, while the injury the trampling does to the meadows is very great. In hard weather of course there would be little loss except of a portion of the manure, which it would be much better to keep as much as possible in the yards, for use where more directly required, in the spring.

A pretty large number of lambs in this country, come in March, although the middle or latter part of April is considered by many the best time, and there is certainly then less risk. Early lambing ewes require great watchfulness on the part of the farmer, both on account of the ewes and the lambs; we alluded to this matter, however, in our last.

"The first great event in Spring," Stephens says, "on a farm of mixed husbandry, is the calving of the cows." We may therefore make a few remarks on this subject. From careful records which have been kept in England it appears that the average period of gestation in the

cow is about 284 days, or somewhat over nine months. The period is commonly supposed to be nine months, but cannot be reckoned upon to a certainty. The late Earl Spencer after having kept a record of the calving of 764 cows came to this conclusion:—"It will be seen that the shortest period of gestation when a live calf was produced was 220 days, and the longest 313 days, but I have not been able to rear any calf at an earlier period than 242 days." Lord Spencer considered any calf produced at an earlier period than 260 days, or later than 300, decidedly premature, or irregular, though in the latter case the health of the produce did not suffer. After the cow shows heavy in calf, which is usually after the sixth month, care should be taken that she is not allowed to over exert herself by climbing through heaps of straw, or breaking over fences about the yards. Neither should she be over-driven, or be exposed to the pushing and crowding of other cattle, as occurrences of this kind may cause an excited action of the animal's system, and possibly of the womb, to such an extent as to cause the cow to slip her calf. Such accidents will be prevented by having the straw yard and other appurtenances about the barns in proper order and condition. No very special system of treatment is required by the cow during pregnancy, except merely to keep her in comfortable quarters; especially in inclement weather; she should get a sufficiency of food, and care should be taken to prevent accidents. A resort to medicines, when the animal is not suffering from any disease is generally an error, as much as in the case of those people who take to doctoring themselves when they do not require it. The period at which a cow will calve is generally well known to the owner, if he pays proper attention to these things, both from the time of her reckoning, and from the symptoms which are usually shown at the time. As it approaches, Stephens says, in his *Book of the Farm*, "much more care should be bestowed in administering food than is generally done; and the care should be proportioned to the state of the animal's condition. When in high condition, there is great risk of inflammatory action at the time of parturition. It is therefore the farmer's interest to check every tendency

to obesity in time." This Mr. Stephens says, is to be effected by giving less fattening food, and as far as medical treatment can be applied, there is nothing perhaps so safe, as bleeding and laxatives. In Canada, unfortunately, it is generally poverty rather than over-feeding that the animals have to complain of. "It is in the eighth and ninth months that the critical period of a cow in calf occurs. The bulk and weight of the foetus cause disagreeable sensations in the cow, and frequently produce feverish symptoms, the consequence of which is costiveness. The treatment for this is bleeding once, in proportion to the strength and condition of the cow, and the administering of laxative medicine and emollient drinks, such as a dose of one pound of Epsom Salts, with some cordial admixture of ginger and carraway seed and treacle, in a quart each of warm gruel and sound ale." Turnips may be given, and they have a laxative tendency, especially the white varieties. For full and minute directions in case of slipping the calf, difficult cases of parturition, and of difficulty in getting rid of the cleaning, or after birth, &c., the farmer will do well to consult Stephens' admirable work. Perhaps Mr. Stephens on the whole, depends rather too much upon artificial treatment; he certainly gives very minute directions for it. In the majority of cases it is doubtless better to leave nature to her course, except in so far as proper diet and attendance goes, than to interfere. Undue interference by conceited and ignorant persons, is certainly sometimes productive of great mischief. But it behoves all farmers to make themselves thoroughly acquainted with these subjects, and then in cases of real difficulty, they will not be ignorant of the proper course to be pursued. Another excellent writer, the Rev. W. L. Rham says on this subject. "Cows must be carefully looked to at the time of calving, but except in urgent cases, nature must be allowed to perform her own office. A little common sense and experience will soon teach the possessor of a cow to assist nature, if absolutely necessary; and in cases of difficulty the safest way is to call in an experienced person. Drinks and medicines should be avoided; a little warm water, with some barley or bean meal mixed with it, is the most comfortable

drink for a cow after calving. The calf, and not the cow, should have the first milk, which nature has intended to purge its intestines of a glutinous substance which is always found in the new born calf."

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**GYP-SUM--MANURES FOR HOPS--SUB-SOIL
PLOUGHS.**

We have received from Mr. Martin McMartin, of Cornwall, a letter containing the following inquiries, which we have much pleasure in answering:—

"At a late meeting of our Society, many of the members were desirous of information as to what soil, and what quantity of Plaster should be applied? Also what is the best manure for Hops, and the manner of applying it? And as we have imported a sub-soil plough, you might give insertions in your valuable paper, as to the best mode of using it."

GYP-SUM.—The soils upon which this salt is found to act most beneficially, are such as are light and dry; all varieties of sands and sandy loams for example, which are deficient in sulphate of lime, the manuring principle contained in gypsum, or as it is usually called, plaster.—It is found to act more powerfully on dry than on wet soils, which is the case with most kinds of manure. On stiff clays it seldom produces much effect, but there are a large number of instances that have been observed in practice on different soils, and in varying climates, in which its action, or frequently non-action, cannot be satisfactorily accounted for. The usual quantity applied per acre, is from one bushel to one bushel and a half; which has often been found to produce quite as much effect, as a much larger quantity. Its effect on broad-leaved plants, such as clover, Indian corn, &c., is frequently astonishing. To the light land farmer it is a valuable auxiliary, and its cost a mere trifle.

MANURES FOR HOPS.—The best general manure for Hops, available in Canada, is unquestionably farm-yard dung. But then this should consist of something more than partially decomposed straw. When cattle have been well housed and fed, and their solid and liquid excrements mixed up with, and absorbed by the litter, and properly protected against rain, &c., in the

dung heap, we have then most valuable manure for hops, and indeed for any of the cultivated crops. The strength of farm-yard dung as a fertilizer, chiefly depends on the quantity of animals kept, and the *kind of food* on which they have been fed, and the subsequent care taken in preventing the liquid portion of the manure from running to waste. The best time for applying dung to hops, is as early in spring as practicable; it should be spread evenly over the ground, and immediately ploughed in, the intervals left between the hills it is best to dig by hand.—This operation may sometimes be advantageously performed before the commencement of winter. Old woollen rags, cut into small pieces, and all waste matter of animal origin, which is often only a nuisance in and about factories, are very valuable and permanent manures for hops. The English growers expend many hundred thousand pounds annually, in the purchase of such things for manure. A dressing of lime every five or six years, when the soil is not naturally rich in that important ingredient, will be found advantageous. Whatever manures may be applied, it is of much importance to incorporate them with the soil as early and as thoroughly as possible. The chief secret of successful hop-growing,—assuming that soil, climate, and other circumstances are favorable,—will be found to consist in liberal manuring, and frequent cultivation of the soil during the period of growth.

