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THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JANUARY 16, 1860. No. 2.

HINTS FOR THE SEASON.

Winter commenced with more than its wonted vigour, and with the short supply of hay afforded by last year's crop, there is too much reason to fear that the domesticated animals will, in consequence, suffer. Before the commencement of the rigorous weather many farmers had disposed of some of their stock, while others of a reflecting and prudential turn of mind would no doubt devise some means by which they might economise their scanty fodder, and thus render it in the largest degree practicably available for the sustenance of their herds and flocks.

With the risk of repeating ourselves on this subject, its pressing importance is such that we cannot forbear again referring to it. Much even now can be done by enlightened forethought and prudential arrangements. All kinds of stock, including horses and sheep, and even pigs, should as far as possible, *be kept dry and warm.* Most farmers have the means of doing this to a greater extent than is in general found to be the case. A little battening, or even old cast off pieces of clothing, will, in some situations, do a great deal in stopping crevices between the boards of stables and byres, thereby mitigating, if not wholly preventing, the baneful effects of cold draughts on animals. This should be among the farmer's first considerations. As to provender, it is not so much the amount, as the quality, and particularly the regularity and manner in which it is given that constitutes its economical value. For want of system and punctual attention, cattle with abundance of food sometimes do very badly. A litttle provender, especially if cut and mixed, when consisting of different substances, and, given with regularity three times a day, will keep stock in a more thriving condition than a much larger quantity given but once. And during a season like the present, especially, no farmer of any extent should be without a good straw cutter, and steaming apparatus, and if he could add a grain crusher it would be all the better. With these appliances, straw and haulm of all kinds, with roots, flax-seed, &c., can be so mixed and prepared as to render him, in a great degree, independent of hay. True it is, that such a system would require considerable labor and expense, and no less forethought and regular and persevering effort, in order to obtain the maximum advantages and success. The result, however, before the

summer comes round, will be apparent in the thriftiness and increased value of the stock. With clean bedding, warmth and shelter, pure water and regular feeding, with a small amount of prepared and mixed provender, punctually given two or three times a day, cattle will thrive and continue healthy through our longest and coldest winters. Nay, they will do much better under such a system of management than with a profuse supply of hay under the treatment they at present ordinarily receive. It should ever be borne in mind that when animals are exposed to filth, damp and cold, the greater portion of the food they consume, however good or abundant it may be, is absorbed in generating animal heat, without administering to the growth and fatness of the body. Hence the primary importance of warmth and shelter to all kinds of domestic animals.

When we speak of warmth and shelter, it must not be understood as excluding the external air, and thereby preventing ventilation, which is a condition second in importance to none, to animal health and comfort. Except in extremely cold weather stables and stalls for cattle should be kept perfectly airy so as to avoid always cold currents; and light and dryness, are likewise among the necessary conditions of health and comfort. A dark, damp stable for horses, is the most unfavorable condition in which that noble and useful animal can be placed. Colts and young stock generally, require strict attention and liberal feeding during winter. It is a fatal mistake, although often committed, to stint young stock in their food, or to give them provender of an inferior quality. By this means they will become stunted in growth, and no subsequent care and feeding, however liberal, can possibly compensate for such injuries. Young stock in particular should be kept well *from the first*. The care of sheep in such a climate as ours, demands the greatest care and attention during winter and early spring. Sheep must be yarded in cold weather; but no animal suffers more severely from too close confinement and want of fresh air. They must therefore, not be put too thickly into yards, be kept clean and dry, fed with well chopped hay, straw, and pea haulm, in conjunction with roots, and a little bruised oats and flaxseed, or oil cake, once a day. With such treatment sheep may be carried through our long winters, and increase both in carcase and fleece, and therefore in money value.

The good housewife will not fail to give special attention to her poultry at this season. By affording them warmth and shelter, and liberal feeding, a good supply of eggs may usually be obtained, and the birds sustained in a healthy and thriving condition. Warm food, with a small supply of minced flesh, and letting them have access to lime, sand and water, with perfect cleanliness, are the chief indispensables to success in the keeping of poultry.

Bees, too, require special attention; they should be protected against the intense cold by shelter and covering. Some remove them into dark cellars, or cover them over in the ground till the approach of spring, when, if they are deficient in honey, they must be artificially fed. Bee-keeping in situations favorable to these industrious little creatures, may be made with proper care and management, a profitable, though a subordinate part, of rural economy.

CHAFF CUTTERS.

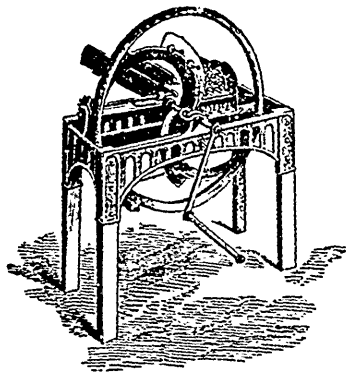
The name of these machines is a misnomer, as they are intended to cut straw or hay, and not chaff; hence the term straw-cutters would much better designate the purpose which they are intended to serve.

Chaff, or straw cutters, are now considered as an essential appendage to every farmery, where the improved and economical methods of feeding stock are recognised and practised. Their utility mainly depends upon other grounds than those which justify the use of grain crushers; the chief object of which is to bruise the corn, in order to facilitate mastication and digestion. The cut

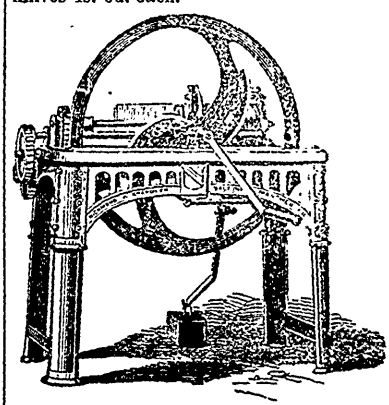
ting of hay or straw into short lengths does of course promote in some degree these objects, but the principal advantage of the chaff-cutter is that inferior food, such as different kinds of straw or haulm, can be cut with hay, thereby effecting a thorough mixture of different qualities, which the animal is obliged to consume as a whole, and thus prevents it from choosing and wasting its food. It is in effecting this mixture of different things, and the prevention of waste in the feeding of them to stock, that the economy of the chaff-cutter principally consists. With ruminating animals, such as cows, for instance, the cutting of hay or straw, so far as the power of mastication and digestion is concerned, is a matter comparatively unimportant. It is far different however with the horse, especially when that animal is driven hard, and has but little time for feeding or rest.

Mr. Finnie, in a discussion before the Highland Society of Scotland, a few years since, argued for the use of the chaff cutter, when hay or straw is given as food, on the following grounds:—1st, because the horse will thus be induced to consume a much larger proportion within the 24 hours; 2nd, because you will afford him some hours of additional rest, during that time, to recruit his exhausted system, as, comparatively speaking, he almost requires no time to fill himself; and 3rd, which is not the least important consideration, the more fodder he eats, the better will be his condition; for it is certain that any stranger going through a stud of farm horses, will have no difficulty in pointing out those which are the best consumers of fodder.

These machines are more or less in use in every section of this Province, and some cheap and tolerably efficient implements are made in various places. We have noticed of late years, at the Provincial Exhibitions, that these, as well as other important agricultural implements, have undergone very marked improvements. We now invite the attention of our readers to the following illustrations of RICHMOND & CHANDLER'S Chaff Cutters; a firm, which, it would not perhaps, be too much to say, stands unrivalled for machinery of this description. Their machines are constructed entirely of iron, and fitted with toothed rollers. Careful attention has been given to the feed rollers, and the rising of the mouthpiece, so as effectually to avoid the inconvenience of choking.



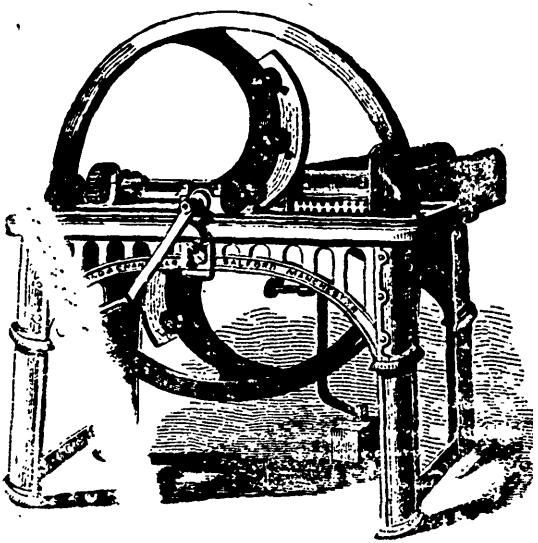
The above cut represents a machine with two knives, simple in construction, neat in appearance, expeditious in operation, portable and effective for its purpose, and produces a clean and neat cut. It can readily be fed and turned by one man, and cuts easily 20 bushels an hour. Price £4 10s. Extra knives 4s. 6d. each.