SUB-SOIL PLOUGH.—This is truly an indispensable implement in any system of improved husbandry, on *dry* soils; but on land that is wet, the drain ought, in all cases, to *precede* the use of the sub-soil plough. Subsoiling wet, adhesive clays, without draining, has often been found to render them wetter and more unmanageable than they were before. The use of the sub-soil plough is very simple. As deep a furrow as is practicable, is first made by an ordinary plough, say to the depth of eight or ten inches, in which the sub-soil plough follows, drawn by another team, and breaks up the ground to an additional depth of ten or twelve inches, or even more, without raising the sub-soil to the surface. By these means an active soil of great depth, is readily obtained, in which the roots of

plants can freely extend themselves in search of food. By increasing the depth of active earth, particularly in dry soils, *previously underdrained*, the crop will be much less affected, either by extreme wetness or drought. Sub-soil ploughing should be performed only in dry weather.

We shall always be glad to hear from our correspondent, or any of our readers who have the curiosity to try new things and fresh ways, as soon as any reliable results are obtained.

THE DOUBLE PLOUGH.

No implement has undergone so many "improvements" within the last quarter of a century as the plough. Every farmer can remember the time when the plough in common use was a rough, heavy, wooden structure, with very little iron about it, and yet a load for man and beast. Now, we have them of all shapes and sizes, some wholly and others partly iron; and easily adapted to the strength of the team and the nature of the soil. It has been found that no one pattern is universally the best, for the simple reason that a difference of soil demands some modification of the implement. And even the different *kinds* of ploughing on the same soil, can be done to the best advantage with ploughs specially adapted to the work.

We shall not attempt an essay on ploughs or ploughing at present. We wish merely to call the attention of readers to a plough,—or *plow* as brother Jonathan spells it—which has been extensively patronized by the farmers of Michigan, Ohio and New York, and we believe is growing into favor in all the Northern and Western States. It is called the Michigan Double Plough, and presents the appearance represented in the following cut:—



Although the above is patented in the United States it is by no means a new invention. We noticed in the Crystal Palace, N.Y., a plough constructed on the same principle, and sent we believe, from Holland, or one of the German States. Instead of the wheel, a wooden slide or shoe was attached to the beam which regulated the depth. It had only one handle, but in other respects was a well made, and serviceable looking

implement. It is said that the double plough will cut a deeper furrow than any other plough of the same draught, and leave it in a better state for after cultivation. We hope our readers will test the truth of these statements, and avail themselves of the improvement, *if it be one*.

SHANGHAE FOWLS.

The barn yard fowl, though often neglected and overlooked, is nevertheless a most useful, and, in the vicinity of towns and cities a most profitable part of the "live stock" of the farm. The advantage of attending to the breeds, and guarding against deterioration from a too constant intermixture, is just as great and as certain, as in the case of other domestic animals. The slender, long-legged, "skeery critters" to be seen in many Canadian barn yards, as ready to fly as run, and not to be caught without the aid of gunpowder, are a perfect nuisance. They hide their nests (when they condescend to make any) where neither two-legged, nor four-legged Tom can find them, and though making the welkin ring with their daily cacklings, they seldom lay more than a dozen eggs in a season. The profit of such fowls as these are a minus quantity, and they ought to be got rid of as soon as possible.

For the last four or five years a great noise has been made about the Shanghae and Cochin China fowls, and enormous prices have been asked and paid for them. A few years ago, the Dorkings were all the rage. It may do for city folks to amuse themselves, as amateur breeders, with Shanghaes at \$50 a pair, but the farmer wants something cheaper, especially if they are in the habit of tumbling off their perches and endangering their lives. The Shanghaes are great layers, and are much better to eat, than to be eaten. Now if both these qualities can be united in the same fowl (and we are told they can) by a cross of the Shanghae with the best of our common breeds, the farmer may profitably leave to the "amateurs" and "fanciers" the business and merit of preserving the pure breed *pure*, even to the "pale buff" and "light sulphur color."

It might be supposed that the Shanghae and Cochin China breeds, transplanted from a mild climate, would not stand exposure to the variable and rigorous weather of this latitude. But according to the following statements, which we

find in a Lower Canada journal, they do well even in the less friendly climate of that Province.

The following is from a late number of the *Montreal Herald*:—

SHANGHAE FOWL.

The following statements, upon which we can rely, may be interesting to the "Fanciers" of this breed of fowl, as it is to those whose more material idea is confined to supplying the "pot": In July, 1852, a friend purchased that-ten eggs, which were hatched during the remainder of that month. The produce was four hens and a cock. The hens commenced laying the following January, being then five and a half months old. During last spring and summer, and up to this date, they laid five hundred and thirty eggs, hatched twice and reared sixty-two chickens, the greater part of this latter stock have now been killed or otherwise disposed of. The young pullets remaining are now laying and have done so since they reached five and a half months old. The present live weight of the old and young stock is as follows:—The four old hens, now one year and five months old, average $7\frac{1}{2}$ lbs. Two young pullets, just seven months old, weigh each a fraction over eight pounds, and two young cocks of the same eggs, eight pounds four ounces. The remainder are the same average weight as the old stock. He believes them to be a hardy breed of fowls, easily kept, and consuming little more than would be required to keep an equal number of common fowls in good condition, while, as above shown, they are more profitable. The flesh is excellent (?) as is also the flavor of the eggs, when the diet of the birds is attended to. The fowls are kept in a wooden out-house, with good light, packed around the bottom with saw, quite away from any artificial heat, or the heat of animals, and are expected to lay all the winter. Their food is chiefly Oats and Buckwheat mixed, and a little Indian Corn, before going to roost. Clean water they should always have, and some grains or boiled potatoes once or twice a week is found to do much good during winter, besides some broken egg-shells and old lime. Leaves collected in the fall makes capital litter. The perches should be round and of easy access to the birds, and in this severe climate covered with some old woollen stuff or carpet.

The following appeared in a Quebec paper, written by a gentleman of that city, who signs himself "An Amateur":—

SHANGHAE AND COCHIN CHINA FOWL.