The above cut represents a larger machine. Price £7.

The constru[c]tion of Richmond and Chandler's Machines [o]ffers many important advantages, as the r[o]llers have hooked teeth (in place of the o[r]dinary form of grooved cylinders), which uniformly bring forward the feed with certainty, and are not liable to the inconvenience of choking, while they admit of any variation in the speed to suit the power employed, and by means of toothed wheels a change can be readily made to cut any required length.

In recommending these machines, it is unnecessary to explain the many and great advantages to be derived from their use, particularly in connection with the Steaming Apparatus. In public stables the saving they effect is most important! "Indeed so vivid are the results of feeding with cut fodder (whether as regards economy or the improved condition of animals so fed), that no stable should be without a machine suited to its extent, even where there is but one horse kept."



The superior style of workmanship in this new class of Chaff-cutters is particularly manifest in the improved bearings, fitted with brass journals and loose caps, which can quickly be adjusted as the journals wear in their bearings, or when renewal is required.

Our third engraving represents a still larger machine, adapted to hand or power. It is 11 inches wide in the mouth, rising from 1½ to 5 inches. Price £10, complete. Pully for power 9s. Knives 4s. 6d. each. Change wheels, to vary the length of cut, 6s. per pair extra.

This machine has registered improvements similar to the last mentioned, fitted with the well-known self-feed safety tooth roller, the form of which has been improved and reconstructed, so that the feeding is thereby facilitated, and even occasional slippage and choking are prevented. The machine is made entirely of iron, firmly bolted and stayed together, standing steadily, and working with comparative ease. Its bearings are of brass, and the working parts are fitted with the greatest precision.

In feeding the machine with hay or straw be particular in keeping the feed an equal and regular thickness, and it will be found to cut more, and easier, than when it is overfed, and entirely prevent the machine from being strained or broken. It is of the greatest importance that the machinery should be kept perfectly clean, and the best sperm oil used wherever there is any friction. Attention to this matter will promote both its durability and efficiency.

The chaff cutters have frequently carried the first prizes at the three National Shows of the British Islands, and their superiority, whether in design, the quality of material, or the finish of the workmanship, are universally acknowledged. Messrs. Richmond & Chandler's manufactory is in Manchester England, and they export a large number of their different implements and machines to foreign countries, and the British Colonies.

STOCK IMPORTATIONS.

We learn with pleasure that Mr. Stone, of Guelph, so well known as an enterprising and successful importer and breeder, has imported from England in the month of December last, a lot of twenty pure Cotswold Sheep. They are considered by many to be the best lot, upon the whole, of any of his previous importations. Although at Mr. Stone's sale in September last, the times appeared anything but encouraging as regarded the importation of stock, yet in October and November he had a good demand, and determined upon an importation to increase his flock and introduce fresh blood—so that farmers, if they wish it, will be able to supply themselves next year with valuable stock, without any great risk or expense. Should Mr. Stone receive a reasonable amount of support during the present year to justify it, he has resolved upon further importations; and he is determined to place his herds and flocks, as regards purity of blood, symmetry, quality and constitution, in the highest rank in Canada, and second to none in America. We heartily wish Mr. Stone every success in his praiseworthy and patriotic enterprise.

COUNTY AGRICULTURAL SOCIETIES.

The Annual Meetings of County Agricultural Societies, under the Act 20 Vic., cap. 32, must be held during the third week in January, which will be, of course, from the 15th to 21st instant inclusive. The nomination of members of the Board of Agriculture to supply the place of those retiring by rotation takes place at these meetings. The members whose term of election expires this year, are Messrs. E. W. Thomson, Toronto; R. L. Denison, Toronto; H. Ruttan, Cobourg; Hon. Geo. Alexander, Woodstock. Their retirement, however, does not render them ineligible for re-election. It is at these meetings also that the Reports of proceedings for the past year must be brought up and adopted. The attention of officers and directors of societies is requested to an advertisement which appears in another column on this subject.

PRIZES FOR SUBSCRIPTIONS.—We do not wish our friends to lose sight of the point that all subscriptions to the *Agriculturist* cease with the end of the year, and the paper for the new year is not sent to any one till ordered, except a few copies to officials, &c. We therefore request attention again to the terms of subscription for the current year. It may require a very large list to obtain one of the largest money prizes or bonuses, or a comparatively small one may suffice; we cannot tell at present; but each person sending subscriptions, will be on the safe side, and will promote the spread of agricultural intelligence in his section, by sending as full a list as possible.

Correspondence.

AGRICULTURE, HORTICULTURE, AND THE CLERGY.

DEAR SIR,—And so you have found one who doubts the propriety of the clergy giving attention to such things as farming and gardening. Please stand aside, Mr. Editor, and let me deal with your adversary. You sir, who say, that to such things we should be debarred from giving any consideration, you demand a sufficient reason for our doing so. Such sufficient reason is close at hand. Here is one:—The great Dr. Johnson once said—and were you questioning him would doubtlesss again say, "Sir, I once knew an excellent country clergyman, bring up a family of twelve admirable daughters upon apple-dumplings." There, sir, is not that good authority?—is not that good reason enough? No. Then remember, I pray you, that the *garden* has been the scene of the most wondrous events which the annals of earth—and probably those of heaven—have ever recorded. Was it not in a garden the first man drew his first breath?—Was it not there that the fairest earthly gift god ever gave to man, came into his possession? Was it not upon herb, and flower, and fruit that man's eyes first rested when they opened upon a new-born world? Were not these the first to greet his welcome and offer for his refreshment the soft shade of

the one, the charming fragrance of the second, and the reviving juices of the third? Was it not in a garden in which that fearful deed was done, which ensured to all his descendants a soil so impregnated with seeds of thistle, and brier, and all manner of weeds, that the cultivation thereof has become a sad and constant toil? Or, descending the stream of time, was it not in a garden that the Redeemer of mankind passed through that supernatural struggle, and suffered those agonies which the Greek litany so wisely words in saying, "By thine unknown sorrows, known indeed distinctly with thee, but not known by us." Was it not in a garden that the new tomb, wherein never man lay, was found and in which his sacred body had its brief sojourn? The Clergy not to care about the garden, sir, we neither can nor dare be indifferent to it.—We would not that the hour should ever dawn when, to our minds, the garden should cease to be a deeply interesting and instructive scene and study. Yes, but you say that is not what you mean. You mean that it is not necessary for us to be well informed in Horticultural matters, in the nature, structure and habits of trees, fruits and flowers. Indeed you sadly misjudge; without such knowledge we could throw but a feeble light upon many a difficult passage in the word of God. Let me give you an instance. Take the 13th verse of the 11th chapter of St. Mark, which reads as follows: "And seeing a fig tree afar off having leaves, he came if haply he might find anything thereon, and when he came to it he found nothing but leaves: *for the time of figs was not yet.*" What is the impression, the first feeling that arises in the mind upon reading this passage? Is it not at least a feeling of pain? What, a tree to be condemned for not having fruit, when it is expressly said, that "the time," or season, "of figs was not yet," when we know that as this happened in March or April, the general season for gathering figs could not have arrived. Who would go into the orchard and look for apples in the early cold Spring time, and condemn the trees for not then having fruit upon their boughs. Could the perfect Saviour of the world do this? There must surely be some explanation which will remove so painful a misgiving.—There is, but it is only found in the knowledge of the habits of the fig tree. Possessing such knowledge we can inform you that it is the habit of the tree to put forth fruit before clothing itself with foliage, that although the fig may not be fully ripe it is eatable—eatable while yet very green.—That the very circumstance of the fig tree having leaves, begets the expectation of finding fruit thereon, and that disappointment would be certainly and properly felt by any who failed to find it. Not only so, there were, if we are correctly informed, some kinds of fig trees which always, in all seasons, bore fruits in that mild climate—both green and ripe fruits. Such trees were always in foliage, one would therefore be warranted to look for fruit from such. Thus, when he says, seeing a fig tree having leaves, and approaching it found none, he was justly grieved and disappointed. It is out of place here to remark upon the figurative teaching of the incident recorded. Again, without some acquaintance with horticulture we should not have been able to point out the beautiful accuracy of scripture in all its allusions to nature in our New Year's Day sermon, upon the parable of "The Barren Fig Tree." In all the advantages described as being enjoyed by this tree—and they were many—advantages of position, of soil, of protection and of care. Nothing is said about pruning. And why? Because, unlike almost every other tree, it is a standing maxim in fig culture, "*the more you prune* the less the crop." But when we are compared to the branches of the vine, in addition to their necessary connection with the stem, and the constant flowing of the sap, pruning is specially mentioned, (see St. John, 15 chapter, verse 2). And why? Because pruning is necessary to promote the fertility of the vine. "The old wood of the vine is not only of no use," says a good author, "but is a positive injury to the fertility of the plant." Now, who can be so dull as not to see what light and beauty a familiarity with horticulture, sheds upon passages such as these, and how it draws our notice to those slight coincidences of scripture with nature, which does so much to strengthen our conviction of its divine origin. But the objector now says, he does not so much blame our having a knowledge of trees and shrubs, of flowers and fruits, but what ought we to have to do with *Agriculture?* I answer much every way. Most of us have many little mouths to fill, and little feet to shoe, and little backs to clothe, and this cannot be done without means; although the people in general seem to be of opinion that they can. And until they change their opinion and have some little conscience about the matter,—for now they have none, for while they do not for a moment expect a physician or a lawyer to attend them unremunerated, they do look for the necessary attentions of the clergy, "without money and without price" literally—and until this injustiee and cruel wrong

cease, a farm or a school, to by far the larger number, becomes a necessity. But let us look higher, and for the same reasons we urged in favor of horticulture, we insist upon the advantage of a familiarity with agriculture, both ancient and modern,—that is, of throwing a light upon the passages which otherwise would be dark, if not unmeaning. Here is one, Deut. 11 chapter, 10 verse: "For the land whither thou goest in to possess it, is not as the land of Egypt, from whence you came out, where thou sowedst thy seed and *wateredst it with thy foot.*" How was this done? It is evident that the venerable lawgiver is referring to some practice in Egypt, of watering with the foot, unknown to us. He is comparing the processes of irrigation in the two countries, and shows that the land to which the Israelites were journeying should not be watered by human labor, but with the rain from heaven, as Egypt was and was not. The annual inundation of the Nile was made available by the Egyptians for the purposes of irrigation. From cisterns filled by the inundation, the water is drawn into channels cut in the ground, which convey it into those places where it is wanted, and when one part of the ground is sufficiently watered, that channel is closed by pressing the earth against it *with the foot*, in the same way was the channel often opened. Thus was Egypt *a land watered by the foot*, while Palestine was a land of hills and valleys, and drinketh water of the rain of heaven. There is no need of further illustration. If there were, a slight acquaintance with the bible would show, that it is very proper and profitable for the clergy to have a good knowledge of farming and gardening. What little acquaintance I have with these subjects I find of great utility. And as for the garden, I have yet to learn what can approach it in the purity and healthful recreation it affords, or surpass its products when obtained fresh from its borders, and not hours and days after being gathered, and when they have passed through various hands, brought from the market. The garden has further claims upon us, if it be true that in its employments none but a good man will really delight. Yet this is said: it is undeniably the case that these employments grow upon one as he grows in age; and when a man will often turn with disgust from the pleasures outside the garden, he sought in youth and early manhood, those within have an attraction he finds it impossible to resist. Nor need he try; for few sights are more pleasing than to see an old man busy with his shrubs, and flowers, and trees, pruning here and training there as each of his old friends may seem to need. In conclusion let me add, that to no one who has or would have the great blessing of a sound mind in a sound body, no matter what his profession or condition in life, ought the garden to be an object of indifference. To all it is able to impart the highest and purest delights—delights which leave in the mind no subsequent regrets, but of these we hope hereafter to have something to add, more than, coming at the tail end of an article already too long, we could possibly say.

Yours, CLERICUS.

P. J.—I must detain you here a moment to remark, that you will observe that I have not stated, what must be obvious to every reflecting man, that it is a clergyman's business, so far as he can, to promote the well-being of man generally, as well as the safety of his immortal spirit particularly. He cannot, therefore, be indifferent to material, closely connected as they often are with the moral, interests of the people. Yet there are who assume that he has not a deep stake in the welfare of all, in any degree commensurate with that of others; as if when one becomes ordained he ceases to be a man, as if he were sapped of all those warm affections which men are commonly supposed to possess. As if an old bachelor, because he is a layman, can be more concerned for the general good than a man who has six or a dozen sons and daughters, for whose future well being he is gravely anxious, and whose prosperity must be bound up in that of all. And as if the greater the purity and the elevation of a man's affections, the less disinterested he will grow, and the more indifferent to the happiness of those around him. It is simply absurd. But I must stop.

[We are obliged to our clerical friend for this and other contributions, one of which appears in this impression. In our next we propose inserting another article on the subject embraced by our correspondent's communition from one of our American exchanges, with some remarks of our own. It is a matter that will amply repay careful consideration.—ED.]

WINTER BARLEY.

OTTAWA, 6th Oct., 1859.

To the Editor of the Agriculturist.

DEAR SIR,—This note will accompany a few sample ears of a new variety of Barley,

five-rowed, cultivated by Charles Chapman, Esq., of this city, who is a cultivator of much experience, which he regards as being of much value. A fuller description of the grain will be found in a slip cut from the Ottawa *Citizen* of the 17th of September last.

He will also enclose you a plant, in order to show the characteristic of this variety. It was sown on the 9th August last, and Mr. Chapman assures me that his experience justifies him in saying that it is not too early to stand the winter frost.

In sending you a specimen, he desires to trouble you to notice it, and thus introduce it to the attention of your readers.

Very truly yours,

JOHN G. BELL,

Sec. Carleton Co. Agricultural Society.

A NEW SPECIES OF BARLEY.

Our attention has for a long period been particularly drawn to a plant that has for several years been experimented on by Mr. Chapman, of this city. We are now in a position to describe its properties, and our opinion of the probable results attending its culture. It is, we believe, perfectly unique, viz: a Fall Barley. It possesses, in an eminent degree, the most valuable characteristics, some of which are extraordinary productiveness, hardiness, earliness, and a perfect immunity from all insects and other pests to which our cereals are exposed. Another, and not an inconsiderable advantage is, the small quantity of seed necessary to sow the land, compared with other grains. But, probably, the greatest of all is its power to save the wheat crop from the fly. With this peculiar merit, that the experiment can be made with the certainty of a great and remunerative crop, with an equally certain market for any quantity that can be grown, and without any interference with the existing arrangements of the farm. It appears to be an indisputably established fact, thrt the wheat fly commits its ravages essentially in the locality where it is bred, and does not emigrate far to deposit its larvæ. In fact, if wheat over a moderately extensive area, was for one season superseded by another crop obnoxious to the fly, it would be in that locality extirpated. This barley will effectually bring about this result, for after seven years' critical examination of it, not one single ear has ever been attacked by fly, smut, rust, or any of the evils to which other cereals are subject. We need not dilate upon the importance of the subject, for the vast amount of wheat destroyed by this pest is but too well known, and there can be no doubt it is one of the great questions of the day, not only with the practical farmer, but with the theoretical man of science, to discover some means to arrest the evil. We believe if the growth of this plant be extensively adopted, it will go far to bring about this great desideratum, with the positive certainty that the experiment can be made not only without individual loss, but, on the contrary, from the marvellous productiveness of this barley, a certainty of great gain; in proof of which we have now before us a sample of it, containing stalks with an average of 70 grains each, and as many as 80 stalks from one grain of seed, all of them fully developed, and really a beautiful specimen of grain. It is fully as hardy as fall wheat, for in no seven years of the history of this country has there been a more severe trial for fall grain than during the last, and it has never failed. The manner in which it stools or spreads laterally on the land is extraordinary. It is sown in drills, from 10 to 12 inches apart, and the grains from 2 to 3 inches in the rows, which is amply sufficient, for within these few days we have visited Mr. Chapman, and the land first sown this fall is already perfectly covered. Other lands, sown at different periods, are developing themselves in an equally remarkable manner; so that by the end of this month every inch of land will be covered, and that by the produce of less than one gallon of seed to the acre. However marvellous this may appear, it is strictly and literally true, any doubt of which would be effectually removed from the mind of any person who should see it growing. We understand Mr. Chapman proposes to send a specimen of it to the Agricultural Show at Kingston, where we claim for it the attention and careful inspection of all who are interested in the cultivation of land; and have no doubt many will avail themselves of the opportunity of seeing, in its present state of growth, what we consider one of the most remarkable, as well as one of the most useful plants ever introduced into this country. Mr. Chapman, we may state, will be happy to show it in all its stages of growth; for having sown it at different periods, he will be enabled to show, by actual inspection, the best time of sowing, as well as that it may tell its own story as to its productiveness, and general quality.