Under these names, a variety of the Fowl species has been imported into Great Britain and the United States, and more recently into Canada, which promises soon to change entirely the general breed of fowls in these countries; and, although small, they are good layers, and certainly good on the table. The Shanghae or Cochin China Fowl, I believe, differ in no essential quality, nor the slightest degree in appearance; unless it be that the Shanghae are more feathered

on the legs, than the Cochin China, so called.—The Shanghae is a stately bird, and when well attended is handsomely feathered, although the colors are not so brilliant, as other species of fowl. Indeed the favorite color with fanciers is a pale buff or a very light sulphur color, and this color must not be mixed in any part of the body with any darker shades. It is a hardy bird, of rapid growth, and early maturity; in this respect they are amongst the fowl species, what the improved short-horn Durham is amongst cattle. The pullets, when well fed, generally lay at five months' old, and continue laying with very little intermission during the winter. The result of my experience this present season is this, five hens and four pullets gave me thirteen dozen and two eggs in December, besides dropping about a dozen soft eggs, at the commencement of their laying, from the want of a good supply of mortar and sand, which is absolutely necessary when confined in a stable, as they must be in this climate during the winter. It is not necessary that they should be kept very warm; in cold weather water freezes in my stable, and in moderate weather they are anxious to escape into an adjoining apartment to the stable, where they spend the day with apparent comfort to themselves. They are much less quarrelsome than the common fowl, and less disposed to wander away from any enclosure into which they are first put. They do not scratch about much, and in consequence of the very small wing, scarcely half the size of that of the common fowl, they very seldom attempt to fly; thus attention must be paid that the roosts, of their houses are set near the ground, not higher than fifteen inches, and so rising about a foot, in a slanting direction, until the desired number of roosts is obtained. They have been killed by attempting to fly from a height, to which they had scrambled; thus care should be taken not to tempt them to get up, by leaving boxes or any thing upon which they can jump. The original cock bird of my collection (imported in the *Druid* in 1852, direct to this from Shanghae) was killed in this manner. He weighed fifteen pounds.—The hen died last winter, I believe, from the same cause, falling heavily from the roost. Her weight was eleven pounds. The egg of the Shanghae is not very large, but heavy and rich flavored, and generally of a chocolate color. I have some eggs, however, that are quite white. *I wish I could say something in praise of their flesh for the table.* It is dry, of a yellow color, and by no means pleasant-flavored, and the proportion of white meat, that is the breast, is so small, compared with the weight of the bird, that they cannot replace the small Canadian fowl in that respect, although I have seen some very fine birds, a cross between the Shanghae cock and common hen, larger in every way, flesh better colored, and with good laying propensities; and it is very probable much good might result from a cross in that way.

The new species, in my opinion, is principally of value as layers, and since eggs form an item of considerable value, in exportation to the United States, I would strongly recommend its adoption by farmers generally.

FAT HOG.

A pig only a little over two years old, bred and fattened by Mr. Edward Musson, of Etobicoke, has been slaughtered and exhibited in the Toronto market, and which weighed 703 pounds! The skin of the animal is described as being very thin, the quality of the pork excellent, although it had been shut up to fatten only about 3 months.

Tables showing the Monthly Fall of Rain, for 10 Years, at Toronto and Greenwich, near London

We have been favored with the subjoined tables by Sergeant Walker, who has been for many years officially connected with the Toronto Magnetic Observatory. The tables sufficiently explain themselves. It will be seen: that a much larger amount of rain falls at Toronto than in the neighbourhood of London; although in some of the western portions of England (Westmoreland, or example,) the average annual fall of rain, is nearly double that of this city. In Canada the falls of rain, particularly in summer and autumn, are frequently sudden and heavy, and usually of short duration;—hence we have upon the whole much clearer and finer weather than in England. Our average amount of rain, however, points out to the intelligent farmer, the desirableness and utility of a more or less general adoption of the important art of Draining.

	1841	1842	1843	1844	1845	1847	1848	1849	1850	Mean 10 Yrs.
January	2.01	0.75	1.01	2.35	2.07	2.44	0.73	0.67	1.4	0.80
February	0.73	0.69	0.26	1.81	0.72	1.45	1.2	2.4	2.20	1.20
March	0.6	1.3	0.36	2.03	1.46	0.86	0.3	2.7	2.20	1.03
April	1.61	0.8	1.37	0.53	0.44	3.07	0.65	3.2	2.00	1.81
May	1.50	2.01	3.5	0.15	1.9	1.47	1.0	2.5	3.6	2.20
June	2.25	0.98	0.91	1.58	1.6	0.47	1.0	3	0.17	0.87
July	3.56	2.45	2.5	2.12	1.5	1.37	0.54	1.86	2.20	2.14
August	1.89	1.95	3.3	1.43	2.45	3.17	2.50	4.2	0.47	1.50
Sept.	3.29	3.5	6.34	1.19	2.15	1.72	1.2	2.46	2.8	1.70
October	3.62	1.27	4.28	4.01	1.2	1.41	1.40	3.0	2.6	2.878
Nov.	3.61	1.78	4.74	1.7	1.3	1.37	1.15	1.46	1.70	2.15
Dec.	1.81	0.9	0.17	0.31	1.7	0.70	1.5	2.7	1.0	1.04
Total	28.10	20.02	17.27	19.19	16.62	26.15	9.75	11.47	26.71	17.03

RAIN IN RICHES ON THE SURFACE AT GREENWICH, ENGLAND. From Greenwich Meteorological Observatory.

	1841	1842	1843	1844	1845	1847	1848	1849	1850	Mean 10 Yrs.
January	2.15	1.17	4.29	3.10	2.32	2.34	2.13	2.34	1.15	2.207
February	0.07	3.62	0.43	0.45	0.84	0.06	0.5	0.72	0.24	0.817
March	1.17	3.15	0.62	2.47	1.92	1.0	0.82	1.22	1.52	1.233
April	1.3	3.74	3.19	1.82	3.29	1.3	2.87	1.43	2.19	2.410
May	2.3	1.29	1.57	5.67	3.31	4.3	3.04	2.32	5.12	3.546
June	2	5.75	4.53	3	3.71	1.91	2.63	1.81	3.08	3.778
July	8.17	3.05	4.61	2.82	2.20	3.31	1.89	3.4	3.27	3.744
August	6.17	2.50	1.83	3.1	1.72	1.77	2.14	0.86	4.52	4.363
Sept.	3.34	0.16	0.77	4.30	0.22	4.55	0.67	3.11	1.46	1.73
October	1.3	3.18	3.79	3.15	1.76	4.18	4.51	1.57	5.37	2.08
November	2.43	5.31	4.76	3.18	1.10	5.8	3.2	2.81	2.95	3.535
December	6.6	0.88	1.04	1.41	0.00	1.21	1.19	2.87	0.84	1.031
Total	35.67	29.43	35.34	74.37	11.32	32.11	29.27	30.32	27.43	32.203

RAIN IN RICHES ON THE SURFACE AT TORONTO, C. W. From Toronto Meteorological Observatory.