[We are obliged to our correspondent for specimens of the straw and grain of the Barley above referred to. Mr. Chapman is de-

serving of the thanks of the Agricultural community for his pains and perseverance. Judging from the appearance of the specimens sent, and from the little information we have been able to obtain from other quarters, we are of opinion that this variety of Barley is deserving of repeated and extensive trials throughout the Province. The best time for sowing Winter Barley is said to be from the middle of Septemeer to the end of October. On well prepared land two bushels of seed per acre is sufficient, and it will generally ripen a week earlier than Fall Wheat. Those that have tried it in the States speak of it as a hardy and highly productive variety; and but little subject to disease or the attacks of insects. From forty to sixty bushels per acre have been grown under favorable circumstances. Of its feeding and malting properties we have not as yet received any very positive information. No doubt but the attention of our farmers will be drawn to it from the preceding communication.—Ed.]

Agricultural Intelligence.

THE WIREWORM.

[We take the following from an interesting little work published by Constable & Co., Edinburgh. As the wireworm often commits ravages on the crops in Canada, especially in land that has been down in pasture for many years; these papers, from the perspicuity of their style, and the facts they contain, will be read, with both pleasure and profit, by a large number of our subscribers.—Eds.]

THE BEETLE.

The parent of the wireworm is an active, abstemious beetle, which may be seen running up the stalks of grass and wheat, and flying lightly about. When it first appears it is of a pale colour, soft and tender. Exposed to the air and light, its body hardens, and its colour gradually changes and assumes the tints of the species to which it belongs. There are many species of wireworm beetles of various colours, some black, some brown, some parti-coloured. Like all true insects, they have six legs, two wings, and two covers over them, called wing-cases. They have two immovable eyes, called compound eyes, because they have a multitude of small planes or facets. As the eyes are projecting, and the facets are numerous, they are able to see in all directions, though each facet sees only a limited portion of the view. They have also two antennæ or feelers at the front of the head, which are frequently called horns. They are believed to be either the organs of smell, or hearing, or touch, and by some understood to be the organs of all three.

These beetles, like other insects, are male and female. They are active and run with their noses close to the ground like dogs; and they have the peculiar power, when laid on their backs, of throwing themselves up, and turning head over heels like a tumbler. For this reason they have received the English name of skip-jacks or spring-beetles; and from the noise which the apparatus makes, which enables them to leap, they are also called snap or click-beetles. They thus recover their natural position when they fall upon their backs, their legs not being long enough to enable them to do so. This apparatus consists of a tooth or spine projecting backwards from the breast, and received into a corresponding hollow at the anterior part of the belly, into which the spine is drawn as the animal wishes, but cannot be pushed out without an effort. If it desire to leap (which it can do only when lying on its back), it presses down both its head and tail, and pushes out the breast, the spine in the hollow resisting the pressure, until at last it is jerked out suddenly and violently, the recoil making the insect bound into the air several inches.

In the perfect state, insects usually eat but little. It is only in the grub or caterpiller state that the wireworm does injury, by gnawing the roots of plants; when it has become a beetle, it no longer feeds on them, but confines itself to the juices of flowers. It therefore does no harm in this state, and is only to be dreaded for the eggs it will lay, which are destined, in due time, to produce voracious and destructive grubs.

It is not known with certainty whether the eggs are laid at one or two seasons of the year. Two broods of many insects (more especially of butterflies and moths) appear in the same year—one in Spring and another in Autumn; but the same individual insect does not lay two broods of eggs, for the female of all insects dies as soon as she has deposited her eggs.

When, therefore, there are two broods of insect in one year, the second brood is the

offspring of the first, which has attained its maturity during the summer, and has laid its eggs in its turn. It is in May and June that the eggs are chiefly laid. The number laid by each insect is considerable.

THE EGG.

The insect passes through several changes. Its first appearance is in the form of an egg,* when it is merely a small, roundish, yellowish-white object not so big as a small pin's head. No one has yet found out where the eggs are laid; and we only know their appearance by dissecting the mother, and taking the eggs out of her body. We can guess very well where she lays them, but that is all—we do not yet *know it*. Insects usually lay their eggs where the young ones will most readily find their food; for instance, the bluebottle fly lays its eggs on meat, because its grub feeds on that substance—the dung beetles lay their eggs in dung—the common white butterfly, whose grub feeds on the cabbage, lays its eggs on the leaves of that plant, and so on. We may infer, therefore, that the wireworm beetle does not lay its eggs far from the roots on which the young wireworm grub is to feed—and most probably it lays them between the enveloping leaves or sheaths of a plant near the base of the stalk, but no one has yet seen them do so, and it cannot therefore be held as ascertained, because no fact ought to be taken for granted. It is not, however, for want of watching, that we do not know where the insect lays its eggs; many people have taken pains to find this out, but as yet without success. Others may be more fortunate; and the following plan, which was tried by Mr. Curtis, shows how such observations may be conducted. About the end of May be collected as many of the beetles as he could find, and then put them into a garden-pot in which some young wheat was thriving, and then tied some gauze over it to prevent their making their escape. He found this precaution scarcely necessary, for they remained a very short time on the surface of the mould before they began to dig into it, and soon buried themselves completely. From their thus seeking the roots of the wheat, he was led to believe that they there deposited their eggs; consequently, on the 14th of June he emptied his garden pot, and found two of the beetles dead at the roots of the wheat, but he was not able to detect either eggs or recently hatched wireworms.

(*To be Continued.*)

*The eggs of many insects have the shell ornamented with beautiful sculpture, but there is nothing of this in the egg of the wireworm beetle.

THE EARLY ENGLISH AGRICUTURAL WRITERS.

[Many of our readers will doubtless feel interested in the following sketches of the early history and literature of British Agriculture, from the prolific pen of CUTHBERT W. JOHNSON, Esq., F. R. S., copied from the *Mark Lane Express*. They will find in these remarks of by-gone times not a little that is suggestive, and much that will prove amusing.—EDS.]

That the early inhabitants of our island practised agriculture is well known. That the districts bordering on the English Channel were better cultivated than those of the interior of the island, we learn on the authority of Cæsar. After his expedition to England, B. C. 55, he described the Cantii, or inhabitants of Kent, and the Belgæ, inhabiting our counties of Hants, Wilts, and Somerset, as the most advanced of our island tribes in the habits of civilized life. They cultivated the soil, employed marl as a manure, stored their corn unthrashed, and separated it from the chaff and bran, only as their daily demands required. The interior inhabitants lived chiefly upon milk and flesh, being fed and clothed by the produce of their herds. "The country" adds Cæsar, "is well peopled, and abounds in buildings resembling those of the Gauls, and they have a great abundance of cattle. They are not allowed to eat either the hen, the goose, or the hare; yet they take pleasure in breeding them." Cicero in one of his letters remarks, "There is not a scruple of money in the island; nor any hopes of booty but in slaves,"—a description that the industry and intelligence of succeeding years have rendered singularly inapplicable.

Such are the earliest yet meagre allusions to the farming of our island, in our possession. There is no doubt but our ancestors had more agricultural knowledge than we are always willing to believe. And that this skill in the art of tillage did not diminish in succeeding Saxon and Norman days, is equally certain. To the very earliest existing notices of the farming of Saxon times I do not, however, propose now to direct the reader's attention. My intention is to commence these retrospective glances, with some of those writings or official notices which appeared from the ninth or tenth centuries, to about the year 1852—the year when old Fitzherbert published his work on the English farming of those days.

The conciseness and spirit with which

these early English writers addressed their contemporaries is well worthy of our notice. They had evidently little faith in the effect of long arguments or half measures. Their works could only be known in manuscript. Printing was, in the days to which I refer, either unknown or merely rudely commenced. Our earliest authors therefore imitated, almost of necessity, the terseness of our early lawgivers, who practised brevity to admiration. Now it is in the statute books of England, Wales, and the sister-kingdoms, that we find some of the earliest notices of the agriculture of our islands. And it is not only an amusing but an instructive enquiry to trace in these laws the primitive notions of our ancestors with regard to husbandry—how bravely former English senates endeavored to teach farming by acts of parliament; tried to keep not only the prices of food below its market value, but of laborers' wages also; how they earnestly strove to protect his growing corn from vermin, from trespasses of all kinds, excepting game, and how they even endeavored to teach the men of those times what they should eat, what clothes they should wear, and in what rural sports they should indulge.

Their very limited knowledge of the true principles of political philosophy, indeed, more recent senates have not always exceeded, and modern parliaments have rarely equalled in their laws even the vigor of those of the Houses of Plantagenet and Tudor.

The reader when he is following me through some of these early legislative writings, must remember that in those days the population of England was in all probability not much larger than that of London now. That the country was undrained, ill cultivated, and that only the richest portions of the land were enclosed, commons and forests occupying the remainder. Of the produce of that portion under the plough, every notice which has escaped to us betrays the poverty. For instance in 1387, on the manor farm of Hawstead in Suffolk, 66 acres of wheat produced 69 quarters of grain, 26 acres of barley yielded 52 quarters 2 bushels of seed. And about the same period the manor farm of Dorking, in Surrey, produced from 30½ acres of barley. 41 quarters 4 bushels of grain, 28 acres of oats only 38 quarters 4 bushels.

The writers whose works I propose to hereafter notice, are Greathead or Grosteead and Fitzherbert. But previous to this it will be well to take heed of the laws which before and during their time were made to regulate the proceedings of the farmer.

The value of his corn early attracted the attention of our parliaments. In a statute supposed to have been made in 1266, the 51st of Henry III., the municipal authorities of towns were thus directed: "First they shall enquire the price of wheat, that is to wit, how a quarter of the best wheat was sold the last market day, and how the second wheat, and how a quarter of barley and oats."

In 1360, by the 34th Edward III. c. 20, the exportation of corn was prohibited. It was 33 years after that time, that in 1398, by 17 Richard II., c. 7, all the king's subjects were allowed to export corn to any but the king's enemies. This act was not repealed till the year 1603.

In 1436, 15 Henry VI., wheat was allowed to be exported when it was 6s. 8d. per quarter at the place of shipment, and the preamble of the act indicates that the produce of wheat had increased beyond the demands of the population, since it says when alluding to the restrictions on the exportation of corn, "For cause whereof, farmers and other men *which use manurenent of their land,* may not sell their corn, but of a bare price, to the great damage of all the realm."

It is evident from this statute that only some of the most enterprising farmers, then manured their corn land. Still they did not so increase the produce of grain as to render their country quite independent of foreign corn; for only a quarter of a century afterwards, we find the first symptom of protecting duties.

In 1463, by the 3rd of Edward IV., c. 2, it was declared that "the labourers and occupiers of husbandrie, within the realme of England, be dayly grievously endamaged by bringing of corn out of other lands and parts, into this realme of England, when corn of the growth of this realme is at a low price." It then proceeds to enact that corn shall not, under pain of forfeiture, be imported into England, until wheat exceeds in price 6s. 8d. per quarter, rye 4s. and barley 3s.

Our old British ancestors long before this time had, however, absolutely prohibited the exportation of corn.

By the old laws of Wales, made certainly not later than the tenth century (*Ancient Laws and Institutes,* p. 655,) it was ordered that "three things are not to be conveyed to a foreign country, without the permission of the country and the lord—gold, books, and wheat. And three things that an aillt (alien) is not to sell without the permission of his proprietory lord, lest he should want to buy them of him—wheat,

money, and horses. And where his lord shall not buy them of him, he is at liberty to sell them wherever he willeth, so that he do not sell them to a foreign country."

In 1533, the act of 25 Henry VIII., c. 2. for a time put an end to the exportation of English corn, and absurdly enough gave the lords of the council the power to declare by proclamation the prices at which farmers and others should be compelled to sell their commodities; although, as the preamble of the act much more wisely allows, "dearth, scarcity, good cheap, and plenty of cheese, butters, capons, &c., and other victuals, happeneth, riseth, and chanceth, of so many and divers occasions, that it is very hard and difficult to put any certain prices to any such things."

Long before the resolute days of stout old Harry the VIII., the legislature had been at work heartily endeavouring to reduce the price of provisions below their market value, for in 1266, by the 51 Henry III, it was ordained (and this statute was not repealed until the 8th of Ann c. 18) that "when a quarter of wheat is sold for 11d. then wastel bread of a farthing shall weigh 6lbs. and 16 pennyweights, (a penny-weight round and without any defacing, was to weigh 32 wheat corns in the midst of the ear, and 22 pennies do make one ounce, 12 ounces a lb."). And by the same statute it is provided that "when a quarter of wheat is sold for 3s. or 3s. 4d, and a quarter of barley for 1s. 8d. or 2s., and a quarter of oats for 1s. 4d., then brewers in cities ought, and may well afford to sell two gallons of beer or ale for a penny, and out of cities three gallons for a penny."

The parliament of those times were evidently in earnest in their endeavours to keep the bakers and brewers in order, for during the same year (1266) was passed the "statute of the pillory and trumbrel," which also continued in force till the time of Queen Anne. This, like all our early statutes, eschewed all unnecessary verbiage.—The stout barons of that year thus commenced their act: "If a baker or brewer be convict because he has not observed the assize of bread and ale, the first, second, and third time he shall be amerced according to the offence, if it be not over-grievous; but if the offence be grievous and often, and will not be corrected, then he shall suffer punishment of the body, that is, to wit, a baker to the pillory, the brewer to the tumbrel or some other correction."

We may suspect by this marked distinction between the punishment of the bakers and the brewers, that even then brewers were held to be in a large and more dignified way than the bakers, since they were to be allowed the privilege of riding in a tumbrel.

A certain degree of humanity was displayed by the legislature even in punishing rascally bakers, for by another statute made about this time (Ruffhead. vol. i. p. 186), it was provided that a baker should only be amerced "if his bread be found lacking one farthing in two-and sixpence:" but if his short weight exceeded this, he was to be placed in the pillory. And further, it was humanely provided that "every pillory, or stretch neck, must be made of convenient strength, so that execution may be done upon offenders without peril to their bodies." The unprincipled butcher by another statute (*ibid p.* 187.) was subjected to the same punishment, "who selleth swine's flesh measled, or flesh dead of the murrain."

To be continued.

Reducing Bones to Powder.—Prof. E. W. Johnson, of the Yale Analytical Laboratory, has given the following method of reducing bones to powder, first communicated to the public by Mr. Pusey, an English agricultural chemist:

The process depends upon the fact that bones consist, to the amount of ⅓ of their weight, of cartilage, or animal matter, which under the influence of warmth and moisture, readily decomposes,(ferments or decays) and loses its texture, so that the bones fall to dust.

From the closeness and solidity of the bony structure, decay is excited and maintained with some difficulty. A single bone or a heap of bones, never decays alone, but dries and hardens on exposure. If, however, bones in quantity be brought into close contact with some easily fermentable substance, but little time elapses before a rapid decay sets in.

So too, if fresh crushed bones are mixed with sand, soil, or any powdery matter that fills up the spaces between the fragments of the bone, and makes the heap compact, and then are moistened with pure water, the same results take place in warm weather, though more slowly.

The practical process may be as follows: The bones, if whole, should be broken up as far as convenient by a sledge-hammer, and made into alternate layers with sand, loam, saw-dust, leached ashes, coal ashes, or swamp muck, using just enough of any one of these materials to fill compactly the cavities among the bones, but hardly more. Begi

with a thick layer of earth or muck, and as the pile is raised, pour on stale urine or dung heap liquor enough to moisten the whole mass thoroughly, and finally cover a foot thick with soil or muck.

In warm weather the decomposition goes on at once, and in from two to six or more weeks the bones will have entirely or nearly disappeared.

If the fermentation should spend itself without reducing the bones sufficiently, the heap may be overhauled and built up again, moistening with liquid manure and covering as before.

By thrusting a pole or bar into the heap, the progress of decomposition may be traced from the heat and odor evolved.

Should the heap become heated to the surface, so that ammonia escapes, as may be judged by the smell, it may be covered still more thickly with earth or muck.

The larger the heap the finer the bones, and the more stale urine or dung-liquor they have been made to absorb, the more rapid and complete will be the disintegration.

In these heaps horse dung or other manure may replace the ashes, etc., but earth or muck should be used to cover the heap.

This bone compost contains the phosphates of lime in a finely divided state, and the nitrogen of the cartilage, which has mostly passed into ammonia or nitrates, is retained perfectly by the absorbing earth or muck.

When carefully prepared this manure is adapted to be delivered from a drill-machine with seeds, and, according to English farmers, fully replaces in nearly every case the supherphosphate made by help of oil-of-vitriol.

Horticultural.

TROUBLES IN THE FRUIT GARDEN.

NO. 1.