Literary and Miscellaneous.

WILLIAM McDUGALL, Esq., Editor

HISTORICAL SURVEY OF THE INDUSTRIAL SCIENCES.

The parentage of the Industrial Sciences is to be sought in the necessities of human life—their birth in the preparation of food and clothing. From this rude beginning, a beginning bordering on the promptings of instinct, they have grown into an importance that commands the attention of the most civilized nations.

The necessities of human life, to which we have referred the parentage of the Industrial Sciences, are those of an infant race entering upon an untried career in a new world. It is scarcely possible for us, armed as we are with all the weapons and appliances of art, to estimate their keen oppressiveness. The pressure of want was heavy. The call of appetite was troubled. The changes of scenes and climate uttered forebodings that must have lain cold and heavy on the heart. The un-accustomed world was before man—defenceless and inexperienced man.

He could not trust to its gratuity of fruits, or rest upon the energy of the arm alone, when the howl of beasts echoed in his rude dwelling. Weapons must be wrested from the earth; and with these, animals must be tamed and yoked, forests bowed, the soil torn up, and the deep and mysterious sea crossed in daring adventure.

As soon as the necessities of life were met by such endeavors, a new field of enterprise was opened up. It opened up in the idea of comfort. Thoughts of ease, security, beauty, and home, sprung into existence; and comforts became an engrossing interest. The habitation, the food, the clothing, the couch, and the state of man assumed a dignity becoming a rude conqueror. He felt his power and wished to enjoy his triumph.

In attaining to this condition, *industry* was taxed. By this, and this alone, was man able to bear up against the pressure of wants, and support life. There was no room for the couch of indolence in the first homes of man. Every observation was needed; every fact was a treasure. Tact was philosophy, and to carry its culture forward, till it assumed the form of portable skill, became the prime object of the chieftain father.

The fruits of these rude endeavours were all garnered, and religiously committed to tradition. The father handed over his wisdom to his son as he handed over his flocks; and in this way the human race became wise by each age being cradled in the knowledge of the preceding one. The Industrial Sciences arose.

The Industrial Sciences embrace the varied exercises of human skill in meeting the necessities and promoting the comforts of man. From a rude and somewhat infantile condition they have grown into a noble state of vigor. They are now distinct sciences, and claim the increasing care of the patriot and philanthropist. They have a place in legislation. Educators are beginning to include them in their schedule of instruction. With the American people, they are prime interests. They form the massive pedestal, on which a free people stand in rearing the superstructure of republican greatness.

AGRICULTURE.

Agriculture is the oldest and most important of the Industrial Sciences. Farming was undoubtedly the earliest employment of man. The cul-

ture of the vine and the tending of flocks are found among the records of the oldest antiquity. Man, as some infidels have supposed, did not begin life in a wretched orphanage. The traditions of the East, the songs of poets, the spirit of the mythology and revelation agree in introducing a matured man to the breast of his earthly mother, and representing him as taught by something more than blind instinct to draw his support from the soil.

In looking back to that distant day, China is the first agricultural nation that claims our notice. Shuckford has made it more than probable that Noah and his immediate descendants passed into that section of the earth, and carried with them the knowledge of the antediluvian world. This branch of industry has always claimed the care of the Chinese; and to it, more than anything else, is to be attributed their character and the duration of their empire. An agricultural people naturally cultivate the elements of a permanent character.

Egypt early discovered that her wealth was laid up in her soil. The fertile valley of the Nile watered and enriched by a favoring Providence, was tilled by Mizraim. The field of Zoar became a garden; and the legislator, and the priest, and the king watched its ripening harvest, for by its tithes they were chiefly supported.

We cannot linger much longer in ancient times. We must leave the banks of the far-famed Indus and the vale of Cashmere—we must pass over the plains of Chaldea, and the agricultural homes of the Jews, constituted such by the ordination of God—we must hasten across the attractive peninsula of Greece and Rome, and the rich islands of the Mediterranean Sea. In these quarters, kings guided the honorable plough.

We pause for a few moments at the Anglo-Saxon race. This wonderful people have always evinced a strong love for agricultural life. The whole line of their march, from Southern India across both continents, is marked by the care of *cattle and the culture of the soil*. To these things they owe much of their development—their bodily and mental vigour, their calm, collected notions, and their practical good sense. Communing with nature in the industrial toil that tills the parental fields, is the happiest and most serene condition of man. It should be at once the wealth and glory of the American. No nation, in ancient or modern times, has owned a richer agricultural inheritance than that which is possessed by us; and when the American farmer brings to his pursuits the contributions of science, farming will be the great source of national wealth.

HUNTING AND FISHING.

The chase was one of the first pursuits of man. His fields, and flocks, and person were to be protected, and called for the club, and trap, and rude spear.

At a later period, the field and flood tempted man to exercises of skill; and hunting and fishing began to put on something of the dignity of art. Beasts ceased to invade the cultivated spots of the earth. The eye and arm of man became a terror.

The work of necessity soon passed into one of utility. The slaughtered beasts were trophies of conquest, and furnished the material of food and clothing. The fruits of the earth ceased to be man's sole dependence. The dense forest and sea yielded to his control; and the conquering darts added to his security and comforts.

The work of utility became one of pleasure. Man was not content to kill in order to protect his property and meet his wants. He killed the beasts of the field in the joy of slaughter. The hunts of semi-barbarous monarchs are too well-known. Remnants of this state of things remain in the bull-fights of Spain and the field-sports of England.

Another change passed upon the chase, and looked it with the wealth of individuals and nations. It grew into a form of merchandise.—Companies have honored it. Legislation has honored it. In our own country the chase has been a high way to wealth. Princely fortunes have been made in the wilderness. The fur-trade, in particular, has risen into notice, and is among the most daring and profitable branches of mercantile life.