DEAR SIR,—In conversing with you lately upon the subject of fruit-growing, I received the impression that you were rather disposed to despond respecting our great success. I cannot share this feeling with you. Admitting that very great discouragements meet the Horticulturist in his delightful line, it is to admit no more than what is true respecting every human employment. You say it is thought that these discouragements are heavier now than they have been at any former period. This may or may not be the case. It may be that the multiplied facilities of learning the failures experienced which we have now, to what formerly existed, may have much to do with this opinion. Or perhaps fruit trees are subject to epidemics at different periods as well as the race of animals or that of man, and however threatening they may at present be, (and threatening they truly are) they will pass away and leave us a long period of successful and therefore delightful culture, ere they return. It must further be remembered that marked failures in fruit growing arise from want of knowledge respecting the proper methods, from carelessness and inattention and choice of unsuitable sites for the fruit garden and the orchard. You are fully aware that persons oftentimes commence planting without due consideration of the nature and qualities of the soil. This was so in my own case. In my first attempt to grow fruit I went at it full of hope and energy and determination to succeed, without considering the adaptabilitity of the soil to the sorts of fruit I wished to produce, and of course without knowing that this was a very important and even essential consideration. A part of my grounds was light and sandy and flat, a part rather heavy. The subsoil of the former was of the same nature to the depth of four feet; of the latter at the depth of twenty inches a rich clay marl. Upon the former I tried to raise Gooseberries and Dwarf Pears, and failed. Upon the latter I succeeded. Even grapes were subject to mildew upon the light soil, not excepting the Clinton and the Isabella. Had I known at the commencement of my efforts what I know now, I should have carted the marl on to the sand, and so have made a most excellent soil. I did this afterward to some extent, and was much pleased with the result. Suppose, however, I had attributed my former failures to the difficulty of growing fruit; suppose I had hastily concluded that there was no escaping the blight upon the pear, and the mildew upon the gooseberry and the grape, it would have been wrong. Yet many do this. Many stimulated by books upon the subject, enter fiercely upon the work of planting, and are disappointed; perhaps even resolve to have nothing more to do with it as a very impracticable undertaking. But this is all a mistake. My own experience convinces me that with proper knowledge, and suitable care and diligence, success in fruit-growing is about as sure as in any undertaking under the sun. Then as to the fact of persons failing who have some knowledge, and are very careful and diligent, it will be found, I think, that they have overlooked some point of importance in their case, some speciality in their

neighborhood detrimental to fruit-growing. Many things have to be considered, and if people are too negligent to give them sufficient attention, ought they to be surprised at an unprofitable result accruing.

I do not now enter upon the subject of the varieties of fruit and their different modes of culture, reserving these for future communications, I wish to confine myself to general considerations. First—that of soil. You will agree with me that its nature and condition ought to receive the first attention. All acknowledge that it should be rich and well drained, but I will add, as above suggested, it must to ensure the desired advantage be suitable to the kinds of fruit we desire. For instance, I have now about the sixth of an acre. The soil is a very heavy clay, almost destitute, as I find from experiment, of lime. Well, this soil I know to be admirably suited to the Dwarf Pear, the Plum, and the Gooseberry, with the simple addition of lime. But grapes are my favourite, my hobby—and these I must and will raise, although the difficulties resulting from the nature of the soil are many and great. But under-draining and trenching 20 inches deep, and the application of lime and sand will much lessen them. Yet I would not face these difficulties if I had a choice of ground, and no one should do so who has. Nor should any one do so, without being prepared for and almost expecting much disappointment.

Secondly—The peculiar influences arising from the atmosphere or exposure, or the neighborhood of streams, or large bodies of water. These influences are in some instances very detrimental, in others beneficial. Those instances you mentioned are in point. Gardens situated on the Niagara River, in which the trees blossom early, and then receive a severe check from the great coldness of the air, produced by large masses of ice floating down from the upper lakes, must yield fruit very precariously—while those upon the lake shore would not only escape this, but would be free also from late spring and early autumn frosts. Those who would be very successful should weigh these things well, and if they refuse, ought not to complain of subsequent miscarriages.

Then thirdly—To know the right modes of pruning and training is essential. I recently visited the cold grapery of a gentleman in which the want of this knowledge is very apparent. The grapery is about three years old, and already there are in some vines four or five feet of naked canes. These canes will every season be lengthened until, by and bye, there will be nothing but these stems, and consequently no fruit. Even now it does not produce a third of what it ought. Still it is very possible that the gentleman may be disgusted with his failure, and with fruit growing altogether. But ought he to be? Why should people expect to succeed in Horticultural pursuits while ignorant of the proper method. No one does so in any other business. But ignorance here is no more a safeguard against loss than elsewhere. Because here and there you find a tree bearing bountifully seemingly by chance, without knowledge and without care of the owner, it is presumed that trees ought always so to do. Vain presumption. It is time for people to lay aside this idea, and to understand that to grow fruit on a large scale, year by year, knowledge and care and forethought and diligence are essential. To grow a few pears or a few grapes for one's own use is ordinarely indeed an easy task, but that is a very different thing from having a fine and profitable fruit garden. The latter I repeat cannot be had without pains, labor and expense, with these I know no more certain or delightful employment in which we can engage.

Yours,

CLERICUS.

THE APPLE CROP OF ANNAPOLIS, N. S.—A correspondent of the *Maine Farmer* gives the subjoined statistics of the apple crop of this fine county. The figures are suggestive, and it will be well for other not less favorably situated localities in Nova Scotia to go and do likewise:—

"While our Maine farmers are deploring the failure of their fruit, our Nova Scotia neighbors can now supply them with a quantity of nicer apples than we often raise. I am informed that 60,000 barrels of apples were shipped from Annapolis county in 1852. This season the crop is said to be very light by those accustomed to large crops. I will here give the condition of one orchard which I recently visited in Bridgetown. The enterprising proprietor, Wm. Miller, kindly introduced me to the orchard, and furnished the following statistics of his crop. From 200 trees he sold 600 barrels of apples in 1854, at $2,00 per barrel; in 1857, 240 bbls. at $3,00; in 1858, 420 bbls. at $2,00; this year estimated crop 200 bbls. just sold at $2.25. In the spring of 1853, he received a quantity of scions from "Vassalboro' Nursery," Maine, and engrafted them on old trees, which are now bending, and the branches even splitting

under the weight of apples. One, for instance, which was then one foot in diameter, was grafted with Baldwins, and is now loaded with six barrels at least of nice apples, which, with previous crops, will amount to sixteen barrels, sold at from $2 to $3 per barrel. I noticed trees in other orchards, and by the roadside, which were propped up to support the load of apples, while some branches which had been neglected had split down."

Miscellaneous.

THE PROCESS OF SUGAR MAKING.—The cane is cut from the fields by companies of men and women working together, who use an instrument called a machete, which is something between a sword and a cleaver. Two blows with this slash off the long leaves, and a third blow cuts off the stalks near to the ground. At this, work the laborers move like reapers, in even lines, at stated distances. Before them is a field or dense, high-waving cane, and behind them strewn wrecks of stalks and leaves. Near, and in charge of the party, stands a driver, or more grandiloquently, a contra-mayoral with the short, limber plantation whip, the badge of his office, under his arm. Ox carts pass over the field and are loaded with the cane, which they carry to the mill.—The oxen are worked in the Spanish fashion, the yoke being strapped upon the head close to the horns, instead of being hung round the neck, as with us, and are guided by goads and by a rope attached to a ring through the nostrils. At the mill the cane is tipped from the carts into large piles by the side of the platform. From these piles it is placed carefully, by hand, lengthwise, in a long trough. This trough is made of slats, and moved by the power of the endless chain connected with the engine. In this trough it is carried between heavy, horizontal, cylindrical rollers, where it is crushed, the juice falling into receivers below, and the crushed cane passing off and falling into a pile on the other side. This crushed cane (bagazo) falling from between the rollers, is gathered into baskets by men and women, who carry it on their heads into the fields, and spread it for drying. There it is watched and tended as carefully as new-mown grass at haymaking, and raked into cocks or winrows on an alarm of rain. When dry, it is placed under sheds for protection against wet. From the sheds and from the fields, it is loaded into carts and drawn to the furnace doors, into which it is thrown by negroes, who crowd it in by the armful, and rake it about with long poles. Here it feeds the perpetual fires by which the steam is made, the machinery moved, and the cane-juice boiled. The care of the bagazo is an important part of the system; for if that becomes wet, and fails, the fires must stop, or resort be had to wood, which is scarce and expensive. Thus, on one side of the rollers is the ceaseless current of fresh, full, juicy cane stalks, just cut from the open field; and on the other side is the crushed, mangled, juiceless mass, drifting out at the draught, and fit only to be cast into the oven and burned. This is the way of the world as it is the course of art.—The cane is made to destroy itself. The ruined and corrupted furnish the fuel and fan the flame that lures on and draws in and crushes the fresh and wholesome; and the operation seems about as mechanical and unceasing in the one case as in the other. From the rollers, the juice falls below into a large receiver, from which it flows into great open vats, called defecators. These defecators are heated by the exhaust steam of the engine, led through them in pipes. All the steam condensed forms water, which is returned warm into the boiler of the engine. In the defecators, as their name denotes, the scum of the juice is purged off, so far as the heat alone will do it. From the last defecator the juice is passed through a trough into the first caldron. Of the caldrons there is a series, or, as they call it, a train, through which all the juice must go. Each caldron is a large, deep, copper vat, heated very hot, in which the juice seethes and boils. At each stand a strong negro, with long, heavy skimmer in hand, stirring the juice and skimming off the surface.—This scum is collected and given to the hogs, or thrown upon the muck heap, and is said to be very fructifying. The juice is ladled from one caldron to the next, as fast as the office of each is finished. From the last caldron, where its complete crystalization is effected, it is transferred to coolers, which are large shallow pans. When fully cooled, it looks like brown sugar and molasses mixed. It is then shovelled from the coolers into hogsheads. These hogsheads have holes bored in their bottoms, and, to facilitate the drainage, strips of cane are placed in the hogsheads, with their ends in these holes, and the hogshead is filled. The hogsheads are set on open frames, under which are copper receivers, on an inclined plane, to catch and carry off the drippings from the hogsheads. These drippings are the molasses which is collected and put into tight casks. I believe I have given the entire process. When it is remembered

that all this, in every stage, is going on at once, within the limits of the mill, it may well be supposed to present a busy scene. The smell of juice and of sugar vapour, in all its stages, is intense. The negroes fatten on it. The clank of the engine, the steady grind of the machines, and the high, wild cry of the negroes at the caldron to the stokers at the furnace doors, as they chant out their directions, or wants—now for more fire, and now to scatter the fire—which must be heard above the din, "A-a-b'la! A-a-b'la!" "E-e-cha candela!" "Puerta!" and the barbaric African chant and chorus of the gang at work filling the cane troughs; all these make the first visit at the sugar house a strange experience. But after one or two visits, the monotony is as tiresome as the first view is exciting. There is, literally, no change in the work. There are the same noises of the machines, the same cries from negroes at the same spot, the same intensely sweet smell, the same state of the work in all its stages, at whatever hour you visit it, whether in the morning or evening, at midnight or at the dawn of day. If you wake up at night, you hear the "A-a-b'la! A-a-b'la!" "E-e-cha! E-e-cha! of the caldronmen, crying to the stokers, and the high monotonous chant of the gangs filling the wagons or the trough, a short, improvisated stave, and then the chorus; not a tune, like the song of the sailors at the tackles and falls, but a barbaric, tuneless intonation.—*To Cuba and back: a Vacation Voyage.*

Preserving Eggs.—The most simple and successful method of preserving eggs for fall and winter use, is to employ a pint of lime and a pint of salt, mixed with a bucket of water, and after packing the eggs in a jar or keg, with the small end downwards, in successive layers, then carefully turn in the mixture until the eggs are covered. In our travels in Kentucky we stopped at a place where probably the largest number of fowls are kept in the State, and we were shown some small chickens that were hatched from eggs that were packed in August (1858) and preserved according to the above directions. Six of the eggs thus preserved were marked and placed under a hen, together with eight fresh laid ones. Every egg but one hatched, which was one of the marked ones. The fact was so remarkable, it led to doubts in the minds of some of the family, whether there must not have been some mistake in the matter, when the female who had the chickens in charge, and who has raised the present season about one thousand, repeated the trial, taking eight eggs from the same keg near the lower tier, and placed them under a hen with no other eggs; in due time five of these eggs hatched out strong and healthy chickens; a sixth egg was thrown out of the nest and was broken, when it was discovered that it contained a live chick. Thus it will be seen that eggs by this method cannot only be preserved from eight to nine months perfectly fresh, but that the living principle can be retained and the eggs hatched.—These eggs were put into a keg or half-barrel and headed up so as to be nearly or quite air tight, and then placed in a cool cellar, where they remained all winter.—The fresh, natural appearance of the eggs, when broken to be cooked, led to the idea of testing their vitality by an effort to hatch them.—*Valley Farmer.*

The Colonial Lumber Trade.—The lumber business of New Brunswick is reported to be just now in a very satisfactory condition. The high rates at which deals have ruled in Great Britain during the present year have caused the lumbermen to make arrangments to enter more extensively than usual into lumbering the ensuing season. The prospects for remunerating prices in the British market for the coming year are considered to be good. Although the arrivals of wood cargoes at Liverpool this season have been larger than the last, the consumption has been greater, and prices have rather an upward tendency. The stock of deals on hand in New Brunswick is said to be smaller now than for any period during the past ten or twelve years, and little more remains to go forward until the new supply comes to market. There is every probability therefore, that prices will rule higher in the Spring, provided the present demand continues. But it may be added that lumbering is at best but an uncertain and precarious business. The shipbuilding operations of the Province are pronounced to be in a stagnant state, occasioned doubtlessly to a very great extent by the sweeping change made a few years since in the Navigation Laws of the British Empire. It is hardly to be hoped that any change will be brought about in the carrying Trade of the Mother Country, so far as retaliating upon non reciprocating nations is concerned, for many years to come, when, as the British shipowners in a body will have it, the Shipping interests of the Empire will have been brought to the very verge of ruin.—*Halifax Herald.*

Green Old Age.—A Manchester paper thinks Lord Brougham's mind and body bid equal defiance to the torpid advances of great age. He is verging on eighty, a

yet his physical and mental vigor show no signs of decay. The last three or four years have brought about quite a change in his autumnal amusements. Formerly he left England soon after Parliament broke up, for France, when we first heard of his appearing at the Institute of Paris, under the ægis of Arago, and then hobnobbing with the occupant of the Tuilleries, whether Louis Philippe or Louis Napoleon; and finally he was announced as departing for a country seat he had at Cannes, in the South of France. He was there when Rachel died, and it is known he was very attentive and kind to her in her fatal illness. Since then he seems to have renounced France and the French, and to have dedicated his learned leisure to the edification of provincial audiences, which yield him splendid return of journalistic renown.

NORWEGIAN MOSQUITOES.—I believe there is no preventative against their bite, which is instantaneous; they dash through the smoke of strong tobacco like a fox-hound through a bulfinch; they creep under veil or gloves like a ferret into a rabbit hole. Where they can neither dash nor creep they "bide their time" with the pertinacious cunning of a Red Indian. Wherever the clothes touch the body closely, at the knees and elbows, they swarm in thousands, and bite through and through; they creep in single file up the seams of gloves, and try each stich in succession. I have seen J.'s coat and hat so covered as he walked in front, that I could at any time kill the shape of my hand in mosquitoes at a blow; and I have seen the unhappy horses so overlaid from ears to tail with a clustering mass of wings, that, with the point of my finger, I could not but immolate two or three of the blood-thirsty little demons. There is one puzzling question I cannot solve with satisfaction: What do they live on when they don't meet travellers?—*Letter from Norway.*

A MERCHANT SHIP RUN INTO BY A WHALE.—Captain Baker, of the ship *Herald of the Morning*, of Boston, states that on his late passage from Calloa, when off Cape Horn, his ship had the misfortune to be run into by a large whale. The whale struck the vessel forward, staving off about seven feet of the stem as far as the wood ends, and carrying away both bobstays. The damage done was so great as to cause the ship to leak very badly. The captain was obliged to throw overboard about seventy tons of the cargo to keep the ship from sinking and both pumps constantly going. The ship finally reached Hampton Roads on the 4th inst.—*Boston Journal.*

Editorial Notices, &c.

"THE SCIENTIFIC AMERICAN."—This is one of our most valued exchanges. We learn that Hon. Judge Mason, of Iowa, who made himself so popular with the inventors of the country, while he held the office of Commissioner of Patents, has associated himself with Mann & Co., at the *Scientific American* office, New York.

NOTE TO READERS OF THE AGRICULTURIST.—Subscribers are recommended to stich the sheet through the centre before cutting the leaves, and the pages of the Transactions can afterwards be set apart for separate binding; or, if preferable, the leaves of the Transactions may be separated before stitching the Journal.

Market Intelligence.

TORONTO MARKETS.

Thursday, Jan. 12, 1860.

The market to-day was better supplied with produce, and although not large, a fair amount of business was done.