Fishing has even a greater interest for us than hunting. The living treasures of the rivers and seas of the world are its legitimate domain. At a very early period, man began to look to the waters for a supply of his wants. The inland seas of Asia were fished. The Indian Ocean has been searched by fleets to supply the tables of the Arabian race. Rome delighted in eels and oysters. France, England and America are vied in treaties, that borrow all their interest from the herring, mackerel and cod fisheries. The capture of the whale is a national pursuit, and, with us, has not only called out a most profitable enterprise, but also trained a class of seamen unequalled in skill and daring.

MINING.

Mining, by which we mean the working of subterranean pits to obtain useful or precious minerals, is one of the most important pursuits of man. The mine is a concealed spring of wealth; and on it, in all ages, has been suspended much of the progress of civilization.

This branch of industry has its origin in the rude search for golden grains and sparkling gems. Central Asia was its first stage. The Persians extended its range. The isles of the sea, Britain and Southern India were visited, and precious metals and precious stones introduced into ancient commerce.

As a science, however, mining was scarcely known in antiquity. It was not till after the discovery of gunpowder, and improvements in mining implements had taken place, that veins could be followed up, and shafts sunk deep in the earth. *Hydraulic* machines, and, above all, the *steam engine*, have so armed man with power, that, within the last fifty years, he has subdued the subterranean domains, and scattered their treasures among the nations.

MANUFACTURES.

Raw materials are of little use in themselves. They are to be prepared; clothing is to be made.

The ore is to be roasted, smelted, and pass through various processes before the useful metal can take the form of a machine, or the precious the shape of currency. Flax has to be rotted, bleached, dyed, beested, scutched, heckled, spun and woven, before it is fit for a garment. But these and all such works belong to manufactures.

Manufacture is the application of knowledge and skill in changing existing materials into desirable forms and fabrics, to meet the wants and pleasures of man.

It is a vast branch of enterprise. If we except agriculture, hunting, fishing and mining, it embraces all other departments of industrial science.

Manufacture stretches back into a distant past. Records of its doings have survived the flood. The *wheel* and *loom*, and *needle* were engaged in producing beautiful fabrics as far back as 2000 years before Christ. Travelling merchants crossed Asia with precious wares. Babylon, and Persia, and Tyre, and Egypt had their purple and scarlet, and fine linen. Works of cunning workmen adorned their palaces.

The progress of this branch of industry has been magnificent. It has kept pace with the increase of intelligence and the multiplication of inventions. The useful and tasteful now meet in the same work, and beauty adorns the tools of the machinist. Stores are palaces. Merchants are princes.

The progress of manufacture in the United States has, within a few years, been rapid. Although a new country, and busied with laying the foundation of republican institutions, the feebleness of dependence has long since been shaken off, and the shivering colony of Plymouth has put in a claim for manufacturing skill, which the world is forced to respect. Turkey and Russia are enobled by American genius.

What the United States is yet to be in this department of labor can only be surmised. The natural resources of the country are rich and promising. Cotton fields lie beneath the southern sun; coal fields and iron stores enrich the north. Raw materials are abundant; and a noble system of common schools is supplying that intelligence which will enable every man who is so inclined, to convert them into manufacturing wares. But a sound national policy can alone secure these results.

And from whence is it to come? From the people. And how are the people to produce it? It must be the product of their general intelligence. The knowledge of the industrial sciences must be diffused abroad in society, till every man feels the importance of these departments of enterprise, and is ready to protect and honor a man who is engaged in them. The people must become conversant with *agriculture, hunting and fishing, manufactures and highways* by land and sea. These are the industrial sciences, the strength and glory of the nation.

We are chiefly indebted to the *Popular Educator* for the foregoing "Survey."

Light flies at the rate of 200,000 miles in a second of time.

THE GERMAN LANGUAGE.

Germany is that tract of country in Europe bounded on the north by the Baltic Sea; on the west by Holland, Belgium, and France; on the south by Switzerland and the Austrian territories in Italy; on the east by Hungary, Galicia, Poland, and Prussia. It comprises thirty-five states and four free cities. These cities and states compose what is called the *Germanic Confederation*. Frankfort-on-the-Main is the central point of this confederation. The kingdoms forming this league are independent sovereignties, but are joined together for protection against a common enemy, and for other purposes.

Germany, as known to the Romans, was of much greater extent than the country which we now designate by that name. It extended from the Danube on the south to the German Ocean and the Baltic on the north, including Denmark and the adjacent islands; and from the Rhine on the east to the confines of the Russian empire on the west. This country was inhabited by numerous tribes, under different names, but alike in their appearance and habits, and speaking the same language.

The early history of the Germans is enveloped in obscurity. From the affinity of their language to the Sanscrit and Zend, they are supposed to have originally been one of the tribes which emigrated from Central Asia, and overran Europe; but under what name, or at what period is unknown. The era from which we date our positive knowledge of them is 113 B.C. At this time a wild and unknown horde of barbarians appeared on the Alps and attacked the Roman army, which was stationed there to guard the entrance to the empire. They called themselves Cimbri and Teutoni; and it is by these names that they are spoken of by the Roman historians of that period. The name Germani was given to them by Cæsar. It is derived from two Gothic words, signifying Lords of the spear. At a later period, they were called Goths, but this name was applied generally to all the northern tribes which assisted in the overthrow of the Roman empire.

The German language, called also the Teutonic has three great divisions; these again are subdivided into dialects. The three divisions are the *Mæso-Gothic*, the language of the conquerors of Rome, and the language in which are preserved the oldest specimens of any Gothic dialect; the *High Germanic*, the language of Southern Germany; and the *Low Germanic*, the language of the northern part of that country. The *Low Germanic* is much the same with the *Anglo-Saxon*

and the modern English. The *High Germanic* is the language from which is derived the modern German.

The translation of the Bible by Luther in the early part of the sixteenth century into this dialect, gave it the preeminence over the other dialects of Germany; and from that time it became the language of the educated.

As Germany is divided into many separate kingdoms, so the spoken language has numerous dialects. The principal of these are the *Swiss*, the *Rhenish*, and the *Danubian*; these, however are much alike, and the written language is understood throughout the country. This is the language which we still study.

Although the Germans were an ancient people, yet their literature is comparatively modern. This is owing to two facts. They had no written language for a long time, and they were devoted entirely to warlike pursuits.

Prior to the eighth century, there are but few monuments of German literature; and from the accession of Charlemagne at the close of that century, the literature of Germany may be said to date. The awakening of a literary spirit among the Germans at that time, is due to Charlemagne himself. He introduced the German names of the months, ordered translations of many Latin works to be made into German, and did everything in his power for the improvement of his native language.