WHEAT—To the extent of about 400 bushels was sold at from $1 18 to $1 25 per bushel, the greater part having been bought at between the outside figure and $1 21 per bushel. The market was quiet and steady.

SPRING WHEAT—In good request at $1 00 a $1 05.

BARLEY comes out slowly, and is bought up by the local brewers, with some choice lots reserved for seed. The price is steady at 60c a 65c.

RYE—Dull and nominal, 70c a 75c.

OATS—Scarce and dearer, 40c having been paid for one load.

PEAS—Were in large supply at 56c a 60c.

PORK—Steady, with an active demand at $5 00 a $6 00 for common to extra hogs, with one or two very prime lots at $6 25.

FLOUR—Was rather easier in view of the slight decline of Wednesday in New York, which was again recovered yesterday. No. 1, superfine, $4 55 a $4 60; No. 2, superfine, $4 15 a $4 30; fancy, nominal, $4 85 a $4 90; extra, nominal, $4 25 a 0 00; double extra, $4 50 a 0 00.

HAY has been in only moderate supply from farmers, but large amounts of imported offering prevents the market from improving. The range on Tuesday was from $16 to $23 per ton, the average price being be-

tween $18 and $20. Straw in fair supply at $9@$10 per ton.

POTATOES are freely offered, and are not very firm at rates ranging from 30@35c. per bushel.

BUTTER.—Fresh or roll butter is not freely brought in, but there is some excellent tub butter offering, which goes into consumption, and prices are steady at 18@20c. per lb. For tub butter, of good quality, there is a brisk demand at 15@16c. per lb, and some lots have brought 17c. by the lot.

CHEESE.—There is only a moderate local inquiry at 10@12c. per lb for prime American.

EGGS are in fair supply at 15@16c. per dozen in small retail lots.

POULTRY.—Turkeys are not in demand at 50@75c. Chickens 25@30c.

MONTREAL MARKETS.

MONTREAL, Jan. 12.

FLOUR—Unchanged; small sales of No. 1 superfine at $5 20@5 30; fancy $5 50, and single extra at $5 90@6 00. Receipts fair.

Nothing doing in grain of importance. Small sales Canada spring Wheat at $1 20.

PORK—Better; $17 50 offered for mess, and $18 asked.

ASHES—Dearer and active; $5 60 for Pearls; $5 65@5 70 for Pots.

NEW YORK MARKES.

NEW YORK, Jan. 12.

FLOUR.—5c a 10c better. Sales 500 or 600 bbls at $5 20 for superfine State; $5 30 a $5 35 for extra State; $5 15 a $5 25 for superfine Western; $5 30 a $5 40 for common to medium extra Western; $5 35 a $5 80 for inferior to good extra shipping brands round hoop Ohio. Canadian flour unchanged; sales 200 bbls at $5 60 a 6 60. Rye flour steady at $3 70 a $4 40. Receipts of flour, 282 bbls.

GRAIN.—Wheat is firm with rather more enquiry; sales 5,000 bushels fair Milwaukee club at $1 24. Rye quiet at 92c. Barley nominal. Corn 1c a 2c better; sales 8,000 bushels at 84c a 90c for new yellow. Oats plenty, and dull at 45c a 46½ for Canadian, Western and State.

PROVISIONS.—Pork very quiet; sales $16 12 a $16 25 for mess, and $11 65 for prime. Beef unchanged. Lard quiet; sales 50 bbls at 10¼c a 10⅜c. Butter in far request at 12 a 17c for Ohio, dnd 15c a 24c for State.

BUFFALO MARKETS.

BUFFALO, Jan. 11.

WHEAT.—A fair inquiry for Spring, and holders firm at $1 08 for No. 2, white winter held at $1 35.

CORN steady; sales 3,700 bushels new at 70c. Other grains nominal.

PROVISIONS—Small sales; Pork—Heavy. Mess reported at $16. Lard quiet at 10¼c. Dressed hogs quiet; sales, 50 Canadian, averaging 256 lbs. at $6 25.

TALLOW steady; sales 60 barrels at 10¼c.

PRIZES FOR REPORTS.

With the view of inducing the officers of Agricultural Societies to collect and embody in their annual reports more information of a character which will be valuable and interesting to the public at large, and to persons residing in other countries, than has heretofore been the case, and to draw up the reports in a more generally correct and painstaking style than the majority of those

heretofore received, the Board of Agriculture offers the following premiums:—

For the best County Agricultural Society Report, adopted at the Annual Meeting, and transmitted to this office before or on the 1st April next, a prize of	$30 00
For the second best do	20 00
For the third best do	15 00
For the fourth best do	10 00
For the best Township Society Report adopted at the Annual Meeting, and forwarded as above along with the report of the County Society	20 00
For the second best do	15 00
For the third best do	10 00
For the fourth best do	5 00

By reference to the 42nd and 47th clauses of the Act, which was given in full in the April number of the Journal and Transactions, 1858, it will be seen that each report should consist of four distinct parts:—

1. The names of all the members of the Society, with the amount paid by each set opposite his name.

2. The names of all persons to whom premiums were awarded, with the amount of premium, and the animal or article for which it was given.

3. Such remarks and suggestions upon the Agriculture and Horticulture of the county or township, and arts and manufactures therein, as the directors shall be enabled to offer.

4. A detailed statement of the receipts and disbursements of the Society during the year. (If this is voluminous, a condensed statement or balance sheet ought to be added, showing the amount of receipts and expenditure under the several principal headings.)

It is in part three of the report, as above detailed, that improvement is mainly desirable. The majority of the reports have heretofore been sent in, without any attention being paid to this requirement of the Act at all. The remarks ought to be of such a character as to give the reader a correct idea, so far as possible, of the actual condition and progress of Agriculture, Horticulture, &c., in the County or Township, with the profits and advantages offered by those pursuits.—And in order to do this clearly, the report ought not to embody vague generalities, so much as specific statements of facts. For instance, the generally prevailing character of soil may be stated, the average value per acre, the current rate of wages for laborers and mechanics, or any other information of a similar character. If the crops have been injured, by any insect or other cause of blight, state the amount of damage done, and whether greater or less than other years. State the amount of improvement taking place in the different breeds of cattle, sheep, &c., and what breeds are believed to be best adapted to the locality. Give the details, with the cost and results, of experiments in breeding and feeding cattle for sale, or sheep farming. If any farmer has commenced the thorough draining of his land, the cultivating root crops extensively, or any other ameliorating improvement, state the fact and the results, and the supposed amount of such improvements taking place in the County or Township. State any improvements that may be taking place in the introduction of agricultural implements, the progress making in the cultivation of fruit trees, or horticultural operations, and the success attending it. If there is any particular improvement necessary in farm management, or for the proper development of the capabilities of the soil, let it be stated. The leading features of the annual exhibition, as a display of agricultural and mechanical products, and as showing the progress of improvements by the residents in the county or township, may also be briefly referred to.—In short, the report should be such a concise and faithful sketch, supported by such brief details and statistics as would enable the reader at a distance to estimate the general progress and capabilities of the county or township correctly.

It is not neccessary that the portion of the reports here referred to should be very long. For a County, from ten to twenty, and for a Township, from six to twelve pages of ordinary writing on foolscap paper would afford abundant space. It is not desired, however, to restrict the reports in any way. The reports, or so much of them as may be considered suitable, will be published in the Transactions, and the names of the successful competitors will be immediately announced after the prizes have been adjudged. The amount of prize will be forwarded, unless in the case of instructions to the contrary, to the Secretary or other officer of the Society, from whom the report shall have been received. It is hoped that these reports will furnish a large amount of interesting and useful information for publication in their Transactions.

Should there not be considered to be sufficient time, after receiving this notice, to get up the information, the report might be adopted *pro forma* and afterwards amended, with the consent of the Directors. It is highly desirable, however, that the reports should be forwarded to the Board of Agriculture, if possible, some time prior to the 1st of April, the date fixed by law.

HUGH C. THOMSON,
Sec. Board of Agriculture.

Toronto, Dec. 15, 1859.]

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists, accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of	$20
To the person who shall send in the next largest list	19
To the person who shall send in the next largest list	18
To the person who shall send in the next largest list	17
To the person who shall send in the next largest list	16
To the person who shall send in the next largest list	15
To the person who shall send in the next largest list	14
To the person who shall send in the next largest list	13
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To the person who shall send in the next largest list	7
To the person who shall send in the next largest list	6
To the person who shall send in the next largest list	5
To the person who shall send in the next largest list	4
To the person who shall send in the next largest list	3
To the person who shall send in the next largest list	2
To the person who shall send in the next largest list	1

"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

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