The "Lay of Hildebrand and Hadubrand," and the "Prayer of Weizenbrun," belong to this century, and are the most ancient German Poems.

In the ninth century, the separation of the Germanic empire from the French, to which it had long been united, by establishing an independency of language, promoted the literature of Germany. A metrical paraphrase of the Gospels by Otfrid, a monk, was the most celebrated production of that period.

From the ninth to the sixteenth century, the literature of Germany was chiefly poetry. That was the age of the *Minnesingers*, the *Troubadors* of Germany, the golden age of German chivalrous poetry.

The Reformation of Luther, in the first quarter of the sixteenth century, gave an impulse to the German literature which was never lost; and from that time to the present, Germany has been renowned for illustrious names. In poetry we have Brinkman, Schiller, and Goethe; among philosophers, Leibnitz and Kepler; and in the department of criticism, especially upon the classics, no people have surpassed the Germans.

PAPER.—About 1822 an ingenious English manufacturer of this material, in experimenting for the purpose of producing a superior bank-bill paper, eventually succeeded in forming from the stalks of the nettle a paper fabric nearly as tough as parchment and difficult to tare. The piece shown to the writer of this, though too thick for banknote purposes, evidently proved that a valuable paper might be produced from this abundant source; and successful operations would doubtless eventually be affording the manufacturer almost any degree of fineness it might require. This hint may be of service to our manufacturers, and is, at least, worth a trial.—*Tribune*

LIVING WITHOUT WORK.—"Heigho! half a gald a poor man last night, who had been toiling all day in the melting snow for the matter of seven shillings: 'I wish I were able to live without work!' Just as if living without work wouldn't be as near a synonymic for dying as one could find in Crabbe. Just as if living were not laboring, and time were not of deeds but years. Just as if a man could be alive all over without work—work of some kind, for hands, or brain, or heart. There's many a man 'dead at the top' like a rod for steeple and only for want of a breath or two of life among the branches. There's many a man to-day, drifting like seaweed with the waves who, has no life enough 'to hold on' anywhere; who doesn't take with the steeple-fish. Work makes the heart beat and the fire of the heart beats, the more one lives in one year or ten, and the better he enjoys it. Some people deem labor vulgar. Unluckily they are right. Everybody, or everybody's father, has been compelled some day or other to do something, provided they did not steal, and it will continue to be so, probably, until the young members of the old garden-r's family get back into the old hole instead of pa' adise. If you have nothing to do for yourself there are plenty of people who will help and are willing to pay for it in heart-felt benedictions, as long as they live—an article by the way, that many a millionaire cannot number among his goods and chattels.

Reviews, &c.

VALUABLE PERIODICAL PUBLICATIONS.

1 *The Illustrated Magazine of Art.* 2 *The Popular Educator.* 3 *The Historical Educator.* 4 *Cassell's Natural History.* New York: Alexander Montgomery. Toronto: A. H. Armour & Co.

The above, we believe, are essentially British productions, from the press of Mr. John Cassells, of London, who has lately been distinguished for bringing out Educational publications of a high and original character, printed and illustrated in the best style of art, at uncommonly low prices. These works are by no means mere compilations; writers of high character in the different walks of literature and science are engaged upon them, and being expressly prepared to meet the wants of the masses, they are equally suited to the family and superior classes of schools, and are specially adapted to such as desire correct and general acquaintance with subjects of literary and scientific interest, and who have to prosecute their studies without the aid of the living teacher. Several British publishers, we are glad to observe, have established agencies in Boston and New York for the sale of their works, which are frequently offered at a considerable reduction from the prices at which they sell in England. The above works are published in monthly parts, at the very low price of a quarter of a dollar, except the "Popular Educator," which is only seven pence half penny each number. Mr. Armour, of this city, is the agent in Upper Canada, for the sale of these and other useful and attractive works of the same publishers.

"The Magazine of Art," consisting of upwards of seventy pages, royal octavo, profusely illustrated, is without doubt unrivalled for cheapness, when the excellence of its engravings, and the quality of its matter are considered. Such a monthly visitor to a family cannot fail to refine the taste and add largely to the stock of information and rational enjoyment of its different members.

"The Popular Educator" contains in each number agreeable and systematic instruction in several departments of human knowledge, such as Language and Grammar, Geography, Geology, Botany, Arithmetic and Geometry, Physiology, Music, Biography, Political Economy, &c., all well illustrated where necessary. We have availed ourselves of information for the *Agriculturist* from this excellent publication.

"The Historical Educator," judging from the first number that has been issued gives promise of an entertaining and instructive work. Writers of well known talent are engaged upon it. The first article consists of the introduction to the History of Geography, including travels and discoveries by land and sea, from the earliest times. Mary Howitt commences the History of America; E. L. Godkin, the Geography and History of Greece; and the Rev. Dr. Beard, the History of English Literature. This number contains a map of Greece, and twenty-six other illustrations.

Of the "Natural History" we can only say that both as regards arrangements, clearness and attractiveness of style, paper and printing, and the numerous and beautifully executed wood-cuts of the feathered tribes, of a description of which the first seven parts consists, the work is richly deserving, what it has already obtained, a lasting popularity and a wide circulation.

THE ANGLO AMERICAN MAGAZINE, Toronto: Maclear & Co.

In obedience to a common law, evinced by our agriculture and commerce, this highly creditable miscellany, which is of indigenous growth, keeps steadily improving. In its letter-press and illustrations it usually contains much that is locally interesting to Canadians, while its contents generally abound in information of a useful and permanent character: The present number contains the continuation of the History of the War between England and the United States, impartially and lucidly written; with a review of Abbott's life of Bonaparte showing the dark as well as the light side of the picture, and the usual amount of other articles, original and selected. There is a very interesting article on the North West Passage, accompanied by an engraved map; likewise a characteristic cut of a scene on Lake Seugog, an excellent engraving of the proposed new General Hospital, in Toronto,

which will add materially when carried out, to our already many superior public buildings, and the usual plate of the Fashions for the month. The Anglo American ought to have, what we hope it already does, a wide-spread circulation throughout the British North American Provinces.

Transactions of the New York State Agricultural Society, vol. 12, for 1852. Albany, printed by authority of the State Legislature. 1853.

We are indebted to the kindly consideration of B. P. Johnson, Esq., the efficient and much respected Secretary of the New York State Agricultural Society, for the last volume of its Transactions. We have been accustomed to look forward with no ordinary degree of pleasure to this annual exposition of that important Association, and we have derived much valuable information from the perusal of their volumes.

In the present report we find the usual information relative to the condition and operations of the State Society, and the different County Societies in connection therewith. The Reports on the trial of Implements; on curing and packing Provisions; on the cultivation of Grasses, and several other subjects will well repay a careful perusal. Dr. Salisbury contributes an interesting and valuable paper, containing the results of his analysis of a number of the ordinary plants and vegetables, cultivated as garden or field crops. A very elaborate report on the Agriculture of the County of Essex occupies 250 pages of the volume; it has been prepared by Winslow C. Watson, Esq., under the appointment of the State Agricultural Society, and embraces the civil and political history of the County; its natural history, including Mineralogy and Geology; its industrial progress and pursuits, with a detailed exposition of its agriculture. Such documents possess great interest and value. We shall turn more at large to certain portions of this volume hereafter.

Norton's Literary Gazette, New York: Charles B. Norton.

To the managers of Literary Societies, Book Clubs, Mechanics' Institutes, and indeed every man who has occasion to purchase, recommend, or form a judgment upon books, this publication will be found of indispensable advantage. It is published twice a month at the low charge of \$2 per annum. Each number contains clearly arranged lists of all works as they are published in the United States, England, France, Germany, &c., with their price, size, &c.—Also copious critical notices of the more important publications, a duty which is evidently executed with diligence, judgment and impartiality. There are in every number several well written papers on subjects connected with literature, schools and colleges, and the general interests of education, occasionally accompanied by well executed illustrations. As

libraries are in the course of formation in School Districts of Upper Canada, and Mechanics' Institutes, Agricultural Societies, and Farmer's Clubs increasing in all parts of the country, we can strongly recommend "*Norton's Literary Gazette*," as a most valuable auxiliary in carrying out the important objects of all such associations. It will also be equally valued by all such individuals as possess a literary taste.

Chambers's Journal of Popular Literature, Science and Arts. (New series) 1854.

London and Edinburgh, W. & R. Chambers; Toronto, A. H. Armour & Co.; Montreal H. Ramsay, and John Armour; Quebec, P. Sinclair; Bytown, A. Bryson; Kingston, J. Duff; Hamilton, R. R. Smiley; London: J. M. Graham.

Who has not heard of, or rather, who has not read Chambers's world-renowned Journal? For nearly a quarter of a century has this most instructive and amusing Periodical been before the public, and always in the foremost ranks, as a sound and efficient instructor of the people, in the widest acceptation of the term. By means of this, and their other numerous cheap and well prepared publications, the Messrs. Chambers have been the means, in a high degree, of refining the taste and enlarging the sphere of intellectual enjoyment of the great mass of the people beyond, perhaps, any other publishing establishment, in this or any other range of country. They have the honor of being the first to strike out a plan of furnishing the million with a really cheap and wholesome literature, free from all sectional and party influence, and of still pursuing it, after a lapse of many years, with increasing energy and success.

A new and improved series of this Journal having commenced with the present year, offers a favorable opportunity of subscribing to the work. In this series several improvements will be introduced but the general tone and character of the work will be retained. A higher class of Fiction, embracing original contributions from the most distinguished writers, will receive special attention. A series of papers by Mr. William Chambers, comprising observations made during his recent tour through Canada and the United States, will shortly appear; and a monthly review, written in a popular style, of Books, Science and the Arts, is to constitute one of the new features. The Editors say that "it will be their constant duty to maintain in the New Work all those general features, which, for twenty-two years have given their Journal its extensive popularity,—a cheerful Light Literature, comprehensive Information, sound Ethics, and enlighten'd views of a Progressive Social Economy, without the admixture of controversial matter of any kind."

Judging from the first Part, which is now before us, we are compelled to say that the Editors have fully redeemed their promise. A most interesting Tale is commenced, on Modern Life, entitled "Weary

foot Common," from the attractive pen of Leitch Ritchie; besides a large number of ably written papers, on a variety of subjects, with which it behooves every one now-a-days to be conversant. All tastes, except the vitiated, and all classes, except the recklessly abandoned, will continue to turn to this periodical, as a source of sound instruction, social improvement, and rational enjoyment. For the gratification of our agricultural readers, we insert on another page, from the first number, an article entitled, *Steam among the Farmers*.* In mentioning the amount of subscription, — only ten shillings currency per annum, — we do most heartily congratulate our numerous and widely scattered readers, on the increasing facilities they now enjoy, in procuring the best class of books, and that such a publication as CHAMBERS'S JOURNAL, can now be received monthly, in any part of Canada, within the almost incredibly short period of about a fortnight after its publication in London and Edinburgh.

* If our space would admit, we should be strongly tempted to treat our readers with the witty and instructive article headed *Receptions about Sneaks*.

EDITOR'S NOTICES.

"WHAT SHARE OF THE GOVERNMENT GRANT TO A COUNTY AGRICULTURAL SOCIETY BELONGS TO THE TOWNSHIP SOCIETIES?"

This question has been asked by the officers of two or three Township Societies. The principle on which the division is directed to be made is to our mind perfectly plain in the Act. The 37th Section (16 Vic Cap 11), describes the conditions on which the public money shall be given to the County Society, viz:—"That £25 at least shall be first subscribed and paid," by members of the County Society and Township Societies together, when three times the amount raised will be granted for distribution, until the sum reaches £250. Now, if the Act's stopped here, it would seem as a necessary legal result, that each Society contributing, would be entitled to receive three times the amount of its subscription. Thus if the County Society raised £20 and the Township Societies A, B, and C, raised respectively £3, £7 and £13 6s 8d. then the County Society could retain £60, while Township Society A would get £90 B £60, and C £40. Such was the operation (when strictly acted upon) of the old Act. But as disputes frequently occurred, and as it was thought desirable to favor the County Society by giving it two-fifths of the grant at all events, the 39th section was added. It declares first, that the Township Societies "shall be entitled" to a share of the grant. 2ndly, that as between themselves they shall draw "in proportion" to the amount raised among themselves respectively. This is a mere affirmation, or confirmation of the principle already recognized in Sec. 37. 3rdly, the time when the money shall be drawn is fixed. 4thly, it

provides (that is, qualifies, or restricts the application of the rule of "proportion" to this extent, and no more, to wit;) that "not more than three fifths" of the grant shall "be subject" to its operation; or, in other words, — two-fifths shall belong to the County Society unconditionally, and at all events. It would not only be a violation of the plain letter of the Act, but of its whole object and spirit to say, that the County may, as against Township Societies, retain more than two fifths. The case of a County Society and only one township Society, has occurred. This case is not contemplated by the Act, but we think the fair legal construction of its provisions would direct that as two-fifths belong to the County Society by express reservation, the three-fifths should be divided between the County and Township Society in proportion to the amounts raised by them respectively.

We hope that in the few cases of difficulty which have occurred these explanations may be found satisfactory. If not the Courts are open, and may be appealed to.

LAYING OUT OF GROUNDS, DRAINING, &c.

We beg to call the attention of the public to Mr. CHARNOCK'S advertisements on another page, and likewise to his first article of a series on Draining, in the present number: others will follow in monthly succession. The long felt desideratum, a cheap and efficient drainage and pipe machine, is on the eve of being removed, and we shall soon have machines embracing the most recent improvements matured in England, *manufactured in Canada!* We hope and trust that Mr. Charnock will not fail to receive that degree of public patronage to which his professional talent and character should entitle him. In referring to this subject in our last, a typographical error occurred which it is desirable to correct. Instead of Mr. Charnock brings out with him the best materials," read the best Testimonials. Parties having grounds to drain or lay out, either for public or private purposes, will always the most speedily realise their objects, on the surest and most economical terms, by employing a competent person who has had personal experience under varying circumstances, in matters of this description.

PURE BRED SHORTHORNS.

We have much pleasure in calling the attention of our readers to the Hon. A. Ferguson's Advertisement in the present number. There must now be surely too much enterprise and prosperity in our agricultural community to allow Bull calves of the purest Durham blood to be fatted and sold to the butcher. When the great risk and expense of importing animals from the other side of the Atlantic are considered, we will surely not grudge giving a fair market price for superior bred animals, which are already in the country.

POETRY.

LABOR IS THE LOT OF ALL.

Hol! brother, 'tis time to toil,
With sweating brow, at Forge or loom,
Dost thou thy tread move the soil,
Or 'neath it yield in undrained gloom?
What's thy thy calling, monitor not
Nor wish to 'scape the 'ere-long thrall,
Which binds the world with common knot,
For "Labor is the lot of all."

Is'n ermin'd kings enthron'd who sit,
Have ye a nation's helm to guide;
From prince to peasant, all admit,
To wear the yoke the 'oldest side;
Then, brother! with a cheerful heart
Obey the universal call
Gud up thy lums, act well thy part,
For "Labor is the lot of all!"

CONTENTS OF No. 3.

[We have been requested by several subscribers to give in each number of the *Agriculturist* a table of contents. As this will lessen the trouble of compiling a table at the end of the year, we willingly adopt the suggestion.]

AGRICULTURAL SOCIETIES.	
Birmingham	70
Delaware and Caradoc	70
Lithonia	71
Peterboro'	71
Anglo-Sax. Notice of	83
Agricultural Machines, Progress of in England	69
Bess-wax & Wooley out	89
Cows in calf. Treatment of	89
Division of public grants between County and Township Societies	95
Drainage. Mr. Charnock's remarks on	72
Education. Importance of to Farmers' daughters	71
Farmers' Club, York Township	65
Farming animals. Polio-sphy of	75
Farmers' Club, Hamilton	6
Glamorgan Cattle. History of	81
German Lignite. The	92
Gypsum. Properties of	81
Hints for the month of March	80
Hirefords. History of	50
Hope, Manure for	53
Living without Work	67
Manure. Discussion on	53
Notices, &c.—What share of the Government Grant to a County Society belongs to the Township Societies?—Laying out grounds, &c.—drawing	95
Peculiarities of 1854	66
Plough. The Lewis (cont)	67
Plough. The Lewis (cont)	82
Physical Services. General survey of	89
Railroad. To Western advantage of to the farmers	80
Ram. Monthly List of for 10 years at Toronto	93
Review of Magazines &c	93
Short-horns. Mr. Fergusson's	81
Sussex Cattle. History of	90
Sussex Plough. How to use	87
Sussex Flocks	77
Steam Cattle. Guess by	75
Steam among the farmers. (from Chambers's Journal)	76
The "Irony" Farmer	76
The Thriftless Farmer	76

SEWERAGE AND DRAIN-PIPE MACHINE.

MR. CHARNOCK begs to state that he will very shortly be prepared to exhibit one of his Machines in operation for Moulding Sewerage and Drainage Pipes of an description, as well as perforated Bricks &c., or to receive orders for the same.

His Machine has been thoroughly tested in England, and is allowed by an competent judges to be the best extant for the purpose.

Early applications are desirable.

Sets of Drainage Tools, of the most approved kind, supplied.

Hamilton, 15th February, 1854.

NOTICE.

DURHAM BULL CALVES.

THE Subscriber does not intend to rear any Bull Calves for sale this Season, unless to Order. Five thorough bred Cows, Duches or Bates blood, are now expected to Calve.

Intending Purchasers will, of course, be at liberty to select.

ADAM FERGUSSON.

Woodhill, Waterdown,
February, 1854.

HYDRAULIC AND AGRICULTURAL ENGINEERING.

MR JOHN HENRY CHARNOCK Hydraulic and Agricultural Engineer, (a Member of the Royal Agricultural Society of England, and author of its Prize Report on the Farming of the West Riding of Yorkshire, as well as other papers on Drainage &c., published in its Journal; and late an Assistant Commissioner under the English Drainage Acts,) begs to offer his Professional Services to the City and Town Authorities, and to the Agriculturists of Canada, and to solicit the honor of the patronage and support.

Having for several years past devoted special attention to that branch of Engineering which embraces more particularly works of Town Sewerage and Water supply, the Drainage, Ligation and general Improvement of Land; the planning and execution of Sewerage and Drain-pipe works, Farm Buildings and Machinery, together with the laying out of Farms and Ornamental Grounds. Mr Charnock ventures to think that such experience coupled with a practical knowledge of the approved systems and appliances of the day, will enable him to render valuable and efficient services to those who may favour him with their commands.

Mr. C. is furnished with testimonials from numerous parties of known standing and repute, which he will be happy to submit to those who may contemplate employing him. And all communications addressed to him, CITY OF HAMILTON, CANADA WILL have prompt attention.

JOHN H. CHARNOCK.

OFFICE, JAMES'S STREET, HAMILTON.—At Mr. Simms, Land Agent, close to the St. George's Hotel, Hamilton, 15th February, 1854.

THE CANADIAN AGRICULTURIST,

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TERMS.

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N. B.—No advertisements inserted except having an especial reference to agriculture. Others, however, that possess a general interest to agriculturists, will receive an Editorial Notice, a personal or written application.